STATE AGRICULTURE PLAN

For

Rashtriya Krishi Vikas Yojana

Eleventh Five Year Plan Period

(Year 2007-08 to 2011 -12)

Submitted to:

Government of India

Ministry of Agriculture

New Delhi

Submitted by

Government of Madhya Pradesh

Department of Farme's Welfare & Agriculture Development, Bhopal

PREFACE

With a view to achieve a minimum of four per cent growth in agriculture, the Government of India launched the National Agricultural Development Programme/ Rashtriya Krishi Vikas Yojana (NADP / RKVY) during 2007-08. Under this project, the Governemnt of India has planned to incentivise the State Governments to push up agricultural production and development of allied sector. One important mandatory of the NADP/ RKVY is to identify the Technical Support Institutes (TSI) and under its guidance the Comprehensive District Agriculture Plans (CDAPs) and State Agriculture Plan (SAP) are to be prepared. In this context, five highly reputed professional experienced organizations have been selected by the Government of M.P., adopting transparent selection procedures. Accordingly Comprehensive District Agriculture Plans (CDAPs) for all 48districts with the exception of the two districts, namely Dhar, Dewas districts have been prepared with the help of concerned district administration and submitted to Government of M.P. Further, by consolidating the CDAPs, the State Agriculture Plan (SAP) has been prepared.

The State Agriculture Plan (SAP) is brought out by integrating all the 50 District Agriculture Plans. In total, there are seven chapters. The Introduction chapter highlights the present scenario of agriculture development and focuses its attention on the need for four percent growth in agriculture. The methodology followed has also been briefly outlined.

Chapter II takes stock of the present available resource-base in the State, asseses its potentials for growth in the years to come. Chapter III analysis the strengths, weakness, opportunities and the challenges faced

by the State, from development perspective. Chapter IV is devoted to vision building of the M.P. State as vision 2020. The development issues, on-going projects/ schemes, crop development constraints and the interventions recommended for development of crop-husbandry are outlined in Chapter IV, while the issues, constraints, on-going schemes and interventions needed for allied sectors have been covered in Chapter VI.

Chapter VII presents sector-Wise Plan in project mode with action plans and budget outlays required during the 11th Five year plan period.

We are highly indebted to the Agricultural Production Commissioner, Government of M.P. for the continued support and encouragement extended by her. It is whole-heartedly acknowledged with sincere thanks. The overwhelming guidance of Principal Secretary FW & AD is also worth mentioning. The co-operation extended by the Heads of all related line-departments in the State is also acknowledged with thanks.

Without the continued support and encouragement extended by the Government of India, the SAP might not have been prepared in the holistic Ibrm and hence we place on record our sincere thanks to Government of India.

Finally, we will be failing in our duty, if we do not acknowledge the massive workoutput turned out by the consultant organization GRAMIN VIKAS TRUST.

Bhopal, Dated : 15.02.2010

Dr. D.N. Sharma
Director;
Farmer's Welfare & Agriculture Development

CHAPTER – I

INTRODUCTION & METHODOLOGY

1. INTRODUCTION: A land blessed in all terms; be it topography, natural beauty, population, religion culture or language India is home to twenty eight states and seven union territories. The twenty eight states and the seven union territories are all unique in their own way. Having an extraordinary history and culture all the states and union territories in India never fail to charm its visitors with their unfolding mysteries and charisma.

1.1 Madhya Pradesh: Landlocked in the central part of the country, Madhya Pradesh is bordered by the states of Rajasthan to the northwest, Uttar Pradesh to the north, Chhattisgarh to the east, Maharashtra to the south, and Gujarat to the west. Madhya Pradesh had the honour of being the largest state of the country until Chhattisgarh was carved out of it on 1st November 2000. The state has a mixed topography that consists of both hills and plains. The state has three predominant seasons: winter (November through February), summer (March through May), and the monsoon season (June through September). During the winter average temperatures range from 10° to 27° C (50° to 81° F). Summers are hot, with an average temperature of 29° C (85° F) and a high temperature that at times reaches 48° C (118° F). During the monsoon season temperatures average 19° to 30° C (66° to 86°). Madhya Pradesh receives an average annual rainfall of about 1200 mm (nearly 50 in), of which 90 percent falls during the monsoon season. The capital of the state is Bhopal. The largest city and the commercial capital of the state is Indore. Below is a table representing important facts about Madhya Pradesh

Figure 1 (a) : Madhya Pradesh Location Map

Table 1 (a) : Facts on Madhya Pradesh

Facts on Madhya Pradesh

Date of Formation	Nov 1, 1956
Size	3,08,000 sq km
Population	60,348,023
Capital	Bhopal
Rivers	Narmada, Tapti, Betwa, Son, Chambal
Forests & National Park	Bandhavgarh NP, Kanha NP, Pench NP, Indrawati Tigar Reserve, Kheoni WS
Languages	Hindi
Neighbours State	Maharashtra, Gujarat, Rajasthan, Uttar Pradesh, Chhattisgarh
State Animal	Swamp Deer
State Bird	Paradise Fly-catcher

Figure 1 (b) : Madhya Pradesh Physical Map

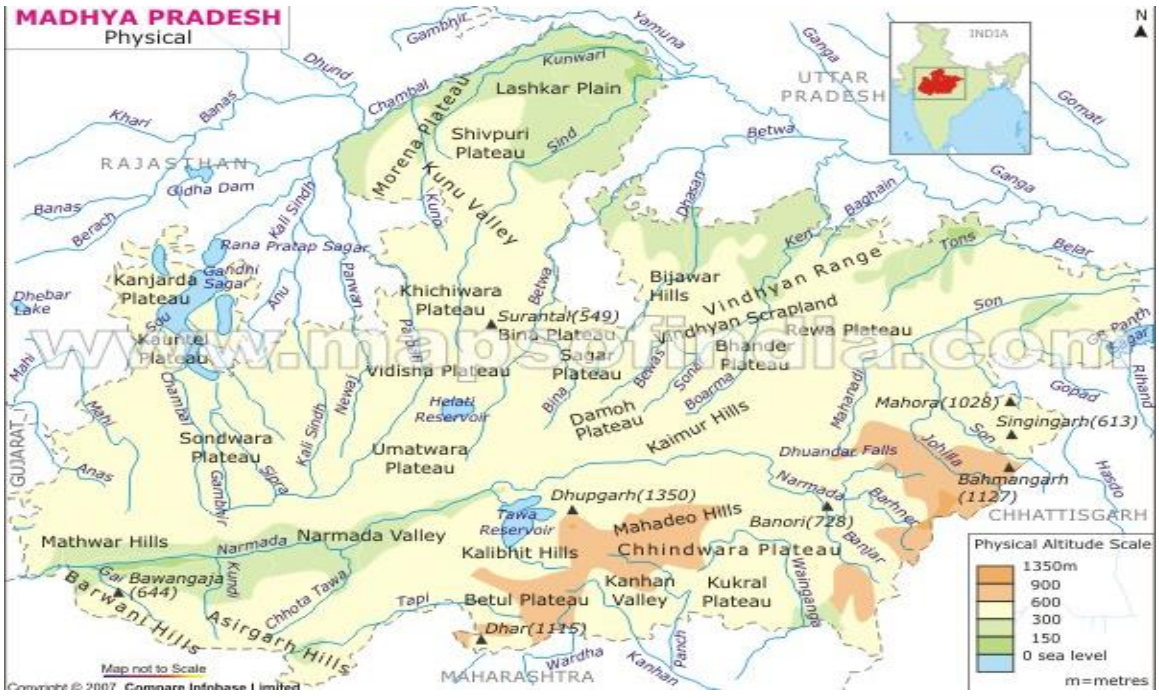


Table 1 (b) :State Profile of Madhya Pradesh

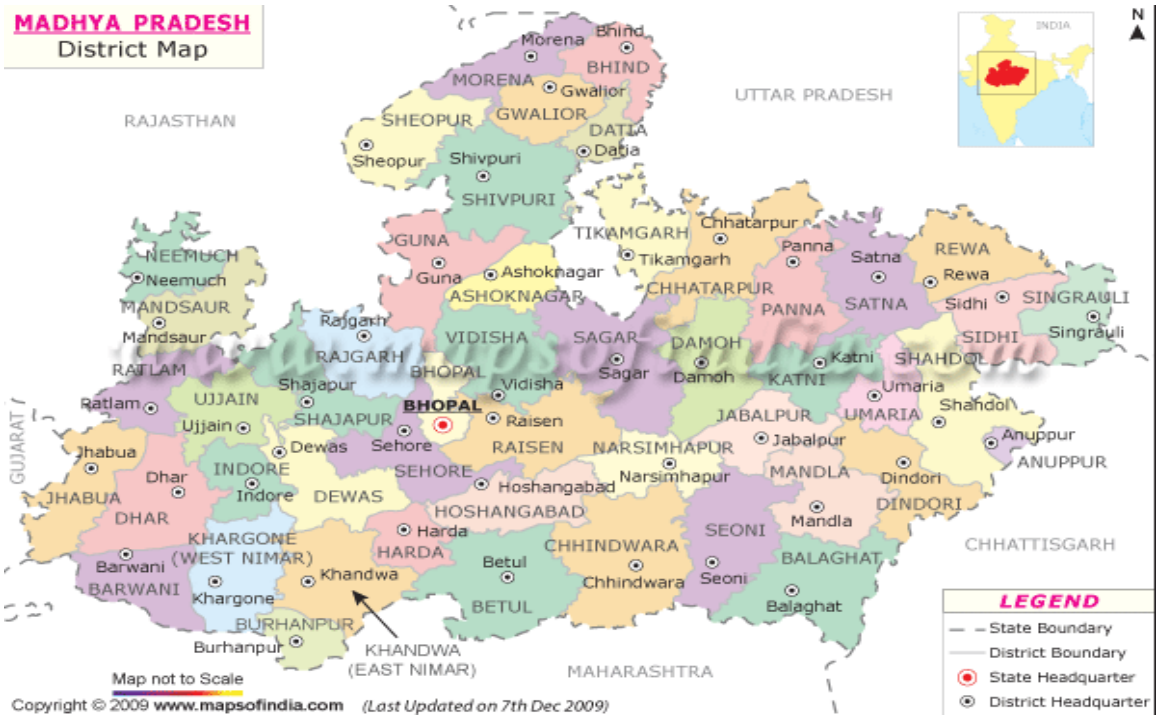
POPULATION (2001 census)	60348023
MALES	31443652
FEMALES	28904371
GENDER RATIO (females/1000 males)	920
DENSITY OF POPULATION (Persons/ Square Km)	196
URBAN POPULATION %	26.67
LITERACY RATE (census 2001) in %	63.7
MALE LITERACY in %	76.1
MALE LITERATE in numbers	19672274
FEMALE LITERACY in %	50.3
FEMALE LITERATE in numbers	11920289
BIRTH RATE (PER 1000) (2002)P	30.3
DEATH RATE (PER 1000)	9.7

There are fifty districts in Madhya Pradesh, these are clubbed under ten divisions which are Bhopal, Jabalpur, Indore, Chambal, Gwalior, Rewa, Sagar, Ujjain, Shahdol and Narmadapuram. The division wise districts are indicated in the table below:

Table 1 (c) :Division wise Districts in Madhya Pradesh

S. No.	Name of Division	No of Districts	Name of Districts
1.	Bhopal,	09	Bhopal, Sehore, Raisen, Rajgarh, Vidisha
2.	Narmadapuram		Betul, Hoshangabad, Chhindwara, Harda
3.	Indore	08	Indore, Jhabua, Alirajpur, Khargone, Badwani, Khandwa, Burhanpur, Dhar
4.	Ujjain	06	Dewas, Ratlam, Shajapur, Mandsaur, Neemuch, Ujjain
5.	Gwalior	08	Gwalior, Shivpuri, Guna, Ashok Nagar, Datia
6.	Chambal		Bhind, Morena, Sheopur
7.	Sagar	05	Sagar, Damoh, Panna, Chhatarpur, Tikamgarh
8.	Jabalpur	06	Jabalpur, Katni, Narsinghpur, Seoni, Mandla, Balaghat
9.	Rewa	08	Rewa, Sidhi, Singraouli, Satna, Umariya, Dindori, Shahdol, Anuppur
10.	Shahdol		

Fig. 1 (c) Madhya Pradesh District Map



Madhya Pradesh is home to about 40 percent of India's tribal population. There are three distinct tribal groups in the state. The largest chunk is formed by the Gonds, who once ruled a major part of the state and after whom Gondwana, the central portion of the state is known. Western Madhya Pradesh is inhabited by the Bhils, a colourful group of warriors and huntsmen. Eastern Madhya Pradesh is dominated by the Oraons, most of whom have now turned Christians. Hindi is the most widely spoken language though Marathi is also widespread. Urdu, Oriya, Gujarati and Punjabi are spoken by sizeable numbers. The Bhils speak Bhili and the Gonds Gondi and a major chunk of the population also speak Hindi. The Gonds, Bhils and Banjaras have several vibrant tribal dances like Phag (a sword dance), Lota (dance by women full of water on their heads), and other stilt dances. Textiles are important but Madhya Pradesh also has a strong traditional

village handicraft industry. Handloom Chanderi and Maheshwar silks are especially sought after.

The tribal population produces attractive handicrafts. Among the temples known throughout the world for their erotic art are those at Khajuraho in the Chhatarpur district in the north of the state; dating from AD 1000, they were built by the Chandela kings. The temples at Gwalior and in its vicinity should also be mentioned. The palaces and mosque at Mandu (near Dhar), the majestic Bandhogarh fort built in the 14th century, and the Gwalior fort--perhaps the most impressive of the residences of the former princes of Madhya Pradesh-represent other notable architectural achievements. The state has several well-known annual cultural events, such as Kalidas Samaroh (for performing and fine arts) in Ujjain, Tansen Samaroh (music) in Gwalior, and a dance festival in Khajuraho, where artists from all over India participate. In Bhopal there is a unique multifaceted cultural complex, the Bharat Bhavan, which functions as a meeting ground for artists from various fields. Located along the Bhopal Lake, this sprawling complex houses a museum, a library, an open-air theatre, and a number of conference halls. The state has important yearly religious melas (gatherings) in Mandasor and Ujjain, as well as religious festivals like Dashhara.

Population of Madhya Pradesh The population of the state is 6,03,48,023 in the last held census of 2001. At that point of time, Madhya Pradesh was considered to be the seventh most populated state of India. Though Madhya Pradesh used to be a sparsely populated state considering the huge area that it covers, yet the growth in the industries in the chief urban areas saw a steady rise in the number of inhabitants from the previous census. The improved gender ratio and literacy rate also speaks for the improvement of civil consciousness among the population of Madhya Pradesh.Population in Madhya Pradesh is largely rural. About 75% of the total population resides in the villages. People involved in agriculture; by far; forms the biggest occupation group in Madhya Pradesh. Nearly **71% of the population is directly involved in agriculture.**

Madhya Pradesh's population boasts of a diverse ethnicity. Although Hindi is spoken by most inhabitants, yet other minor ethnic groups also abound. Madhya Pradesh has the largest tribal population in India, contributing to more than 23% of the total tribal population in India. Bhils, Gonds, Oraons, Korkens and Kols form the major ethnic groups of Madhya Pradesh. Recently a development has been noted in the sex-ratio and the literacy rate of these ethnic groups. However, most of them still prefer to continue with their traditional agrarian way of life.

The Government of Madhya Pradesh has been active in strengthening its industrial base in the last few years. That has given rise to an increasing demand for skilled labor throughout the state. The unskilled labor of the state are centered around the chief urban centers and are supplied by the rural areas of the state. Madhya Pradesh is rich in minerals, though these resources have not yet been fully exploited. There are large reserves of coal and important deposits of copper ore, manganese ore, fireclay, and china clay. Diamond reserves at Panna are of particular interest. Recent findings of large amount of Gas and Petroleum in and around Shahdol, is a new addition.

The major industries of the state are Pharmaceutical, Electronics, Telecommunications, Petrochemicals, Food processing and Automobiles. The state has also taken a lead in the production of cement. The state is also famous for its traditional handicrafts and handlooms manufactured at Chanderi and Maheshwar. The state is well endowed with potential hydroelectric power. Main hydroelectric projects (jointly developed with other states) are the Babanthadi with Maharashtra, the Ban Sagar with Bihar and Uttar Pradesh, the Chambal Valley with Rajasthan, the Narmada Sagar with Gujarat and Rajasthan, and the Rajghat and Urmil with Uttar Pradesh. The Hasdeo Bango, Bargi, and Birsinghapur thermal power projects are also within the state.

Agriculture is the basis of Madhya Pradesh's economy. Little less than half of the land area is cultivable; however its distribution is quite uneven because of variations in topography, rainfall, and soils. The main cultivated areas are found in the Malwa Plateau, the Rewa Plateau, and the Chhattisgarh Plain. The Narmada valley, covered with river-borne alluvium, is another fertile area. The most important crops are rice, wheat, sorghum (jowar), corn (maize), pulses (legumes such as peas, beans, or lentils), and peanuts (groundnuts). Rice is grown mainly in the east, where there is more rainfall, while in western Madhya Pradesh wheat and sorghum are more important. The state is the largest soybean producer in India. Other crops include linseed, sesame, sugarcane, and cotton, as well as minor millets, which are grown in hilly areas. The state is a large producer of opium (in the western district of Mandasor, near Rajasthan) and marijuana (in the southwestern district of Khandwa [East Nimar]). In fact, in Madhya Pradesh the basic mainstay of the common people is agriculture; and it is through agriculture that the state is growing with leaps and bounds. In Madhya Pradesh, about 74.73% of people come from villages who are far from the influence of industrialization.

Agriculture in Madhya Pradesh, a major part of the economy of Madhya Pradesh, also plays an important role in the National Agricultural Production. . Produced below is Madhya Pradesh's share in National Agriculture production:

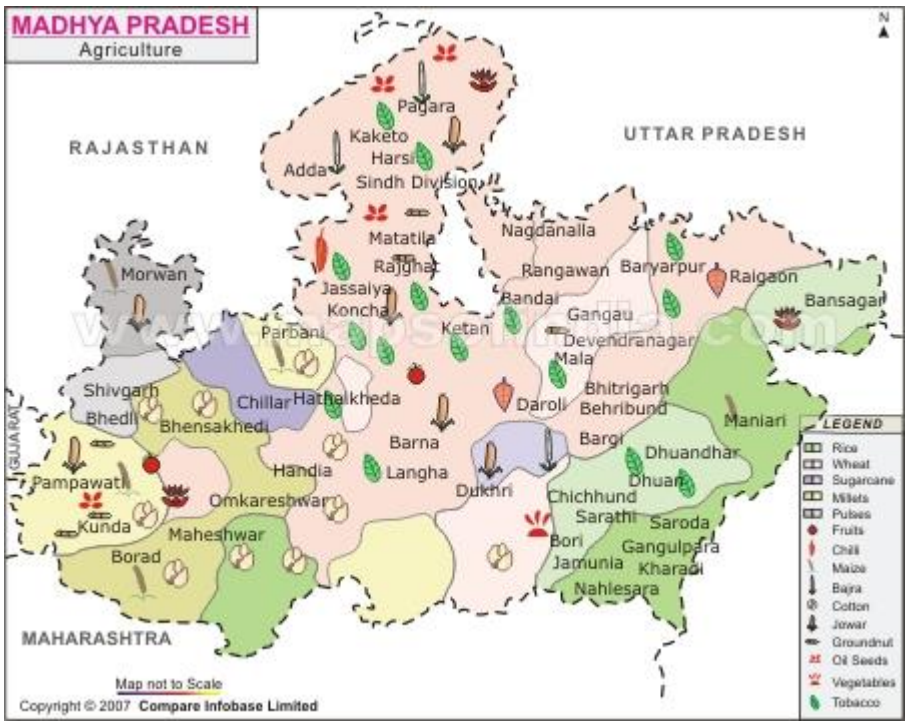
Table 1 (d) State's Share in National Agriculture Production & Their Status

CROP GROUP CROP	FIRST POSITION		SECOND POSITION		THIRD POSITION		POSITION OF M.P. IF NOT IN FIRST THREE	
	STATE	{%} SHARE	STATE	{%} SHARE	STATE	{%} SHARE	POSITION	{%} SHARE
TOTAL CEREALS	RAJ	25.37	MAH	13.56	A. P	9.18	FIFTH	8.7
TOTAL PULSES	M.P.	21.38	U.P.	19.77	MAH	18.51	-	-

TOTAL FOOD GRAINS	U.P.	20.73	PUN	11.59	RAJ	8.43	FIFTH	7.43
TOTAL OIL SEEDS	GUJ	22.42	M .P.	22.10	RAJ	15.82	-	-
RICE	WB	16.61	U.P.	14.75	PUN	10.94	FOURTEENTH	1.90
JOWAR	MAH	46.09	M.P.	14.11	KAR	11.03	-	-
MAIZE	A.P.	16.61	RAJ	13.86	M.P	12.39	-	-
BAJRA	RAJ	54.87	GUJ	13.20	U.P.	9.24	SIXTH	2.15
WHEAT	U.P.	35.46	PUN	20.09	HAR	12.66	FOURTH	10.04
ARHAR	MAH	29.11	U.P.	17.30	M.P.	11.39	-	-
GRAM	M.P.	40.33	U.P.	18.40	MAH	10.61	-	-
MASOOR	U.P.	48.54	M.P.	23.30	BIH	15.53	-	-
GROUND NUT	GUJ	54.8	A.P.	12.10	TAM	11.25	SEVENTH	3.18
SOYABEAN	M.P.	59.92	MAH	28.14	RAJ	8.78	-	-
RAPE/MUSTARD	RAJ	44.19	HAR	15.48	U.P.	12.74	FOURTH	7.74
COTTON	GUJ	29.06	MAH	22.21	A.P.	13.65	SEVENTH	4.76
SUGARCANE	U.P.	47.51	MAH	11.37	TAM	8.31	ELEVENTH	0.92

Note : Data pertains to year 2003-04 (M P – Madhya Pradesh, U. P. - Uttar Pradesh, A.P. Andhra Pradesh, RAJ Ra

Fig. 1 (d) Madhya Pradesh Agricultural Map



Agriculture continues to be the mainstay of livelihood for more than 50 per cent of the population in Madhya Pradesh. It contributes more than 12 per cent of Net State Domestic Product. It is the single largest private sector providing job opportunities for rural people besides being the source of supply of food grains and other dietary staples and serving as the prime source of raw materials for industries. Agricultural development is essential not only to achieve self reliance in food grains at the state level, but also for ensuring household food security and to bring equity in distribution of income and wealth resulting in ultimate reduction of the poverty level. In fact, high economic growth will have no meaning for the masses living in rural areas unless agriculture is revitalized.

Realising the urgency of problems in many of the states in India, National Development Council (NDC) resolved that a special Additional Central Assistance Scheme, named National Agriculture Development Programme (NADP / RKVY) be launched. The NDC also felt that agriculture development strategies must be reoriented to meet the needs of farmers and called upon the Central and State governments to evolve a strategy to rejuvenate agriculture with a commitment to achieve atleast four per cent growth in the agricultural sector during the 11th Five Year plan period. To achieve this, formulation of action plans by means of developing Comprehensive District Agriculture Plans (DAP) is recommended. It is of the view that such plans would also reflect the various felt needs of the farmers and other stakeholders. Such District Agriculture Plans aim at moving towards projecting the requirements for development of Agriculture and allied sectors of the district including animal husbandry and fishery, minor irrigation projects, rural development works, agricultural marketing schemes, schemes for water harvesting and conservation, etc. keeping in view of the natural resources and technological possibilities in each district. These plans thus, would present the vision for Agriculture and allied sectors within the overall development perspective of the district apart from the financial requirement and

the sources of financing the agriculture development plans in a comprehensive way.

Preparation of District Agriculture Plan for individual district inturn follows the formulation of State Agriculture Plan (SAP). The State Agriculture Plan integrates multiple programmes that are in operation in the district and State, include the resources and activities indicated by the State and combines the resources available from the other programmes also.

1.2 Major Areas of Focus

The NADP guidelines indicate the following major areas of focus. Based on these focussed areas, interventions and detailed action plans along with the budget are prepared. Few innovative schemes as per the felt needs of the stakeholders are also proposed.

- Integrated development of major food crops like paddy, coarse cereals, minor millets, pulses and oilseeds;
- Agriculture mechanization;
- Activities related to the enhancement of soil health;
- Development of rainfed farming systems in and outside watershed areas, as also Integrated development of watershed areas, wastelands and river valleys;
- Integrated Pest Management schemes;
- Strengthening of Market Infrastructure and marketing development;
- Strengthening of Infrastructure to promote Extension Services;
- Activities relating to enhancement of horticultural production and popularization of micro irrigation systems;
- Animal husbandry and fisheries development activities;
- Study tours of farmers;
- Organic and bio-fertilizers; and
- Innovative schemes.

1.2.1 Objectives of C-DAP

- To prepare a Comprehensive District Agriculture Plan (C-DAP) through participatory process involving various organizations and stakeholders.
- To enable optimum utilization of scarce natural, physical & financial resources.
- To assess and plan for the infrastructure required to support the agriculture development.
- To establish linkages with the required institutional support services, like credit, technology transfer, ICT, research etc.
- To evolve an action plan for achieving sustainable agricultural growth with food security and cropping system that will improve farmers' income.

1.2.2 Approach & Methodology for the District & State Plan

Department of Farmer's Welfare & Agriculture Department, Government of Madhya Pradesh, advertised for the expression of interest from suitable agencies for the preparation of CDAPs, in January' 2009. Adopting the transparent and step by step systematic approach, work orders and MOUs were finally signed on 29th June'2009; with five most eligible agencies for undertaking the work in 48 districts of MP. (Work orders for the preparation of CDAPs, for two districts were allotted directly by GOI, to MANAGE, Hyderabad). The Comprehensive – District Agriculture Plans (C–DAP) prepared by these five agencies followed the methodology suggested by C –DAP Manual prescribed by Planning Commission, Government of India in letter and spirit. These agencies followed the Participatory Planning Process[1] (PPP) and Participatory Rural Appraisal[2] (PRA) tools to involve local *Gram Panchayats (GP)* and the community in the grassroots planning process.

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[1] PPP – Participatory Planning Process is dynamic interactive process involving the local communities for appraisal, on the spot analysis, triangulation, collection, collation and consolidation of the information needed for identification, prioritization and developing options for local development,.

[2] PRA – Participatory Rural Appraisal is dynamic tool box used for developing local plans using local capacities and indigenous knowledge making the exogenous development efforts more endogenous.

A road map was developed to achieve the desired result in the allocated time frame; by each agency two separate teams were constituted viz Operational Task Team[3] (OTT) comprising of senior development professional at district and block level for consultation, coordination, collection of information from all possible secondary sources, collating the dataset and information to derive certain definitive appraisals of the current situation and comprehending the proposals to be included in the final plan with active support from the functionaries of various departments involved in agriculture and natural resource development and management and Yojna Jankars[4] to work with GP[5] functionaries for developing primary dataset, appraisal and analysis of current situation on ground zero and capturing the aspirations and reflections of the target communities and or their constituent groups.

A Strategic Task Team (STT) comprising of senior development academics and professionals with sufficient experience in development, planning, monitoring, capacity building and execution from National Livelihood Resources Institute[6] and field office of agencies, along with the consultant of the department were given the responsibility of orientation training OTT members in the entire planning processes, provide intellectual support to OTT for conducting district and block consultation sessions with officials and functionaries of concern departments, *Janpad Panchayats* at block level and *Gram Panchayats*. The STT comprises of a multidisciplinary skill set and expertise and was involved in developing the final plans for discussion with district and state officials. STT members conducted a series of internal meetings to built the perspective plan for each allocated district, did data mining from a variety of sources both in physical and digital format as reference material.

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[3] OTT and STT are the part of team of professional, para – professionals and experts in the various streams of farming systems development and management
[4] Grassroot workers identified and trained by agencies for collecting village based information
[5] GP – *Gram Panchayats*

1.2.3. Steps Followed in Developing District Plans:

(a) Internal Consultations Meeting and Orientation Training: The internal consultation meeting – cum – orientation training of the all the members involved in developing C – DAP plan was convened at NLRI, Ratlam. The participants were given thorough understanding of C – DAP Manual, the spirit enshrined in the manual, the scope of planning exercise, the process to be followed along with the planning tools to be used. The orientation module included the principals of participatory planning process, mechanisms to collect most relevant and updated information both from secondary and primary sources, developing the information base using PRA tools especially FGD[7], developing the vision of the district, collection of data from *Gram Panchayat*, block and district and finalizing the action plan for the district. Operational Task Team comprising of a DPC[8], BPC[9] for each block to carrying out the task in time bound schedule and in a manner that facilitates adequate interaction with *Gram Panchayat* functionaries, elected public representatives, grassroots officials involved in program planning and execution from various line departments and vulnerable contingent of the community. A detailed plan of action for preparation of C-DAP was finalized during the internal consultation meet and orientation training. The participants were put through the mock exercise for conducting FGD; collection of *GP*[10] level information in the prescribed formats, a hindi translation was given to the grassroots Yojna Jankars with vernacular expressions and local weights and measures to capture the local understanding of the communities.

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[7] FGD – Focus Group Discussion is dynamic participatory tool from PRA tool box, it allows the target community group to discuss and apprise the issues under question and arrive at certain consensus, it facilitates on spot verification and triangulation of the information shared by the constituent members of the group.
[8] DPC – District Project Coordinator to lead the entire district planning team
[9] BPC – Block Project Coordinator to lead the black and *Gram Panchayat* planning teams
[10] GP – *Gram Panchayat*

(b) Collection of Primary Information: The OTT members visited each *GP* carrying out the interactive process for joint reflection and collective appraisal with the local communities, active involving local leaderships to acquire the desired information as per prescribed schedules[11]. This process helped in rationalizing the priorities, identifying critical issues, identifying feasible problems, crystallizing the options and alternatives, evolving local strategies, taking cognizance of prevalent best practices, communities' aspirations and indigenous knowledge of the local environment within which the individuals and communities conduct themselves to derive their livelihoods.

(c) Collection of Secondary Data: The STT members started desk reviews and developed check list of reports of the concern department for collection, compilation, collating and analysis of the secondary datasets. Efforts were made to collect the published and authentic records from the different government departments, lead banks, Krishi Vigyan Kendras (KVK), Academic Institutions and others etc. for making the C – DAP plan. During course of interaction with Deputy Director of Agriculture Department of Farmers Welfare and Agriculture Development (DFW & AD, GoMP), Government of MP, the C – DAPs developed by the department were shared and collected for further analysis. In the districts allocated to GVT, SREP from ATMA[12] Agency have been collected for reference and review to incorporate the key finding in terms of strategic research and extension agenda under specific agro – ecological situations (AES)[13] and identify the research and extension gaps to facilitate GPs and local communities to

[11] Refer C – DAP Manual for the prescribed schedules for districts, blocks and GP at Annex – I appended in the compendium of GP Action plan in volume – II of this report.
[12] ATMA – Agriculture Technology Management Agency is a legal body incorporated and registered in each district responsible for extension management, as per the guidelines a Strategic Research and Extension Plan (SREP)
[13] The AES have been identified by the State Agriculture University using parameters like topography, soil type, rainfall, moisture regime, temperature regime etc…

develop option and alternatives. DDM, NABARD[14] and their regional office at *Bhopal* were contacted to understand the potential credit need assessment process followed by the national bank for ever financial year. The PLP[15] provided sound understanding of the potential assessed by the national bank and lead bank to develop the credit plan for the district. Besides, these plans; the district perspective plan for NREGA[16] and BRGF[17] have been accessed to analyze and collate the convergence strategy for the proposed C – DAP.

(d) Reconnaissance Survey: A multidisciplinary team of experts in agriculture, natural resources management, irrigation and watershed management, farming systems specialists, community development specialist and senior professionals having expertise in apprising the issues of PRI framework visited the districts for visual observations and spontaneous interactions with the cross – section of rural communities. FGDs were conducted with farmer groups to understand their aspirations and gauge the prospect district vision and its realization on the ground.

(e) District / Block Level Consultations: The five agencies organized district level consultation meets chaired by the District Collectors and attended by the district and block level officials from all the key departments involved in agriculture and rural development[18], farmers' representatives[19], elected

[14] DDM – District Development Manager , NABARD – National Bank for Agriculture and Rural Development

[15] PLP – Potential Linked Credit Plans – A document portraying the potential of each constituent subsector of rural and farm economy.

[16] NREGA – National Rural Employment Guarantee Act plans developed by the district administration followed a very similar process starting from the *Gram Panchayats* to converge at *Janpad* (Block) and district level.

[17] BRGF – Backward region Grant Fund also attempted a district level planning process similar to this to identify the missing infrastructure and capacity building needs of the vulnerable class of the rural communities.

[18] See the list of departments and officials at Annex – II

representatives from the *Jila Panchayats* were involved in the intense discussion. It helped to:

- ❖Discuss strength, weakness, opportunities and challenges in the farm sector,
- ❖Identify the factors impeding the development especially in the farm sector, identified a number of options and alternatives,
- ❖evolve a common agreed vision; and
- ❖chart the strategy to achieve the common shared vision

At district consultation the key departments involved in agriculture and rural development, academic and technical institutions related to agriculture, horticulture, forestry, fisheries, rural industries, sericulture, hydrology, meteorology, lead bank representatives were invited by the district administration and were advised to share their views on the above referred agenda. The consultation was helpful in developing the vision plan for the district and also helped in visualizing and conceptualizing the future prospects for development of agriculture in the district.

(f) Desk Research: A systematic and focused desk research and internet assisted search for relevant documents, reports reviews, appraisals, evaluations of the previous schemes, projects and research notes were carried out to review of national, regional and local experiences in preparing such plan. The desk review provided vital statistics and dataset from various sources to construct the development or backwardness indices for the blocks and understand the reasons impeding the development.

(g) Processing and Analysis: All the collected information from both primary and secondary sources, desk reviews and research notes was analyzed and

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[19] The farmer representatives in the ATMA governing board attended the district consultation meets

calibrated. The analyzed data have been used develop vision document, strategy and action plan for the district.

(h) Develop Map Dossier: The agencies organized dynamic digital maps of the district with block boundaries, block maps with village boundaries and has developed thematic maps by inserting the dataset with appropriate legends. The map dossier is a standalone document appended with the report for easy understanding and future monitoring of the action plan.

(i) Preparation of Draft Action Plan and Presentation in District Collectors Meeting

Subsequently, based on the baseline information and proposals, a draft action plan was prepared for each district and this was presented in the District Collectors Meetings held in the respective district under the Chairmanship of District Collector. This meeting was attended by the scientists from KVKs, officials from line departments and the representatives of local bodies. A wide coverage was given in the media also to ensure better participation. The feedback received in the District Collectors Meeting was also incorporated before finalization of the District Agriculture Plan. The recommendations and relevant details based on Strategic Research Extension Plan and Agriculture Technology Management Agency have also been considered before finalizing the plan report.

(j) State Agriculture Plan: This document, named as State Agriculture Plan, thus integrates all these district level action plans plus addition of State Sector Plans / Programmes, duly approved by the State Level Sanctioning Committee and organized in different chapters namely:

1. Chapter 1 as Introduction & Methodology;
2. Chapter 2 as Current Status of the Economy of the State;
3. Chapter 3 as Strengths, Weaknesses, Opportunities and Challenges of the State;

4. Chapter 4 as Vision of the State;
5. Chapter 5 as Development of Agriculture Sector
6. Chapter 6 as Development of Allied Sector; and
7. Chapter 7 as ; State Plan

CHAPTER - II

RESOURCE BASE AND CURRENT STATUS OF THE ECONOMY

2.1. Zonal Classifications

Madhya Pradesh can be divided into three types of zonal classifications namely Geomorphologic zones, Agro-climatic zones and Agro-ecological zones.

2.1.1. Geomorphologic Zones

Agro – Climatic Zones

Based on the rainfall pattern, soils types and topography Madhya Pradesh State is divided into eleven agro-climatic zones and 5 crop zones. District wise classification along with soil type and normal rainfall range is as given below in table 2.1.1 (a):

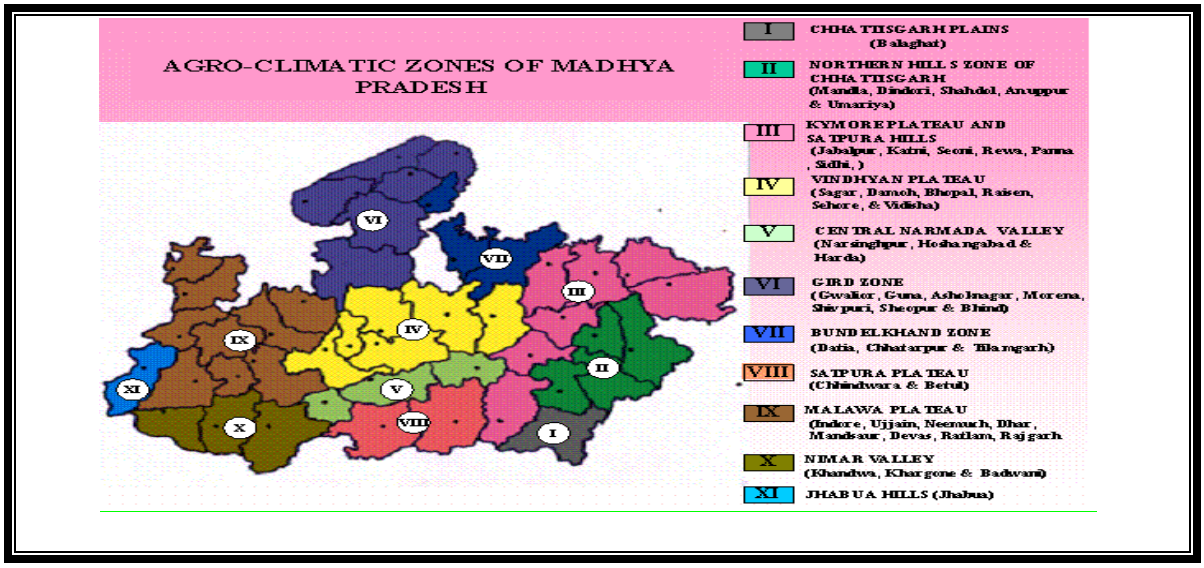
Table 2.1 (a): Agro Climatic and Crop zones of Madhya Pradesh

S.No.	CROP/ZONES	AGRO-CLIMATIC REGIONS	SOIL TYPE	RAINFALL (Range in m.m.)	DISTRICTS COVERED	DETAILS OF PARTLY COVERED DISTRICTS
1.	1 Rice zone	Chhattisgarh plains	Red & Yellow (Medium)	1200 to 1600	Balaghat.	
2	-do-	Northern Hill Region of Chhattisgarh	Red & Yellow Medium black & skeletal (Medium/light)	1200 to 1600	Shahdol, Mandla, Dindori, Anuppur, Sidhi (Partly), Umaria	
3	2 Wheat Rice Zone	Kymore Plateau & Satpura Hills	Mixed red and black soils (Medium)	1000 to 1400	Rewa, Satna, Panna, Jabalpur, Seoni, Katni, Sidhi	
4	3 Wheat zone	Central Narmada Valley	Deep black (deep)	1200 to 1600	Narsinghpur, Hoshangabad Sehore (Partly), Raisen (Partly)	Sehore :-Budni Tehsil. Raisen :-Bareli Tehsil.
5	-do-	Vindhya Plateau	Medium black & deep black (Medium/Heavy)	1200 to 1400	Bhopal, Sagar, Damoh, Vidisha, Raisen (except Bareli Teh.), Sehore (except Budni Teh.), Guna(Partly).	Guna, Chanchoda, Raghogarh & Aron Tehsils.

6	4Wheat-Jowar	Gird Region	Alluvial (Light)	800 to 1000	Gwalior, Bhind, Morena, Sheopur Kalan, Shivpuri (except Pichore, Karera, Narwar, Khania – dana Teh.), Guna (except Aron, Raghogarh, Chachoda Tehsil), Ashoknagar	
7	Wheat-Jowar:	Bundelkhand	Mixed red and black(Medium)	800 to 1400	Chhattarpur, Datia, Tikamgarh, & Shivpuri (Partly)	Shivpuri (Karera, Pichhore, Narwar & Khaniadhana Tehsils).
8	-do-	Satpura Plateau	Shallow black (Medium)	1000 to 1200	Betul & Chhindwara	
9	5. Cotton Jowar	Malwa Plateau	Medium black (Medium)	800 to 1200	Mandsaur, Neemuch, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh & Dhar (Partly) Jhabua (Partly)	Dhar :-Dhar,Badnawar & Sardarpur Tehsils. Jhabua :-Petlawad Tehsil.
10	-do-	Nimar Plains	Medium black (Medium)	800 to 1000	Khandwa, Burhanpur, Khargone, Barwani, Harda ,Dhar (Partly) District.	Dhar Manawar, Dharampuri & Gandhawani Tehsil.
11	-do-	Jhabua Hills	Medium blackskeletal (Light/Medium)	800 to1000	Jhabua District (except Petlawad Tehsil) & Dhar (Partly)	Dhar:- Only Kukshi Tehsil.

A map showing different agro climatic zones of Madhya Pradesh is depicted below:

Figure 2.1 (a) The distribution of Agro climatic zones in Madhya Pradesh



CHATTISGARH PLAINS

The Chattisgarh plains zone comprising the revenue district of Balaghat. The

region broadly spread by Red & Yellow Medium soil. The rainfall in this region is in the range of 1200 to 1600 mm yearly. Rice is main crop of this region; which is grown in most part of the region.

NORTHERN HILL REGION OF CHATTISGARH

The Northern hill region of Chattisgarh zone comprises of the revenue districts of Shahdol, Mandla, Dindori, Anooppur, Sidhi (Partly) and Umariya, Generally Skeletal medium / light, Red and Medium black soils are found in this region. The rain fall pattern of this region is almost same to Chhattisgarh plains; i.e. in the range of 1200 to 1600 mm yearly. Rice is the main crop of this region too.

KYMURE PLATEAU & STAPURA HILLS

The Kymore plateau and Satpura hills comprises of Rewa, Satna, Panna, Jabalpur, Seoni, Katni, and Sidhi. Mixed red and medium black soil are mainly in the region. In this region rainfall is in the range of 1000 to 1400 mm yearly. In the region wheat and rice are mainly grown.

CENTRAL NARMADA VALLEY

District Narsinghpur, Hoshangabad, Sehore (Partly) and partly Raisen are part of the Central Narmada valley zone. This region is covered by Deep black high fertile soil. In this region the rainfall recorded is 1200 mm minimum and 1600 mm maximum. Wheat is the main crop of this region.

VINDHYA PLAREAU

The Vindhya plateau is situated in the central part of Madhya Pradesh and is comprising of districts of Bhopal, Sagar, Damoh, Vidish, Raisen (Excluding Bareli tehsil), Sehre (Exept Budni Tehsil) and Guna (partly), the area is covered by medium black and deep black soils. The rainfall ranges from 1200 mm to 1400 which is mostly contributed by South west monsoon. Wheat is the main crop of this region.

GIRD REGION

The Gird Region zone is situated in the northern part of Madhya Pradesh comprising of districts Gwalior, Bhind, Morena, Seopur-kala, Shivpuri (Excluding Pichore, Karera, Narwar and Khania-dana tehsil), Guna (Exept Aron, Radhogarh and Chachoda tehsil) and Ashoknagar district. The area is covered by light Alluvial soil. The area is having main crops of Wheat and Jowar. The rainfall ranges from 800 to 1000 mm yearly.

BUNDELKHAND

The districts of Chhattrpur, Datia, Tikamgarh and partly Shivpuri are part of the Bundelkhand zone. The area of this zone is divided in the two part one is western part connected with Gird region having one district and another is eastern part connected with Kymore plateau in the eastern side and Vindhya plateau in the southern part., this region is covered by Mixed Red and Medium black soils having wheat and Jowar as main crop, rainfall ranges from 800 to 1400 mm in this region.

SATPURA PLATEAU

Betul and Chhindwara districts comes under the Satpura zone. In this zone the soil is medium shallow black, mainly wheat and jowar are grown in this region. Rainfall range of this region is 1000 to 1200 mm yearly.

MALWA PLATEAU

Mandsaur, Neemuch, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh, Dhar (Partly) and Jhabua (Partly) districts are comes under the Malwa plateau Zone in this zone the soil is medium black , mainly Cotton and jowar grow in this region, Rainfall ranges of this region is 800 to 1200 mm yearly.

NIMAR PLAINS

Khandwa, Burhanpur, Khargone, Barwani Harda Dhar (partly) and Jhabua (partly) districts comes under the Satpura zone. The soil in this zone is medium shallow black , mainly wheat and jowar are grown in this region. Rainfall ranges of this region are 1000 to 1200 mm yearly.

JHABUA HILLS

The Jhabua hills zone is situated in the south western part of Madhya Pradesh, comprising of Jhabua (excluding Petlawad Tehsil) and Dhar (partly) districts. The area is covered by Medium Black skeletal (Light / Medium) soil with main crops of Cotton, Maize and Jowar. The rainfall ranges from 800 to 1000 mm yearly.

Soils of Madhya Pradesh

Major portion in Madhya Pradesh is covered by deep medium black soil covering 16.21 m. ha area; i.e. having 36.53 % area. Districts covered includes; Narsinghpur, Hoshangabad, Harda, Shahdol, Umaria, Jabalpur, Katni Sagar, Damoh, Vidisha, Raisen, Bhopal, Sehore, Rajgarh, Ujjain, Dewas, Shajapur, Mandsaur, Neemuch, Ratlam, Jhabua, Dhar, Indore, Khargone Barwani, Khandwa, Guna (partly), Shivpuri (partly), Datia (partly), Sidhi (partly), Anuppur, Ashoknagar, Burhanpur, Alirajpur and Singroli.

Mixed Red and Black soil also covers 18.30% of total area; i.e. 8.11 m. ha. The districts covered under this category includes; Mandla, Dindori, Balaghat, Rewa, Satna, Panna, Chhattarpur and Tikamgarh. Four districts are partly covered under this soil type, that includes Shivpuri, Guna, Datia and Sidhi.

Alluvial soil is in 7.57 % area of Madhya Pardesh, having total area of 3.35m ha. Four districts are entirely covered with this type of soil namely; Gwalior, Morena, Sheopur kalan and Bhind, one district which is partly covered is Shivpuri.

Shallow & medium black soil covers 6.91% area of state, having total area 3.06m ha. Betul, Chhindwara and Seoni districts entirely are covered by this type of soil.

The types of soil and their availability in Madhya Pradesh are furnished in Table given below.

Table 2.1 (b) Types of Soil and area covered in Madhya Pradesh

S.No.	Type of soils Area and (%)	No. of Districts	Name of Districts
	Shallow & medium Black soil Area 3.06 m. ha. (6.91%)	3	Betul, Chhindwara and Seoni
	Deep medium Black soil Area 16.21 m. ha. (36.53%)	33	Narsinghpur, Hoshangabad, Harda, Shahdol, Umaria, Jabalpur, Katni Sagar, Damoh, Vidisha, Raisen, Bhopal, Sehore, Rajgarh, Ujjain, Dewas, Shajapur, Mandsaur, Neemuch, Ratlam, Jhabua, Dhar, Indore, Khargone Barwani, Khandwa, Guna (partly), Shivpuri (partly), Datia (partly) and Sidhi (partly), Anuppur, Ashoknagar, Burhanpur, Alirajpur, Singroli
	Alluvial soil Area 3.35 m. ha. (7.57%)	4	Gwalior, Morena, Sheopurkala, Bhind & Shivpuri (partly)
	Mixed Red & Black soil Area 8.11 m. ha. (18.30%)	8	Mandla, Dindori, Balaghat, Rewa, Satna, Panna, Chhatarpur, Tikamgarh, Shivpuri (partly), Guna (partly), Datia (partly) and Sidhi (partly)

Indicated in the below mentioned table is the status of soil neutrients;.e. Nitrogen, Phosphorous and Potash as low, medium and high. As is evident from the table majority of the districts of Madhya Pradesh (21 to number) are having Low – Nitrogen levels, Medium Phosphorous levels and High Potash levels.

Table 2.1 (c) District-Wise Soil Fertility Status

S.NO.	NEUTRIENTS	STATUS	DISTRICTS COVERED	NAME OF DISTRICTS
1	N-	Low	21 Districts	Mandsaur, Neemuch, Ujjain, Jhabua, Burhanpur
	P-	Medium		Alirajpur, Dhar, Indore, Khandwa, Dewas, Shajapur,
	K-	High		Raisen, Vidisha, Bhopal, Sehore, Betul,
				Rajgarh, Shivpuri, Guna, Datia and Ashoknagar
2	N-	Low	9 Districts.	Gwalior, Bhind, Morena, Sheopurkala,
	P-	Medium		Ratlam, Khargone, Hoshangabad,
	K-	High		Harda & Badwani.
3	N-	Low	7 Districts	Narsinghpur, Jabalpur, Katni, Satna,
	P-	Low		Rewa, Sidhi and Singroli.
	K-	High		
4	N-	Medium	3 Districts	Mandla, Dindori & Sagar.
	P-	Low		
	K-	Medium		
5	N-	Medium	7 Districts	Tikamgarh, Panna, Shahdol, Umaria,
	P-	Low		Balaghat, Seoni and Anuppur
	K-	High		
6	N-	Low	1 District	Damoh
	P-	Low		
	K-	Medium		
7	N-	Medium	2 Districts	Chhindwara and Chhatarpur
	P-	Medium		
	K-	Medium		

Source: Compendium of Agriculture statistics: Directorate of Farmer's Welfare & Agriculture Development, MP

District wise spread of Rainfall in Madhya Pradesh

It could be seen from the table below, that the total average rainfall received in

the whole year is 1074.3 and during 2005-06 it was1028.6 mm which was less than average rainfall, in the Madhya Pradesh rain fall attitude is uncertain. However, mostly the rainfall received from South west monsoon in the rainy season.

The month-wise distribution of rainfall for the 2005-06 along with normal rainfall is furnished in Table below

Table 2.1 (d) RAINFALL DISTRIBUTION WITH RAINY DAYS IN Madhya Pradesh

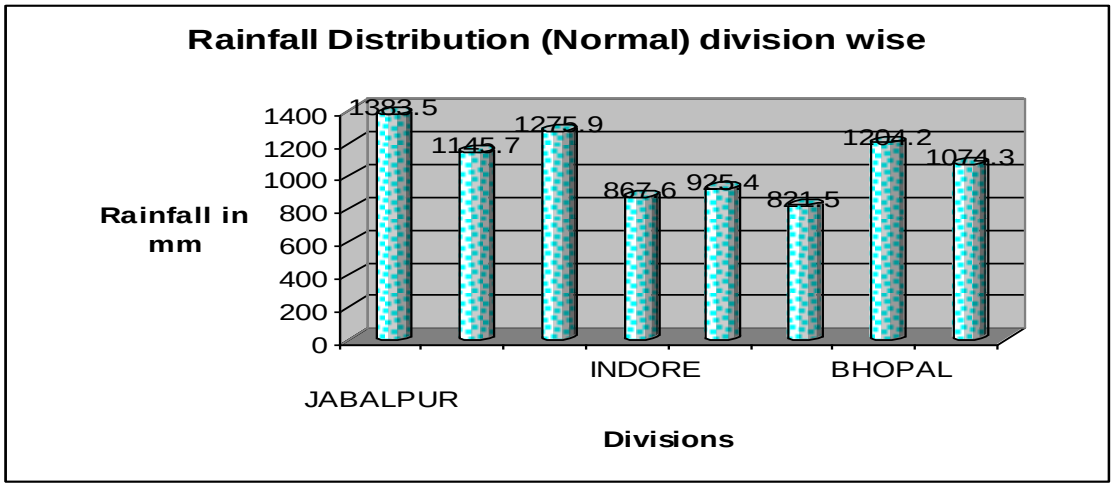
RAINFALL DISTRIBUTION WITH RAINY DAYS 2005-06			
DISTRICT	**NORMAL**	**CURRENT**	**DAYS**
JABALPUR	1312.1	1841.5	63
KATNI	1161	1849.4	45
BALAGHAT	1623.2	1918.8	65
CHHINDWARA	1146.3	1359.1	58
SEONI	1419.7	1445.1	61
MANDLA	1576.5	1586.5	68
DINDORI	1528.3	1747.8	57
NARSINGHPUR	1300.8	1545.8	50
JABALPUR DIV.	**1383.5**	**1661.8**	**58**
SAGAR	1230.5	1598.8	51
DAMOH	1246.6	1673.3	53
PANNA	1176.5	1649.2	48
TIKAMGARH	1000.2	754.3	36
CHHATARPUR	1074.7	1037.2	48
SAGAR DIV.	**1145.7**	**1342.6**	**47**
REWA	1235.8	998.8	44
SIDHI	1232.4	1029.8	50
SATANA	1100.3	1462.6	46
SHAHDOL	1211.7	1312.5	57
ANUPPUR	1500.8	1222.1	48
UMARIA	1374.7	1644.4	51
REWA DIV.	**1275.9**	**1278.4**	**49**
INDORE	969.2	767.8	30
DHAR	833.1	569.5	33
JHABUA	884.9	636.2	37
KHARGONE	890.3	586.3	38
BARWANI	772.5	526.6	34

KHANDWA	899.8	715.7	39
BURHANPUR	823.6	704.9	37
INDORE DIV.	**867.6**	**643.9**	**35**
UJJAIN	892.2	645.6	32
MANDSAUR	826.5	651.6	32
NEEMUCH	833.9	768.6	35
RATLAM	939.4	748.9	36
DEWAS	1083.2	788.5	35
SHAJAPUR	977.2	733.9	38
UJJAIN DIV.	**925.4**	**722.8**	**35**
MORENA	707.1	696.1	28
SHEOPURKALA	822	830.8	27
BHIND	668.4	558.7	28
GWALIOR	764.4	622.3	32
SHIVPURI	816.3	738.7	40
GUNA	1166.2	855.8	41
ASHOKNAGAR	884.8	965.5	37
DATIA	743	634.9	33
GWALIOR DIV.	**821.5**	**737.8**	**33**
BHOPAL	1154.2	1173.2	49
SEHORE	1261.2	1000.2	45
RAISEN	1327.5	1308.4	45
VIDISHA	1133.9	1171.9	51
BETUL	1083.9	1040.3	47
RAJGARH	1099.8	751.4	38
HOSHANGABAD	1311.7	1221	54
HARDA	1261.7	930.3	43
BHOPAL DIV.	**1204.2**	**937.2**	**46**
M.P. STATE	**1074.3**	**1028.6**	**42**

Sources :- Source: Compendium of Agriculture statistics: Directorate of Farmer's Welfare & Agriculture Development, MP. Rains in mm for the year 2005-06.

From the table, it could be seen that comparatively high rainfall was received in the divisions Jabalpur and Sagar. Where as lesser rainfall was received in the regions Bhopal, Gwalior, Ujjain, Indore and Rewa. Normal rainfalls in all these divisions are depicted in the figure below:

Figure 2.1 (b) : Normal rainfalls in the divisions of Madhya Pradesh



LAND DEGRADATION

Land degradation, in general, implies temporary or permanent recession from a higher to a lower status of productivity through deterioration of physical, chemical and biological aspects. The physical processes, which contribute to land degradation, are mainly water and wind erosion, compaction, crusting and water logging. The chemical processes include salinization, alkalization, acidification, pollution and nutrient depletion. The biological processes, on the other hand are related to the reduction of organic matter content in the soil, degradation of vegetation and impairment of activities of micro-flora and fauna .

Water Erosion

Water erosion is the most widespread form of degradation and occurs widely in all agro-climatic zones. The displacement of soil material by water can result in either loss of top soil or terrain deformation or both. This category includes processes such as splash erosion, sheet erosion, rill and gully erosion. The soil erosion is initiated when raindrops fall onto the bare soil surface. The impact of raindrops breaks up the surface soil aggregates and splashes particles into the air. On sloping land relatively more of the detached material will fall down slope resulting in runoff. This subsequently lead to different types of water erosion

depending on the gravity of the problem, susceptibility of land and continuity of the process.

1. Sheet erosion

It is a common problem resulting from loss of top fertile soils. The loss of topsoil is often preceded by compaction and/or crusting, resulting in a decrease of infiltration capacity of the soil. The soil particles are removed from the whole soil surface on a fairly uniform basis in the form of thin layers. The severity of the problem is often difficult to visualize with naked eyes in the field.

2. Rills

When the surface runoff goes in the form a concentric flow, a tiny water channels are formed in the field. These are small rivulets of such a size that they can be worked over with farm machinery. Rills are generally associated with the cultivated lands and are visible in the ploughed soil after first heavy showers. One important feature of rills is that they do not occur at the same place repeatedly. This is a temporary concentric flow of runoff, which could vanish after ploughing the land.

3. Gullies

Gullies are formed as a result of localized surface run-off affecting the unconsolidated material resulting in the formation of perceptible channels causing undulating terrain. If rills are neglected and the erosion continues for a long time, it develops in to gullies. They are commonly found in sloping lands, developed as a result of concentrated run-off over fairly long time. They are mostly associated with stream courses, sloping grounds with good rainfall regions and foot hill regions. These are the first stage of excessive land dissection followed by their networking which leads to the development of ravenous land.

4. Ravines

The word ravine is usually associated not with an isolated gully but an intricate network of gullies formed generally in deep alluvium and entering a nearby river, flowing much lower than the surrounding tablelands. Ravines are basically extensive systems of gullies developed along river courses. Further classification of this category is possible based on the depth, width, bed slope, frequency and morphology of bed material of the ravines. Based on the depth of the ravines, which has a characteristic manifestation on the satellite image, two subcategories are possible for delineation viz., shallow ravinous and deep ravenous lands.

Wind Erosion

It implies uniform displacement of topsoil by wind action. It can result in loss of topsoil and the deposition of the eroded material from elsewhere . The risk of wind erosion is severe in the arid and semi-arid areas. It includes both the removal and deposition of soil particles by wind action and the abrasive effects of moving particles as they are transported. Not only can the wind remove topsoil from good farmland; it can result in additional damage by burying land, buildings, machinery, etc. with unwanted soil. It occurs when soil is left devoid of vegetation either because of poor rainfall to support any vegetal cover or loss of vegetation due to overgrazing. In the sand deposited areas with rainfall the sand gets stabilized partially of fully depending on vegetal cover it establishes.

During high winds the finer, and commonly more fertile, particles are swept high in the air and are sometimes carried for great distances as dust storms; while coarser particles are rolled or swept along on or very near the soil surface to be piled into depressions. The process is highly dynamic and requires careful evaluation of the site and process.

1. Sheet Erosion

It implies uniform displacement of topsoil by wind action as thin layers / sheets. During wind storms, the dry finer soil particles which could be suspended into air will be transported longer distances, while the heavier particles creeps on the surface and generally will be transported to a shorter distances. It may seriously influence the infrastructures (roads. railway lines. buildings. waterways, etc.). The uneven displacement of soil material by wind action leads to deflation hollows and dunes. The lifted medium to coarse soil particles may reduce the productivity of adjacent fertile land when they are deposited in the form of sand castings.

WASTELAND CLASSIFICATION

Culturable Wastelands

Land which is capable or has the potential for the development of vegetative cover and is not being used due to different constraints of varying degrees is termed as culturable wastelands. Culturable wastelands comprise the following categories.

i. Agricultural Land inside notified forest: Lands put under cultivation within the restricted forest areas.

ii. Degraded forest – Scrub domination*:* Lands as noticed under the Forest Act and those lands with various types of forest cover, in which vegetative cover is less than 20% are classified as degraded forest land. Among the vegetative types scrubs and thorny bushes are dominated species.

iii. Degraded land under plantation crops: This includes degraded lands containing plantations inside and outside of the notified forest area.

iv. Degraded pastures / grazing land: All those grazing land in non-forest areas, whether or not they are permanent pastures or meadows, which have become degraded due to lack of proper soil conservation and drainage measures fall under this category.

v. Gullied / ravenous land: The gullies are formed as a result of localised surface run off affecting the friable unconsolidated material resulting in the formation of perceptible channels resulting in undulating terrain. The gullies are the first stage of excessive land dissection followed by their networking which leads to the development of ravinous land. The world 'ravine' is usually associated not with an isolated gully but a network of gullies formed generally in deep alluvium and entering nearby river flowing much lower than the surrounding table lands. The ravines then are extensive systems of gullies developed along river courses.

vi. Land with or without scrub: This is the land which is generally prone to degradation and may or may not have scrub over. Such land occupies topographically high locations in the respective systems. This excludes hilly and mountainous terrain.

vii. Water-logged and marsh: Surface water-logged land is that land where the water is near the surface and water stands for most of the year. Marsh is a land which permanently or periodically inundated by water and is characterised by vegetation which includes grasses and reeds.

viii. Salt Affected Lands (Saline / Alkaline*)*: The salt affected land is generally characterised as the land that has adverse effects on the growth of most of the plants due to the action or presence of excess soluble salts or excess exchangeable sodium. The saline soils have more of soluble salts with electrical conductivity of more than 4 dSm-1. Alkali land has an exchangeable sodium percentage (ESP) of above 15 which is generally considered as the limit between normal and alkali soils. The predominant salts are carbonates and bicarbonates of sodium.

ix. **Sands :** Sandy areas are those areas which have stabilized accumulation of sand, in situ or transported, in tank / river bed, coastal, riverine or inland areas***.***

x. Mining / industrial Waste lands: These are lands where large-scale mining operations bring about the degradation of land and resultant mine dumps.

Unculturable Wastelands

Lands which cannot be developed for cultivation of crop are defined as unculturable wastelands. Uncultivable wastelands are divided into:

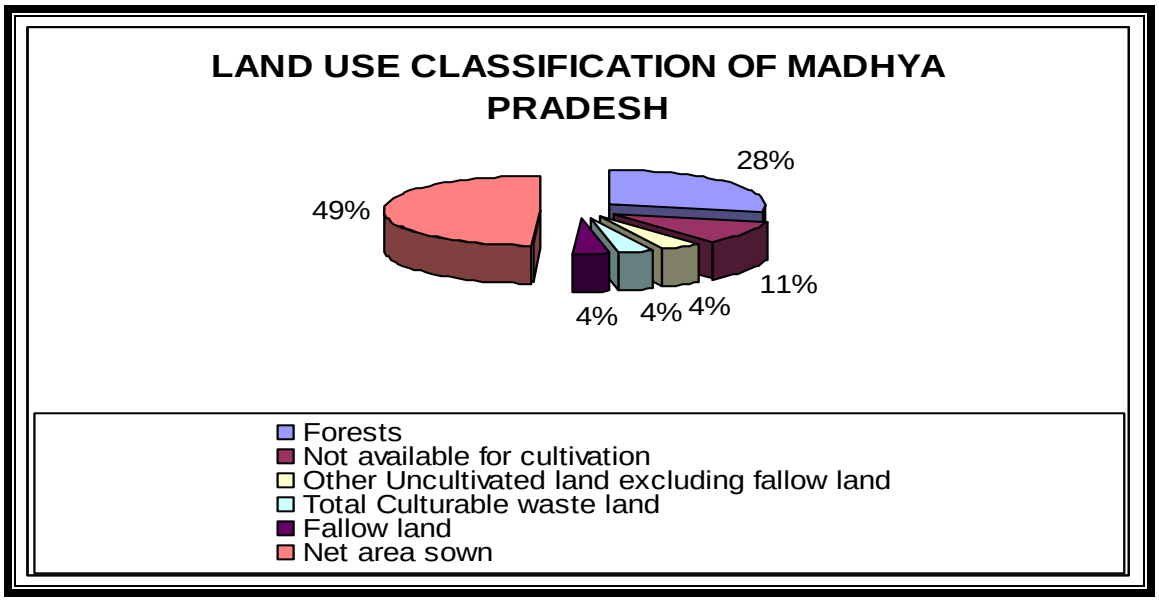
i. Permanent pastures and other grazing lands.

ii. Land under miscellaneous trees and grooves.

2.5. Land Use Pattern in Madhya Pradesh State

Land use statistics in general indicate the way in which the land area is put under various uses. Land as a scarce resource, is to be managed effectively to benefit the human race that depends on land for its livelihood. Therefore, the details on the land use pattern in Madhya Pradesh State as a whole and for the individual district are furnished in Table 2.8 and 2.9, respectively. Graphically the land use pattern in Madhya Pradesh is shown below:

Figure 2.5 Land use classification of Madhya Pradesh



The changes in land use pattern in the State over a period of time are shown in Table below:

Table 2.8. Land Utilization Pattern in Madhya Pradesh state

LAND USE CLASSIFICATION OF MADHYA PRADESH										
										(Area in lakh hectares)
PARTICULARS	99-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	% to Geogaraphical area
Geographical area	307.50	307.55	307.55	307.56	307.56	307.55	307.56	307.56	307.56	100.00
Forests	86.13	85.52	85.81	85.78	85.80	85.85	85.89	85.96	85.99	27.93
Not available for cultivation:-										
A. Land put to non-agricultural uses.	18.35	18.89	18.60	18.90	19.25	19.24	19.47	19.92	20.12	6.54
B. Barren and unculturable land	13.65	13.49	13.95	14.17	14.25	14.40	14.42	14.05	13.80	4.49
T O T A L	32.00	32.38	32.55	33.07	33.50	33.64	33.89	33.97	33.92	11.03

Other Uncultivated land excluding fallow land.:-										
A. Permanent pastures & other grazing lands	16.58	15.85	14.81	13.95	13.60	13.41	13.39	13.48	13.52	4.35
B. Land under misc. tree crops & groves.	0.15	0.20	0.18	0.19	0.19	0.20	0.19	0.19	0.20	0.06
T O T A L	16.73	16.05	14.99	14.14	13.79	13.61	13.58	13.67	13.72	4.36
Total Culturable waste land.	11.70	12.01	12.18	12.13	11.78	11.75	11.61	11.77	11.70	3.78
Fallow Land :										
A.Current fallows.	4.86	8.18	6.04	9.96	6.21	5.96	5.90	7.69	7.90	1.92
B. Old fallow.	5.38	5.75	6.36	6.26	5.99	5.96	5.95	6.12	6.43	1.93
T O T A L	10.24	13.93	12.40	16.22	12.20	11.92	11.85	13.81	14.33	3.85
Cropped Area.										
A. Net area sown.	150.70	147.66	149.62	146.21	150.48	150.78	150.74	148.38	147.90	49.01
B. Area sown more than once.	53.49	32.07	41.85	35.60	48.43	52.28	46.37	53.78	57.29	15.08
C. Gross Cropped Area.	204.19	179.73	191.47	181.81	198.91	203.06	197.11	202.16	205.19	64.09
Cropping intensity in %	135	122	128	124	132	135	131	136	139	0
Source:-Commissioner Land Records, Gwalior, M.P.										

i) Geographical Area

It could be seen from Table 2.8, that the total geographical area in the State is 30.756 million hectares. Among the districts, Chhindwara has the maximum geographical area of 11.85 lakh hectares and Bhopal has the minimum geographical area of 2.78 lakh hectares, as could be visualized from Table 2.7.

ii) Forest

Perusal of the Table.2.8 and 2.7 further indicates that the area under forest is around 86 lakh hectares accounting for 28 percent of the geographical area. The district of Mandla has the maximum area 5.93 lakh hectares and Ujjain has

the minimum area under forest with 3200 hectares only. Over years, the area under forest had increased very marginally by about 3000 hectares. However, it is pointed out that for a natural / environmental balance to receive good rains there must be 33 percent of the geographical area under forest cover. This indicates that afforestation must be taken up. Since, the scope for bringing more area under natural forest cover is almost an impossible proposition, the development efforts must be dovetailed for intensification of green cover in forest area as well as on hills and hillocks and planting tree crops in shrub-jungles, village wastelands and farms in almost all the districts in the State.

iii) Land not available for cultivation.

The barren and unculturable land & land put to non-agricultural uses is around 33.92 lakh hectares in 2007 - 08 as compared to that of 32.00 lakh hectares in 1999 - 2000 as indicated in Table 2.8. It could be seen that the area under this criteria is being increase over the period of 9-years could be witnessed. This trend is not a good sign, even after having the several land development programme etc.

iv) Cultivable Waste

Table 2.8 indicates that the area under cultivable wastelands was 14.33 lakhs hectares in 2007-08, while it was 10.24 lakh hectares in year of 1999-00. Thus, a very big increase of about 4.09 lakh hectares could be observed during the period under question. Among the districts, (Table 2.7) the maximum area under culturable waste is found in Guna district, with 76500 hectares followed by Shivpuri (74100 ha), Sidhi (65700 ha) and Panna (60000 ha) districts in that order.

vii) Net Area Sown

Table2.8, further exhibits the fact that the net sown area was reducing considerably from 150.70 lakh hectares in year 1999-00 to 147.90 lakh

hectares in year 2006-07. This is rather a disturbing trend that needs immediate attention of the policy makers and planners. This might be, of course, due to marked increase in lands put to non-agricultural uses, due to rapid industrialization and urbanization.

viii) Area Sown more than once

Area sown more than once had shown a little upward trend over the period considered (Table- 2.8). This is a good sign for the improvement in agriculture practices. Infrastructure i.e. irrigation systems and extension reform are contribute for this improvement, but the speed of improvement is little slow which required boosting by making realistic plan & policy as well as its strategically implementation in the state.

The cropping intensity for the State as a whole, as could be visualized from Table 2.8, is sowing little improvement but it is not sufficient as the ratio increased in population of state.

The district of Indore has the maximum cropping intensity of 177 percent followed by Harda (176 percent) and Hoshangawad (168 percent) districts. And the district of Bhind has minimum cropping intensity as 107 percent.

Table 2.7. District wise Land Use Classification in Madhya Pradesh

LAND USE CLASSIFICATION 2006-07												
UNIT :- 000'HECT.												
DISTRICT	GEOGRAPHICAL AREA	FOREST		LAND NOT AVAILABLE FOR CULTIVATION		OTHER UNCULTIVATED LAND EXCLUDING FALLOW LAND		CULTIVABLE WASTE LAND			FALLOW LAND	
			%	LAND PUT TO NON AGRICULTURAL USES	BARREN AND UNCULTIVABLE LAND	PERMANENT PASTURES & OTHER GRAZZING LAND	LAND UNDER MISC. TREES .CROPS & GROVES	LAND THAT CAN BE BROUGHT UNDER CULTIVATION IMMEDIATELY	LAND THAT CAN BE BROUGHT UNDER CULTIVATION AFTER SOME IMPROVEMENT	UNECONOMICAL PATCHES OF LAND	CURRENT	OLD
JABALPUR	519.8	77.7	14.9	36.7	37.0	39.7	0.1	7.4	7.4	7.8	16.2	16.1
KATNI	493.1	100.0	20.3	12.8	55.8	38.6	0.1	13.7	12.5	13.3	27.5	26.1
BALAGHAT	924.5	505.0	54.6	47.4	9.5	30.9	0.7	9.5	8.9	10.1	13.4	15.9
CHHINDWARA	1184.9	479.5	40.5	53.6	26.7	52.0	0.0	12.7	2.4	2.5	40.7	30.4
SEONI	875.4	328.2	37.5	48.2	12.0	20.1	0.0	14.2	12.4	13.6	27.5	27.5
MANDLA	965.6	593.2	61.4	42.4	10.6	19.9	0.1	8.8	6.8	5.9	31.4	32.2
DENDORI	358.9	25.3	7.0	26.9	10.9	12.5	0.0	7.8	4.3	2.2	34.4	30.8
NARSINGHPUR	513.6	136.5	26.6	24.7	1.0	23.7	0.2	4.7	5.5	4.4	3.9	5.3
DN. TOTAL	5835.8	2245.4	38.5	292.7	163.5	237.4	1.2	78.8	60.2	59.8	195.0	184.3
SAGAR	1022.8	298.0	29.1	53.0	14.6	85.4	1.3	6.8	1.6	1.9	9.5	13.3
DAMOH	728.6	267.1	36.7	32.1	59.2	33.9	0.1	8.3	2.5	2.8	4.7	6.5
PANNA	702.9	299.7	42.6	42.0	22.7	8.3	0.0	57.9	1.1	1.0	21.7	14.4
TIKAMGARH	504.0	68.6	13.6	23.6	72.1	24.5	0.2	6.4	6.4	10.0	60.6	22.8
CHHATARPUR	863.0	214.0	24.8	44.2	1.6	63.3	0.3	26.3	22.8	21.2	105.0	44.4
DN. TOTAL	3821.3	1147.4	30.0	194.9	170.2	215.4	1.9	105.7	34.4	36.9	201.5	101.4
REWA	628.8	85.7	13.6	61.4	34.4	26.9	1.5	3.8	0.7	1.0	37.6	23.6
SIDHI	1039.2	434.8	41.8	83.1	16.6	14.5	0.0	35.2	17.5	13.0	42.9	28.0
SATANA	742.4	203.7	27.4	66.8	14.5	20.3	3.4	25.7	12.2	11.0	26.2	17.3
SHAHDOL	561.0	227.8	40.6	44.6	9.3	6.5	0.7	12.3	10.8	17.7	30.8	27.7

UMARIA	374.7	76.5	20.4	32.2	21.8	4.1	0.3	8.1	10.1	10.6	25.5	25.1
ANUPPUR	450.3	236.7	52.6	33.1	8.7	15.1	0.2	8.1	4.5	4.0	17.7	17.0
DN. TOTAL	3796.4	1265.2	33.3	321.2	105.3	87.4	6.1	93.2	55.8	57.3	180.7	138.7
INDORE	383.1	52.2	13.6	27.2	6.9	19.5	0.1	5.6	4.1	4.2	2.2	3.9
DHAR	819.5	120.6	14.7	52.0	75.7	47.1	0.0	6.4	4.4	3.8	2.0	3.0
JHABUA	675.7	131.7	19.5	57.3	83.4	8.7	0.0	1.7	24.1	0.0	4.7	4.6
KHARGONE	818.7	247.1	30.2	39.2	32.1	58.6	0.0	0.0	25.7	0.0	1.8	8.5
BARWANI	529.9	183.0	34.5	25.2	72.3	4.3	0.5	0.6	0.2	9.0	2.2	3.6
KHANDWA	775.6	309.2	39.9	82.6	8.4	54.8	0.1	0.1	0.0	0.1	5.7	12.1
BURHANPUR	342.7	202.0	58.9	15.8	6.2	10.4	0.0	0.2	0.2	0.4	1.3	1.8
DN. TOTAL	4345.2	1245.8	28.7	299.3	285.0	203.4	0.7	14.6	58.7	17.5	19.9	37.5
UJJAIN	609.9	3.2	0.5	57.8	5.8	39.5	0.1	5.7	2.2	1.2	1.0	1.9
MANDSAUR	551.8	38.6	7.0	73.8	47.7	14.3	0.1	4.7	5.0	6.0	1.9	1.1
NEEMUCH	393.6	94.4	24.0	46.5	40.3	7.7	0.0	6.1	6.2	7.4	0.6	0.6
RATLAM	486.0	34.3	7.1	30.7	41.6	28.6	0.1	5.8	5.0	4.4	1.3	1.1
DEWAS	701.3	206.6	29.5	35.5	10.8	58.0	0.0	2.0	0.8	0.2	0.4	1.2
SHAJAPUR	618.5	6.0	1.0	54.9	40.3	50.9	0.1	2.2	3.0	5.2	0.8	1.8
DN. TOTAL	3361.1	383.1	11.4	299.2	186.5	199.0	0.4	26.5	22.2	24.4	6.0	7.7
MORENA	501.7	50.6	10.1	40.1	89.6	18.9	0.0	11.3	5.6	5.6	11.5	5.8
SHEOPURKALA	666.6	292.2	43.8	39.3	86.6	37.2	0.0	6.0	33.9	0.0	8.3	5.6
BHIND	445.2	8.9	2.0	37.2	21.8	15.9	0.6	6.8	2.3	2.7	21.7	6.5
GWALIOR	456.4	111.1	24.3	33.3	50.6	13.9	0.1	13.6	5.1	4.5	19.0	9.5
SHIVPURI	995.4	330.1	33.2	60.5	38.1	26.1	3.9	24.7	23.8	25.6	37.5	31.2
GUNA	630.8	101.4	16.1	34.4	61.4	29.8	0.0	41.3	20.4	14.8	4.9	7.9
ASHOKNAGAR	467.4	52.8	11.3	27.6	36.2	12.5	0.0	18.8	4.4	2.2	2.3	3.5
DATIA	295.9	29.4	9.9	23.8	12.7	4.6	2.8	7.4	0.0	2.9	16.5	9.1
DN. TOTAL	4459.4	976.5	21.9	296.2	397.0	158.9	7.4	129.9	95.5	58.3	121.7	79.1
BHOPAL	277.9	44.1	15.9	31.4	3.9	33.8	0.0	0.6	1.2	2.9	2.9	3.8
SEHORE	656.4	172.6	26.3	37.7	8.0	36.2	0.0	13.0	0.0	0.0	0.4	3.3
RAISEN	848.7	333.7	39.3	39.7	3.5	24.6	0.1	3.7	3.5	4.9	0.9	3.0
VIDISHA	730.2	109.6	15.0	38.1	9.2	19.1	0.1	11.4	3.1	2.6	2.2	3.4
BETUL	1007.8	396.7	39.4	46.8	26.0	27.3	0.0	22.2	9.8	8.9	30.6	34.9
RAJGARH	616.3	17.6	2.9	42.2	29.2	66.2	0.3	22.0	4.9	1.9	1.6	4.6

HOSHANGA BAD	668.7	256.1	38.3	43.7	2.5	26.0	0.1	11.5	8.3	5.5	5.4	8.7
HARDA	330.6	104.8	31.7	8.7	15.7	13.7	0.4	2.7	1.5	0.9	0.1	1.5
DN. TOTAL	5136.6	1435.2	27.9	288.3	98.0	246.9	1.0	87.1	32.3	27.6	44.1	63.2
NON-REPORTED	0.0	-103.1		0.0	0.0							
TOTAL M.P.	**30755.8**	**8595.5**	**27.9**	**1991.8**	**1405.5**	**1348.4**	**18.7**	**535.8**	**359.1**	**281.8**	**768.9**	**611.9**
	Source:- commissioner land records,M.P. Gwalior											

2.6 Operational Holdings

Operational holding often determines agricultural production and productivity. The operational holdings as per Agricultural census are furnished in Table 2.10. . The results of successive agricultural census confirm the growing imbalance and asymmetry in the distribution of size of holdings. The number of marginal farmers in the State is 38.56 % of total farmers having proportion 8.54 % of total land, small farmers in the state is 26.51 % of total farmers having proportion 17.28% of total land, and semi medium farmers in the state is 20.22% of total farmers having proportion 25.18% of total land. First two category of farmers is 65.07% having only 25.84% area of total land where as the farmers of last two category namely Medium and Large is only 14.71% of total farmers having proportion 49.10 area of total land.

Table 2.10. Operational Holdings as per Agricultural Census

Sl. No	Category	No	Area	Proportion
1.	Marginal (below 1.0 Ha)	**2837799**	**1397740**	**8.54**
2.	Small (1.0-2.0 Ha)	**1951049**	**2828396**	**17.28**
3.	Semi-Medium (2.0 to 4.0 Ha)	**1488036**	**4121703**	**25.18**
4.	Medium (4.0 to 10.0 Ha)	**916702**	**5447788**	**33.28**
5.	Large (10.0 Ha and above)	**166170**	**2575681**	**15.73**
Total		**7359756**	**16371308**	**100 %**

Operational Holdings as per Agricultural Census-2001

Operational holding SC / ST and others caste wise are listed below:

Table 2.10 (a) Operational Holdings in M.P. (Number & Area)

Category		S.C.	S.T.	Institutional	Others	Total	%
Marginal							
	Area	2.19	2.70	Neg.	9.08	13.97	8.53
	No.	4.42	5.43	0.01	18.52	28.38	38.56
Small							
	Area	3.66	5.99	0.01	18.63	28.29	17.28
	No.	2.59	4.13	Neg.	12.79	19.51	26.51
Others							
	Area	7.69	23.74	0.31	89.72	121.46	74.20
	No.	2.08	5.48	0.02	18.13	25.71	34.91
TOTAL	No.	9.09	15.04	0.03	49.44	73.60	
	(%)	12.35	20.44	0.04	67.17		100.00
	Area	13.54	32.43	0.32	117.43	163.72	
	(%)	8.27	19.80	0.20	71.73		100.00
Source: Agriculture census 2000-01. No. in lakh. Area in lakh hectares							

Size of Holdings

The distribution of size of holdings in Madhya pradesh is furnished in Table 2.11. It could be seen that the average size of marginal holdings had declined from 0.41 hectare in 1976-77 to 0.37 hectare in 2000-01. However, there had been no marked differences in the size of small, semi-medium and medium holdings over years. The size of large holdings had increased from 17.28 hectares in 1976-77 to 19.48 hectares in 2000-01. In sum, the average size of holdings in Madhya Pradesh State had decreased from 1.25 hectares in 1976-77 to 0.89 hectare in 2000-01.

Table 2.11 (b) District wise Operational holdings in the Madhya Pradesh

district	Marginal (Below 1 hect.)		Small (1 to 2 hects)		Semi medium (2 to 4 hects)		Medium (4 to 10 hects)		Large (10 hects. & above		Total Holdings	
	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area	Number	Area
Jabalpur	88600	44238	48666	70139	28948	79056	14306	82860	1867	28725	182387	305018
Katni	105160	47223	39671	55510	23156	64394	10050	57852	989	14406	179026	239385
Balaghat	158046	67906	53892	74744	29565	79393	11538	65776	1293	18548	254334	306367
Chhindwara	84178	40744	73640	106588	57054	157115	33394	195092	4605	64887	252871	564426
Seoni	72089	31404	50025	73158	38821	109411	26548	157617	4472	66092	191955	437682
Mandla	78460	35038	37853	54983	28105	78602	16380	95651	1794	24364	162592	288638
Dindori	44166	21342	24526	36877	22846	64731	18118	110414	2915	41109	112571	274473
Narsinghpur	43425	23991	42543	62447	28516	80339	17231	102016	2647	38707	134362	307500
Jabalpur div.	674124	311886	370816	534446	257011	713041	147565	867278	20582	296838	1470098	2723489
Sagar	99647	51373	72808	107249	48154	134822	28522	170119	5967	98333	255098	561896
Damoh	74574	36282	38212	54393	27302	76029	16069	96587	2861	47152	159018	310443
Panna	65602	32038	44841	62833	29733	81056	15238	88011	1631	22309	157045	286247
Tikamgarh	77594	39203	48782	68782	33503	90396	12380	68607	900	12776	173159	279764
Chhatarpur	83603	45578	75067	109488	48438	130863	24264	142064	3665	55937	235237	483930
Sagar divi.	401020	204474	279710	402745	187130	513166	96673	565388	15024	236507	979557	1922280
Rewa	136911	58901	48143	69192	35349	97950	20559	119244	5236	92141	246198	437428
Sidi	112058	52393	53528	87045	40719	111216	20207	118737	4482	73487	230994	442878
Satna	124621	53736	56227	80286	37391	103420	19250	111948	2673	40718	240162	390108
Shahdol	110293	46280	46972	66928	41753	115319	25007	147821	4371	63594	228396	439942
Annupur	0	0	0	0	0	0	0	0	0	0	0	0
Umaria	37346	16418	18635	25315	15221	40978	7779	44393	1046	14989	80027	142093
Rewa divi.	521229	227728	223505	328766	170433	468883	92802	542143	17808	284929	1025777	1852449
Indore	36865	18127	30202	44119	22565	63292	15296	91760	2789	42419	107717	259717
Dhar	52914	28991	51245	74965	45165	126989	31305	189663	6545	103091	187174	523699
Jhabua	63011	36049	57369	84983	44667	124175	19541	111149	1497	19534	186085	375890
Khargon	34464	19755	53955	79926	41431	114086	26632	160965	4788	68769	161270	443501
Badwani	21087	12517	26261	38278	26894	72326	14097	84804	2122	28853	90461	236778
Khandwa	33478	19554	55767	82621	44280	122514	29590	176805	5360	79432	168475	480926
Buranpur	0	0	0	0	0	0	0	0	0	0	0	0
Indore divi.	241819	134993	274799	404892	225002	623382	136461	815146	23101	342098	901182	2320511
Ujjain	44920	25202	38183	54970	35926	102227	32626	202858	8720	138631	160375	523888
Mandsaur	60738	32023	42650	62397	33564	93875	21743	131663	2819	37910	161514	357868
Neemach	39120	20568	26571	37914	18582	52743	9394	57433	1052	15899	94719	184557
Ratlam	54967	29233	42335	60716	32805	91629	19716	117883	3236	47440	153059	346901
Dewas	37379	19122	41927	59653	33338	90913	26542	155203	6433	93124	145619	418015
Shajapur	64608	34822	48362	70346	37865	107980	30751	187814	6009	91400	187595	492362
Ujjain divi.	301732	160970	240028	345996	192080	539367	140772	852854	28269	424404	902881	2323591
Morena	92126	47653	42938	61644	28664	79107	11964	66740	1021	15685	176713	270829
Sheopur	27006	15384	28503	39666	18815	51266	7546	42843	613	8755	82483	157914
Bhind	79131	40183	41766	61387	34486	97388	20591	120486	2065	28490	178039	347934

Morena divi.	198263	103220	113207	162697	81965	227761	40101	230069	3699	52930	437235	776677
Gwalior	47831	23843	28434	40948	20335	56597	11363	66740	1867	30957	109830	219085
Shivpuri	61942	34336	53324	76158	41463	115190	22733	132723	3482	54796	182944	413203
Guna	73769	39993	68501	100131	58222	160759	34385	204467	7195	117083	242072	622433
Ashoknagar	0	0	0	0	0	0	0	0	0	0	0	0
Datia	41309	20749	25804	37522	21361	58273	12478	72269	1662	23940	102614	212753
Gwalior divi.	224851	118921	176063	254759	141381	390819	80959	476199	14206	226776	637460	1467474
Bhopal	15285	7718	18760	27146	14122	38081	9479	56642	1765	26104	59411	155691
Sehore	31989	17238	37805	56663	32404	88504	25727	157188	5451	89566	133376	409159
Raisen	32460	17796	47512	69669	35635	98207	27625	166169	5417	88145	148649	439986
Vidisha	32026	16089	34692	49011	32374	92284	30226	188401	11033	194271	140351	540056
Betul	58193	21643	41488	60384	42049	114831	29795	180058	6502	93121	178027	470037
Ragarged	70437	35718	52964	73863	40510	113887	29243	174692	4809	71325	197963	469485
Bhopal divi.	240390	116202	233221	336736	197094	545794	152095	923150	34977	562532	857777	2484414
Hoshangabad	30649	17161	32922	47157	26510	73480	18704	110764	3639	61120	112424	309682
Harda	3722	2185	6778	10202	9430	26010	10570	64797	4865	87547	35365	190741
Hoshangabad divi.	34371	19346	39700	57359	35940	99490	29274	175561	8504	148667	147789	500423
State total :-	2,837,799	1,397,740	1,951,049	2,828,396	1,488,036	4,121,703	916,702	5,447,788	166,170	2,575,681	7,359,756	16,371,308

2.7. Irrigation

Two main rivers namely Narmada and Tapti in the Madhya Pradesh State flows westward from the Eastern Ghats and are perennial. Narmada is main river of state and called lifeline of the state.

2.7.2. Sources of Irrigation

The major irrigation sources of the State are canals, tanks, wells and tube wells . The per capita availability of water in the State is less than All – India level as 2200 cubic meters. The sources of irrigation and percentage of net and gross area irrigated; year wise are indicated in Table 2.14.

Table 2.14. Source-wise Net Area Irrigated and Percentage to Total Irrigated Area

Year	Canals	Tanks	Wells & tube- wells.	Other sources	Net irrigated area	Gross irrigated area.	% of net irrigated area to net area sown	% of gross irrigated area to gross area sown
1999-2000	1002	132	3712	815	5661	5828	37.6	28.5
2000-01	808	85	2651	591	4135	4285	28.0	23.8
2001-02	881	93	3039	722	4735	4899	31.6	25.6
2002-03	748	94	2988	664	4494	4631	30.7	25.5
2003-04	949	127	3735	820	5631	5776	37.4	30.1
2004-05	1006	125	3993	918	6042	6193	40.1	30.5
2005-06	1030	134	3696	822	5682	5878	37.7	29.8
2006-07	1091	149	4196	929	6365	6543	42.9	32.4
2007-08	1051	138	4256	973	6418	6567	43.4	32.0

Source :- Commissioner, Land Records, M.P. Unit-000' hect.

Similarly District wise net area irrigated and gross area irrigated using different sources of irrigation are indicated in the table below:

Table 2.15 District wise details of Gross and Net Area Irrigated in Madhya Pradesh

SOURCEWISE GROSS AND NET IRRIGATED AREA 2006-07												
MADHAYA PRADESH	UNIT :000'HECT.											
DISTRICT	CANALS		TANKS		TUBE WELLS		WELLS		OTHER SOURCES		TOTAL IRRIGATED AREA	
	NET	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET	GROSS	NET	GROSS
JABALPUR	9.4	9.4	0.1	0.1	66.7	81.5	25.4	26.1	15.8	16.1	117.4	133.2
KATNI	8.0	12.8	0.7	0.7	1.3	1.2	24.2	30.1	15.0	15.1	49.2	59.9
BALAGHAT	73.6	84.1	25.5	29.1	0.1	0.2	20.6	22.6	4.9	5.5	124.7	141.5
CHHINDWARA	10.8	10.8	4.2	4.2	29.9	36.7	76.1	92.8	5.8	5.9	126.8	150.4
SEONI	56.8	56.8	8.9	8.9	3.0	3.0	31.8	31.8	13.2	13.2	113.7	113.7
MANDLA	15.8	15.9	0.0	0.0	0.0	0.0	2.9	2.9	1.7	1.6	20.4	20.4
DENDORI	1.2	1.1	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.4	1.7	1.7
NARSINGHPUR	1.1	1.1	0.0	0.0	76.5	77.3	92.8	92.7	7.4	7.4	177.8	178.5

JABALPUR DN.	**176.7**	**192.0**	**39.4**	**43.0**	**177.5**	**199.9**	**273.9**	**299.2**	**64.2**	**65.2**	**731.7**	**799.3**
SAGAR	8.2	8.2	2.6	2.6	36.9	37.0	117.0	117.0	76.3	76.3	241.0	241.1
DAMOH	11.6	14.4	0.8	0.8	29.8	29.8	28.3	28.3	45.3	45.3	115.8	118.6
PANNA	6.5	6.5	3.7	3.8	5.2	5.2	17.4	17.3	45.8	45.8	78.6	78.6
TIKAMGARH	6.7	6.7	6.2	6.2	8.0	9.6	85.1	114.4	4.3	8.3	110.3	145.2
CHHATARPUR	7.9	7.9	3.3	3.2	3.1	3.1	120.6	120.7	22.1	22.1	157.0	157.0
SAGAR DN.	**40.9**	**43.7**	**16.6**	**16.6**	**83.0**	**84.7**	**368.4**	**397.7**	**193.8**	**197.8**	**702.7**	**740.5**
REWA	12.3	12.4	1.6	1.6	34.0	35.5	18.4	27.2	19.9	19.9	86.2	96.6
SIDHI	13.3	13.3	0.8	0.8	12.7	15.3	26.5	30.9	11.5	11.6	64.8	71.9
SATANA	7.1	7.1	2.6	2.6	58.3	59.5	35.4	36.2	21.8	21.8	125.2	127.2
SHAHDOL	4.4	4.4	2.4	2.4	1.3	1.3	3.8	3.8	8.9	8.9	20.8	20.8
ANUPPUR	0.8	0.8	0.2	0.2	0.3	0.3	1.4	1.5	1.6	1.5	4.3	4.3
UMARIA	2.9	2.9	0.8	0.8	3.7	3.7	3.9	3.9	8.1	8.1	19.4	19.4
REWA DN.	**40.8**	**40.9**	**8.4**	**8.4**	**110.3**	**115.6**	**89.4**	**103.5**	**71.8**	**71.8**	**320.7**	**340.2**
INDORE	17.7	17.7	5.1	5.1	117.6	118.2	18.3	18.3	18.0	18.0	176.7	177.3
DHAR	13.3	13.3	12.0	12.0	122.7	122.7	82.1	82.1	51.8	51.8	281.9	281.9
JHABUA	9.8	9.9	10.7	10.7	1.7	1.9	22.2	22.6	23.4	23.5	67.8	68.6
KHARGONE	24.2	24.2	0.4	0.4	28.9	28.9	87.7	87.7	49.1	49.1	190.3	190.3
BARWANI	7.6	7.6	0.0	0.0	21.7	21.7	37.7	37.7	17.9	17.9	84.9	84.9
KHANDWA	6.3	6.3	0.5	0.6	18.3	18.2	82.3	82.3	15.4	15.4	122.8	122.8
BURHANPUR	0.3	0.3	0.0	0.0	11.2	15.0	23.0	25.9	2.2	2.2	36.7	43.4
INDORE DN.	**79.2**	**79.3**	**28.7**	**28.8**	**322.1**	**326.6**	**353.3**	**356.6**	**177.8**	**177.9**	**961.1**	**969.2**
UJJAIN	2.2	2.2	6.6	6.6	172.9	173.0	66.2	66.2	30.9	30.9	278.8	278.9
MANDSAUR	1.0	1.0	2.7	2.7	18.3	18.3	151.9	152.8	14.3	14.4	188.2	189.2
NEEMUCH	3.3	3.3	1.1	1.2	23.5	23.6	66.1	66.2	3.2	3.2	97.2	97.5
RATLAM	2.4	2.4	3.3	3.2	79.5	79.5	48.3	48.8	10.8	10.8	144.3	144.7
DEWAS	5.3	5.3	2.4	2.4	87.5	87.6	66.9	66.9	11.3	11.3	173.4	173.5
SHAJAPUR	10.2	10.2	6.1	6.1	57.2	57.3	117.4	117.5	20.5	20.5	211.4	211.6
UJJAIN DN.	**24.4**	**24.4**	**22.2**	**22.2**	**438.9**	**439.3**	**516.8**	**518.4**	**91.0**	**91.1**	**1093.3**	**1095.4**
MORENA	57.8	58.0	0.1	0.1	40.5	40.7	74.0	74.3	2.2	2.2	174.6	175.3
SHEOPURKALA	60.5	60.5	1.1	1.1	35.8	40.2	9.6	9.9	6.1	6.1	113.1	117.8
BHIND	18.2	18.2	0.4	0.4	18.0	18.1	66.6	66.9	1.9	1.9	105.1	105.5
GWALIOR	52.9	77.0	0.2	0.2	38.4	43.1	9.4	11.6	5.4	5.4	106.3	137.3
SHIVPURI	22.7	26.6	3.7	3.7	46.1	46.6	66.0	66.2	22.5	22.5	161.0	165.6
GUNA	19.9	19.9	4.5	4.5	56.4	56.7	40.2	40.1	26.8	26.8	147.8	148.0
ASHOKNAGAR	11.1	11.1	3.6	3.6	44.7	44.7	18.0	18.0	38.2	38.2	115.6	115.6
DATIA	83.6	83.6	0.0	0.0	2.3	2.3	54.1	56.0	1.2	1.2	141.2	143.1
GWALIOR DN.	**326.7**	**354.9**	**13.6**	**13.6**	**282.2**	**292.4**	**337.9**	**343.0**	**104.3**	**104.3**	**1064.7**	**1108.2**
BHOPAL	5.7	5.7	1.2	1.3	27.5	27.5	28.7	28.7	25.6	25.5	88.7	88.7

SEHORE	41.2	41.2	6.3	6.3	53.9	53.9	83.4	83.4	44.9	44.9	229.7	229.7
RAISEN	64.2	64.2	2.0	2.0	81.1	81.1	27.9	28.0	34.7	34.8	210.1	210.1
VIDISHA	39.9	39.9	4.9	4.8	106.3	106.3	42.7	42.6	61.9	61.9	255.5	255.5
BETUL	18.9	18.9	0.2	0.2	12.6	12.6	71.7	71.6	12.5	12.6	115.9	115.9
RAJGARH	5.7	5.7	4.2	4.2	31.3	31.3	124.3	124.4	13.3	13.2	178.8	178.8
HOSHANGABAD	147.1	147.1	1.1	1.1	52.3	52.3	53.5	53.5	16.3	16.3	270.3	270.3
HARDA	79.5	79.5	0.1	0.1	14.2	14.2	30.7	30.7	16.9	16.9	141.4	141.4
BHOPAL DN.	**402.2**	**402.2**	**20.0**	**20.0**	**379.2**	**379.2**	**462.9**	**462.9**	**226.1**	**226.1**	**1490.4**	**1490.4**
M.P. STATE	**1090.9**	**1137.4**	**148.9**	**152.6**	**1793.2**	**1837.7**	**2402.6**	**2481.3**	**929.0**	**934.2**	**6364.6**	**6543.2**
	Source:-Commissioner land records,M.P. Gwalior											

2.8. Cropping Pattern

The area, production and productivity of principal crops are furnished in Table 2.17. The area under paddy; is almost stable with little up-down; in 2007-08 it was 1.71 lacks hectare. However, the area under food grains declining by 1.18 lack hectare in 2007-08 in comparison to previous year, same is the status of cereals crop growing in the state. Area under pulses crop have seen an upward trends as 1.33 lacks hectare in year of 2007-08, we could see in the table that area under oilseed is declining in the year of 2007-08 as 74.7 thousand hectare area in the state.

Table 2.17 Area, Production, Productivity of Principal Crops

AREA,PRODUCTION & YIELD OF MAJOR CROPS IN M.P.												
(AREA:000'Ha., PROD.:000'TONNES, YIELD:Kg./Ha.)												
CROPS	**2005-06**			**2006-07**			**2007-08**			**2008-09**		
	AREA	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**
PADDY(RICE)	1711	1694	1045	1684	1396	874	1645	1332	853	1717	1578	969
JOWAR	581	607	1048	545	562	1033	546	600	1104	498	595	1203
MAIZE	863	1248	1455	890	854	962	853	1119	1320	838	1140	1369
BAJRA	184	275	1490	185	254	1375	202	278	1372	189	263	1386
KODOKUTKI	315	89	279	297	76	254	286	76	263	278	76	272
OTHER CEREALS	33	12	364	30	11	368	29	10	352	26	11	408
KHARIF CEREALS	**3687**	**3925**	**1065**	**3631**	**3153**	**868**	**3561**	**3415**	**959**	**3546**	**3663**	**1033**
WHEAT	3785	6200	1710	4275	7848	1916	4101	6737	1714	4010	7280	1875
BARLEY	79	99	1245	71	86	1209	64	65	1018	77	104	1342
OTHER CEREALS	4	3	750	4	3	750	5	4	800	4	3	750
RABI CEREALS	**3868**	**6302**	**1629**	**4350**	**7937**	**1825**	**4170**	**6806**	**1632**	**4091**	**7387**	**1806**

TOTAL CEREALS	**7555**	**10227**	**1354**	**7981**	**11090**	**1390**	**7731**	**10221**	**1322**	**7637**	**11050**	**1447**
TUR	323	242	744	309	213	691	304	197	802	310	247	795
URAD	483	171	354	470	161	342	570	195	341	517	196	379
MOONG	77	25	305	73	24	318	76	25	316	106	36	332
KULTHI	27	8	276	26	8	290	24	8	322	24	8	313
OTHER PULSES	9	2	222	8	2	250	8	2	250	8	2	250
KHARIF PULSES	**919**	**448**	**487**	**886**	**408**	**460**	**982**	**427**	**435**	**965**	**489**	**507**
GRAM	2541	2378	937	2591	2557	988	2662	1926	724	2875	2815	980
PEAS	219	104	474	190	84	442	171	67	392	204	100	490
LENTIL	582	293	503	540	262	485	522	221	423	531	264	498
TEORA	48	32	674	47	36	781	51	30	585	52	39	753
OTHER PULSES	23	4	174	13	4	308	10	3	300	10	3	300
RABI PULSES	**3413**	**2811**	**824**	**3381**	**2943**	**870**	**3416**	**2247**	**658**	**3672**	**3221**	**877**
TOTAL PULSES	**4332**	**3259**	**752**	**4267**	**3351**	**785**	**4398**	**2674**	**608**	**4637**	**3710**	**800**
KH. FOODGRAINS	**4606**	**4373**	**949**	**4517**	**3561**	**788**	**4543**	**3842**	**846**	**4511**	**4152**	**920**
RABI FOODGRAINS	**7281**	**9113**	**1252**	**7731**	**10880**	**1407**	**7586**	**9053**	**1193**	**7763**	**10608**	**1366**
TOTAL FOODGRAINS	**11887**	**13486**	**1135**	**12248**	**14441**	**1179**	**12129**	**12895**	**1063**	**12274**	**14760**	**1203**
GROUNDNUT	208	231	1105	201	192	949	204	191	928	206	240	1162
SOYBEAN	4590	4814	1050	4705	4789	1019	5202	5368	1033	5295	5924	1120
SESAMUM	185	73	394	247	88	356	309	117	376	244	102	416
NIGER	106	24	222	108	24	222	101	23	226	101	24	229
CASTOR	2	1	308	1	1	377	2	1	419	1	N	355
SUNFLOWER	1	1	1000	N	N	434	N	N	494	N	N	441
KH. OILSEEDS	**5092**	**5144**	**1010**	**5262**	**5094**	**968**	**5818**	**5700**	**980**	**5847**	**6290**	**1076**
RAPE/MUSTARD	831	856	1032	753	706	939	636	594	935	757	799	1056
LINSEED	132	53	401	126	50	397	109	38	350	109	45	414
SUNFLOWER & OTHERS	2	1	528	1	N		1	N		N	N	441
RABI OILSEEDS	**965**	**910**	**943**	**880**	**756**	**859**	**746**	**632**	**847**	**866**	**844**	**975**
TOTAL OILSEEDS	**6057**	**6054**	**1000**	**6142**	**5850**	**952**	**6564**	**6332**	**965**	**6713**	**7134**	**1063**
COTTON (BALES)	603	709	600	637	831	669	625	869	699	619	855	704
IN TONNES	0	359	0	0	424	0	0	443	0	0	436	0
SUGAR CANE (G)	52	224	4327	61	270	4407	77	328	4249	54	239	4434
TOTAL KHARIF	**10301**	**9876**	**959**	**10416**	**9079**	**872**	**10986**	**9985**	**909**	**10977**	**10878**	**991**
TOTAL RABI	**8298**	**10247**	**1235**	**8672**	**11906**	**1373**	**8409**	**10013**	**1191**	**8683**	**11691**	**1346**
TOTAL (KHARIF+RABI)	**18599**	**20123**	**1082**	**19088**	**20985**	**1099**	**19395**	**19998**	**1031**	**19660**	**22569**	**1148**
	FFC :- FINAL FORECAST			**Source:- commissioner land records,M.P. Gwalior**								

District wise area (in thousand hectares), production (in thousand tonnes) and yield (in kilograms per hectare) for food grain for the year 2003 - 04, 2005 – 06, 2006 - 07and 2007 – 08 are shown in the table below:

Table 2.17 (a) District wise, Year wise Area, Prod. and yield under the foodgrains in Madhya Pradesh

DISTRICTWISE AREA,PRODUCTION & YIELD OF TOTAL FOODGRAINS (KHARIF & RABI)

MADHYA-PRADESH **AREA:-000'HECTARE ,PRODUCTION:-000'TONNES, YIELD:-KG./HECTARE**

DISTRICT	2003-2004			2005-2006			2006-2007			2007-2008		
	AREA	PROD.	YIELD	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**
JABALPUR	131.1	112.2	856	325.3	385.3	1184	330.1	368.8	1117	334.1	273.0	817
KATNI	45.3	25.2	556	244.4	201.6	825	229.6	116.9	509	187.0	97.5	521
BALAGHAT	25.4	14.9	587	314.5	413.9	1316	312.0	338.6	1085	314.2	395.1	1257
CHHINDWARA	39.1	40.9	1046	347.3	441.1	1270	363.3	512.1	1410	367.3	593.5	1616
SEONI	75.9	45.6	601	357.0	318.8	893	356.0	313.0	879	359.9	308.7	858
MANDLA	39.6	14.8	374	250.9	157.4	627	244.5	140.9	576	245.8	149.5	608
NARSINGHPUR	186.5	174.5	936	302.8	403.0	1331	295.8	411.3	1390	296.1	375.2	1267
DIVISION TOTAL	**543.1**	**428.1**	**788**	**2175.1**	**2337.9**	**1075**	**2131.3**	**2201.6**	**1033**	**2104.4**	**2192.5**	**1042**
SAGAR	289.1	205.0	709	492.4	402.6	818	487.1	397.5	816	450.8	302.5	671
DAMOH	192.0	156.6	816	338.2	308.9	913	336.8	291.9	867	346.0	267.2	772
PANNA	126.4	89.2	706	280.6	211.5	754	252.8	170.9	676	247.7	169.4	684
TIKAMGARH	52.5	44.6	850	257.7	227.6	883	199.2	147.9	742	157.4	89.3	567
CHHATARPUR	147.7	123.7	838	385.4	372.3	966	293.8	221.0	752	244.6	142.4	582
DIVISION TOTAL	**807.7**	**619.1**	**766**	**1754.3**	**1522.9**	**868**	**1569.7**	**1229.2**	**783**	**1446.5**	**970.8**	**671**
REWA	90.3	62.9	697	459.2	402.7	877	434.1	300.9	693	418.0	251.5	602
SIDHI	46.7	20.3	435	429.6	281.6	655	430.8	283.7	659	422.2	248.9	590
SINGROLI				0.0	0.0		0.0	0.0		0.0	0.0	
SATNA	135.3	80.5	595	441.0	404.5	917	406.0	260.8	642	393.5	180.5	459
DIVISION TOTAL	**272.3**	**163.7**	**601**	**1329.8**	**1088.8**	**819**	**1270.8**	**845.4**	**665**	**1233.6**	**680.9**	**552**
SHAHDOL	5.6	2.4	429	188.9	154.5	818	184.8	127.3	689	179.1	105.4	588
ANUPPUR	12.8	5.2	406	107.7	65.6	609	106.4	51.0	479	106.0	51.4	485
UMARIA	13.3	5.6	421	180.7	158.8	879	179.1	141.9	792	178.3	105.2	590
DINDORI	36.6	9.7	265	216.8	120.8	557	218.5	107.2	491	226.0	117.5	520
DIVISION TOTAL	**68.4**	**22.9**	**335**	**694.2**	**499.7**	**720**	**688.9**	**427.4**	**620**	**689.5**	**379.5**	**550**
INDORE	27.3	24.5	897	96.6	125.5	1299	178.2	377.5	2118	174.3	290.6	1667
DHAR	35.4	29.6	836	245.6	304.5	1240	341.7	557.6	1632	370.1	648.5	1752
JHABUA	21.8	13.4	615	311.4	276.4	888	321.5	222.9	693	325.8	301.0	924
KHARGONE	5.8	3.1	534	174.1	188.6	1083	193.7	274.9	1419	196.4	304.7	1551
BARWANI	2.9	1.3	448	144.1	107.7	747	159.4	154.8	971	157.0	150.8	961
KHANDWA	15.3	12.5	817	133.8	154.5	1155	134.4	178.2	1326	136.4	183.7	1347
BURHANPUR	2.6	2.7	1038	37.4	51.6	1380	37.3	49.1	1316	37.7	50.7	1345
ALIRAJPUR				0.0	0.0		0.0	0.0		0.0	0.0	
DIVISION TOTAL	**111.2**	**87.1**	**783**	**1143.1**	**1208.8**	**1057**	**1366.2**	**1815.0**	**1329**	**1397.7**	**1930.0**	**1381**
UJJAIN	82.8	62.9	760	181.0	208.4	1151	325.6	706.6	2170	345.4	451.4	1307
MANDSAUR	27.6	16.7	605	125.4	133.2	1062	163.6	268.4	1641	154.8	209.9	1356
NEEMUCH	27.4	31.8	1161	85.5	149.9	1753	95.1	140.7	1479	81.8	119.4	1460
RATLAM	40.7	21.9	538	163.0	322.3	1977	208.8	393.7	1886	202.3	378.2	1870

DEWAS	89.8	104.4	1163	204.9	306.6	1496	238.6	432.1	1811	255.9	370.6	1448
SHAJAPUR	85.6	72.4	846	218.5	287.3	1315	268.4	369.7	1377	299.5	314.7	1051
DIVISION TOTAL	**353.9**	**310.1**	**876**	**978.3**	**1407.7**	**1439**	**1300.1**	**2311.2**	**1778**	**1339.7**	**1844.2**	**1377**
MORENA	10.5	12.2	1162	166.9	394.1	2361	175.6	385.5	2195	181.9	341.7	1879
SHEOPUR KALAN	5.6	6.8	1214	68.2	131.8	1933	70.0	132.1	1887	80.4	151.0	1878
BHIND	52.4	45.6	870	192.0	277.0	1443	169.9	225.7	1328	159.2	184.9	1161
DIVISION TOTAL	**68.5**	**64.6**	**943**	**427.1**	**802.9**	**1880**	**415.5**	**743.3**	**1789**	**421.5**	**677.6**	**1608**
GWALIOR	28.9	33.4	1156	154.9	330.6	2134	145.0	274.5	1893	125.2	170.2	1359
SHIVPURI	69.7	65.1	934	252.7	360.3	1426	228.8	303.6	1327	222.2	204.1	919
GUNA	69.0	61.6	893	193.4	234.3	1211	198.8	241.0	1212	200.1	200.5	1002
ASKHONAGAR	148.9	128.4	862	303.3	302.6	998	306.7	307.8	1004	313.0	244.6	781
DATIA	83.4	77.1	924	183.3	256.2	1398	167.7	225.7	1346	155.4	192.6	1239
DIVISION TOTAL	**399.9**	**365.6**	**914**	**1087.6**	**1484.0**	**1364**	**1047.0**	**1352.6**	**1292**	**1015.9**	**1012.0**	**996**
BHOPAL	39.7	39.7	1000	115.9	169.3	1461	117.2	171.1	1460	114.5	160.2	1399
SEHORE	88.8	84.1	947	262.5	390.2	1486	316.9	523.2	1651	310.9	307.9	990
RAISEN	197.1	192.0	974	413.0	525.1	1271	417.6	551.3	1320	414.4	394.8	953
VIDISHA	280.3	260.5	929	519.4	598.8	1153	524.2	658.0	1255	533.9	421.7	790
RAJGARH	61.3	54.1	883	208.5	213.1	1022	256.0	284.6	1112	269.4	282.9	1050
DIVISION TOTAL	**667.1**	**630.4**	**945**	**1519.2**	**1896.5**	**1248**	**1631.9**	**2188.2**	**1341**	**1643.1**	**1567.5**	**954**
HOSHANGABAD	54.4	62.2	1143	289.0	548.5	1898	289.9	660.4	2278	290.9	797.0	2740
HARDA	20.8	30.9	1486	143.1	293.9	2054	144.8	287.8	1988	147.5	438.4	2972
BETUL	35.8	22.1	617	303.6	356.7	1175	317.0	326.9	1031	325.0	352.8	1086
DIVISION TOTAL	**111.0**	**115.2**	**1038**	**735.7**	**1199.1**	**1630**	**751.7**	**1275.1**	**1696**	**763.4**	**1588.2**	**2080**
NON-REPORTED	9.5	4.4		75.3	52.6		75.2	52.7		74.9	52.7	
M.P.STATE	**3412.6**	**2811.2**	**824**	**11919.7**	**13500.9**	**1133**	**12248.3**	**14441.7**	**1179**	**12130.2**	**12895.9**	**1063**

SOURCE:- COMMISSIONER OF LAND RECORDS,M.P.,GWALIOR.

Similarly District wise area (in thousand hectares), production (in thousand tonnes) and yield (in kilograms per hectare) for Cereal crops for the year 2005 – 06, 2006 - 07and 2007 – 08 are shown in the table below:

Table 2.17 (b) District wise, Year wise Area, Prod. and yield under the Cereals in Madhya Pradesh

DISTRICTWISE AREA,PRODUCTION & YIELD OF TOTAL CEREALS (KHARIF & RABI)

MADHYA-PRADESH AREA:-000'HECTARE ,PRODUCTION:-000'TONNES, YIELD:-KG./HECTARE

DISTRICT	2005-2006			2006-2007			2007-2008		
	AREA	PROD.	YIELD	AREA	PROD.	YIELD	AREA	PROD.	YIELD
JABALPUR	164.4	253.0	1539	172.2	251.5	1461	170.9	180.7	1057
KATNI	193.1	173.7	900	179.5	96.6	538	142.8	81.5	571

BALAGHAT	283.0	395.4	1397	280.9	320.6	1141	282.0	378.5	1342
CHHINDWARA	272.8	365.4	1339	284.5	432.9	1522	294.4	519.3	1764
SEONI	267.6	263.9	986	266.7	260.5	977	267.6	265.2	991
MANDLA	205.4	139.1	677	202.2	123.9	613	201.3	132.4	658
NARSINGHPUR	75.3	186.3	2474	73.3	175.5	2394	75.9	177.9	2344
DIVISION TOTAL	**1494.3**	**1793.6**	**1200**	**1459.3**	**1661.5**	**1139**	**1434.9**	**1735.5**	**1209**
SAGAR	182.9	190.1	1039	182.3	186.1	1021	154.3	143.9	933
DAMOH	129.2	146.2	1132	129.7	123.9	955	123.7	138.3	1118
PANNA	143.8	118.5	824	128.8	90.4	702	114.9	84.4	735
TIKAMGARH	133.9	160.2	1196	96.2	105.7	1099	69.4	59.6	859
CHHATARPUR	185.2	236.4	1276	138.3	142.5	1030	97.0	85.0	876
DIVISION TOTAL	**775.0**	**851.4**	**1099**	**675.3**	**648.6**	**960**	**559.3**	**511.2**	**914**
REWA	342.3	328.6	960	321.2	237.5	739	306.0	185.2	605
SIDHI	339.1	240.8	710	339.3	246.3	726	332.9	216.0	649
SINGROLI	0	0	0	0	0	0	0	0	0
SATNA	273.6	311.7	1139	251.6	195.1	775	231.7	130.1	562
DIVISION TOTAL	**955.0**	**881.1**	**923**	**912.1**	**678.9**	**744**	**870.6**	**531.3**	**610**
SHAHDOL	169.3	146.2	864	165.3	119.5	723	161.2	98.2	609
UMARIA	87.9	58.2	662	86.7	44.0	507	85.4	44.0	515
ANUPPUR	159.4	150.3	943	157.6	133.5	847	155.5	97.5	627
DINDORI	174.3	109.0	625	175.7	94.0	535	168.3	103.0	612
DIVISION TOTAL	**590.9**	**463.7**	**785**	**585.3**	**391.0**	**668**	**570.4**	**342.7**	**601**
INDORE	68.3	100.7	1474	141.2	340.7	2413	136.0	255.3	1877
DHAR	187.6	267.6	1426	275.4	505.9	1837	299.2	591.6	1977
JHABUA	201.9	226.7	1123	213.3	174.1	816	215.5	245.9	1141
KHARGONE	136.2	175.6	1289	154.7	256.5	1658	158.6	287.2	1811
BARWANI	114.3	101.6	889	129.0	147.4	1143	127.4	143.9	1130
KHANDWA	101.6	131.9	1298	103.4	152.3	1473	105.9	161.1	1521
BURHANPUR	28.2	44.0	1560	28.5	41.7	1463	29.2	44.7	1531
ALIRAJPUR	0	0	0	0	0	0	0	0	0
DIVISION TOTAL	**838.1**	**1048.1**	**1251**	**1045.5**	**1618.6**	**1548**	**1071.8**	**1729.7**	**1614**
UJJAIN	90.7	143.2	1579	200.3	565.1	2821	204.6	357.1	1745
MANDSAUR	77.1	109.2	1416	118.8	237.5	1999	105.4	186.2	1767
NEEMUCH	51.7	116.0	2244	67.7	116.6	1722	58.8	103.0	1752
RATLAM	114.6	295.5	2579	149.1	345.9	2320	138.1	341.7	2474
DEWAS	107.0	197.6	1847	132.6	301.8	2276	143.7	249.8	1738
SHAJAPUR	125.3	212.0	1692	155.6	253.5	1629	152.6	235.0	1540
DIVISION TOTAL	**566.4**	**1073.5**	**1895**	**824.1**	**1820.4**	**2209**	**803.2**	**1472.8**	**1834**

MORENA	150.7	377.9	2508	160.5	372.0	2318	169.8	332.0	1955
SHEOPUR KALAN	60.2	124.0	2060	61.9	123.7	1998	71.3	143.4	2011
BHIND	128.9	225.7	1751	122.1	193.3	1583	124.7	164.0	1315
DIVISION TOTAL	**339.8**	**727.6**	**2141**	**344.5**	**689.0**	**2000**	**365.8**	**639.4**	**1748**
GWALIOR	118.4	293.1	2476	113.1	246.6	2180	96.2	148.1	1540
SHIVPURI	160.8	285.1	1773	147.5	234.0	1586	143.8	155.4	1081
GUNA	120.2	170.6	1419	122.3	166.4	1361	120.0	159.6	1330
ASHOKNAGAR	126.7	160.6	1268	126.9	155.9	1229	118.5	137.6	1161
DATIA	83.8	173.6	2072	107.8	183.0	1698	101.7	165.8	1630
DIVISION TOTAL	**609.9**	**1083.0**	**1776**	**617.6**	**985.9**	**1596**	**580.2**	**766.5**	**1321**
BHOPAL	74.6	128.8	1727	75.3	131.7	1749	73.1	125.7	1720
SEHORE	165.7	300.2	1812	215.1	415.7	1933	185.3	214.8	1159
RAISEN	192.1	318.6	1659	196.3	326.6	1664	190.4	228.9	1202
VIDISHA	218.2	329.8	1511	224.2	368.8	1645	189.2	214.9	1136
RAJGARH	137.3	154.8	1127	160.3	185.0	1154	161.6	210.0	1300
DIVISION TOTAL	**787.9**	**1232.2**	**1564**	**871.2**	**1427.8**	**1639**	**799.6**	**994.3**	**1243**
HOSHANGABAD	222.2	473.7	2132	229.3	592.7	2585	238.3	729.0	3059
HARDA	119.8	260.5	2174	120.0	254.7	2123	128.8	417.2	3239
BETUL	230.5	313.1	1358	238.6	279.6	1172	248.7	310.0	1246
DIVISION TOTAL	**572.5**	**1047.3**	**1829**	**587.9**	**1127.0**	**1917**	**615.8**	**1456.2**	**2365**
NON-REPORTED	58.2	41.6		58.2	41.7		58.0	41.6	
M.P.STATE	**7588.0**	**10243.1**	**1350**	**7981.0**	**11090.4**	**1390**	**7729.6**	**10221.2**	**1322**

Source:- commissioner land records,M.P. Gwalior

Similarly District wise area (in thousand hectares), production (in thousand tonnes) and yield (in kilograms per hectare) for Pulses crops for the year 2003 – 04, 2005 – 06, 2006 - 07 and 2007 – 08 are shown in the table below:

Table 2.17 (c) Year wise Area, Production & Yield under the Pulses in Madhya Pradesh

DISTRICTWISE AREA,PRODUCTION & YIELD OF TOTAL PULSES (KHARIF & RABI)												
MADHYA-PRADESH	**AREA:-000'HECTARE ,PRODUCTION:-000'TONNES, YIELD:-KG./HECTARE**											
DISTRICT	**2003-2004**			**2005-2006**			**2006-2007**			**2007-2008**		
	AREA	PROD.	YIELD	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD**	**YIELD**	**AREA**	**PROD**	**YIELD**
JABALPUR	131.1	112.2	856	160.9	132.3	822	157.9	117.3	743	163.2	92.3	566
KATNI	45.3	25.2	556	51.3	27.9	544	50.1	20.3	405	44.2	16.0	362
BALAGHAT	25.4	14.9	587	31.5	18.5	587	31.1	18.0	579	32.2	16.6	516

CHHINDWARA	39.1	40.9	1046	74.5	75.7	1016	78.8	79.2	1005	72.9	74.2	1018
SEONI	75.9	45.6	601	89.4	54.9	614	89.3	52.5	588	92.3	43.5	471
MANDLA	39.6	14.8	374	45.5	18.3	402	42.3	17.0	402	44.5	17.1	384
NARSINGHPUR	186.5	174.5	936	227.5	216.7	953	222.5	235.8	1060	220.2	197.3	896
DIVISION TOTAL	**543.1**	**428.1**	**788**	**680.8**	**544.3**	**800**	**672.0**	**540.1**	**804**	**669.5**	**457.0**	**683**
SAGAR	289.1	205.0	709	309.5	212.5	687	304.8	211.4	694	296.5	158.6	535
DAMOH	192.0	156.6	816	209.0	162.7	778	207.1	168.0	811	222.3	128.9	580
PANNA	126.4	89.2	706	136.8	93.0	680	124.0	80.5	649	132.8	85.0	640
TIKAMGARH	52.5	44.6	850	123.8	67.4	544	103.0	42.2	410	88.0	29.7	338
CHHATARPUR	147.7	123.7	838	200.2	135.9	679	155.5	78.5	505	147.6	57.4	389
DIVISION TOTAL	**807.7**	**619.1**	**766**	**979.3**	**671.5**	**686**	**894.4**	**580.6**	**649**	**887.2**	**459.6**	**518**
REWA	90.3	62.9	697	116.9	74.1	634	112.9	63.4	562	112.0	66.3	592
SIDHI	46.7	20.3	435	90.5	40.8	451	91.5	37.4	409	89.3	32.9	368
SINGROLI				0.0	0.0		0.0	0.0		0.0	0.0	
SATNA	135.3	80.5	595	167.4	92.8	554	154.4	65.7	426	161.8	50.4	311
DIVISION TOTAL	**272.3**	**163.7**	**601**	**374.8**	**207.7**	**554**	**358.7**	**166.5**	**464**	**363.0**	**149.6**	**412**
SHAHDOL	5.6	2.4	429	19.6	8.3	423	19.5	7.8	400	17.9	7.2	402
ANUPPUR	12.8	5.2	406	19.8	7.4	374	19.7	7.0	355	20.6	7.4	359
UMARIA	13.3	5.6	421	21.3	8.5	399	21.5	8.4	391	22.8	7.7	338
DINDORI	36.6	9.7	265	42.5	11.8	278	42.8	13.2	308	57.7	14.5	251
DIVISION TOTAL	**68.4**	**22.9**	**335**	**103.3**	**36.0**	**348**	**103.6**	**36.4**	**351**	**119.1**	**36.8**	**309**
INDORE	27.3	24.5	897	28.3	24.8	876	37.0	36.8	995	38.3	35.3	922
DHAR	35.4	29.6	836	58.0	36.9	636	66.3	51.7	780	70.9	56.9	803
JHABUA	21.8	13.4	615	109.5	49.7	454	108.2	48.8	451	110.3	55.1	500
KHARGONE	5.8	3.1	534	37.9	13.0	343	39.0	18.4	472	37.8	17.5	463
BARWANI	2.9	1.3	448	29.8	6.1	205	30.4	7.4	243	29.6	6.9	233
KHANDWA	15.3	12.5	817	32.2	22.6	702	31.0	25.9	835	30.5	22.6	741
BURHANPUR	2.6	2.7	1038	9.2	7.6	826	8.8	7.4	841	8.5	6.0	706
ALIRAJPUR				0.0	0.0		0.0	0.0		0.0	0.0	
DIVISION TOTAL	**111.2**	**87.1**	**783**	**305.0**	**160.7**	**527**	**320.7**	**196.4**	**612**	**325.9**	**200.3**	**615**
UJJAIN	82.8	62.9	760	90.3	65.2	722	125.3	141.5	1129	140.8	94.3	670
MANDSAUR	27.6	16.7	605	48.3	24.0	497	44.8	30.9	690	49.4	23.7	480
NEEMUCH	27.4	31.8	1161	33.8	33.9	1003	27.4	24.1	880	23.0	16.4	713
RATLAM	40.7	21.9	538	48.4	26.8	554	59.7	47.8	801	64.2	36.5	569
DEWAS	89.8	104.4	1163	97.9	109.0	1113	106.0	130.3	1229	112.2	120.8	1077
SHAJAPUR	85.6	72.4	846	93.2	75.3	808	112.8	116.2	1030	146.9	79.7	543
DIVISION TOTAL	**353.9**	**310.1**	**876**	**411.9**	**334.2**	**811**	**476.0**	**490.8**	**1031**	**536.5**	**371.4**	**692**
MORENA	10.5	12.2	1162	16.2	16.2	1000	15.1	13.5	894	12.1	9.7	802

SHEOPUR KALAN	5.6	6.8	1214	8.0	7.8	975	8.1	8.4	1037	9.1	7.6	835
BHIND	52.4	45.6	870	63.1	51.3	813	47.8	32.4	678	34.5	20.9	606
DIVISION TOTAL	**68.5**	**64.6**	**943**	**87.3**	**75.3**	**863**	**71.0**	**54.3**	**765**	**55.7**	**38.2**	**686**
GWALIOR	28.9	33.4	1156	36.5	37.5	1027	31.9	27.9	875	29.0	22.1	762
SHIVPURI	69.7	65.1	934	91.9	75.2	818	81.3	69.6	856	78.4	48.7	621
GUNA	69.0	61.6	893	73.2	63.7	870	76.5	74.6	975	80.1	40.9	511
ASKHONAGAR	148.9	128.4	862	176.6	142.0	804	179.8	151.9	845	194.5	107.0	550
DATIA	83.4	77.1	924	99.5	82.6	830	59.9	42.7	713	53.7	26.8	499
DIVISION TOTAL	**399.9**	**365.6**	**914**	**477.7**	**401.0**	**839**	**429.4**	**366.7**	**854**	**435.7**	**245.5**	**563**
BHOPAL	39.7	39.7	1000	41.3	40.5	981	41.9	39.4	940	41.4	34.5	833
SEHORE	88.8	84.1	947	96.8	90.0	930	101.8	107.5	1056	125.6	93.1	741
RAISEN	197.1	192.0	974	220.9	206.5	935	221.3	224.7	1015	224.0	165.9	741
VIDISHA	280.3	260.5	929	301.2	269.0	893	300.0	289.2	964	344.7	206.8	600
RAJGARH	61.3	54.1	883	71.2	58.3	819	95.7	99.6	1041	107.8	72.9	676
DIVISION TOTAL	**667.1**	**630.4**	**945**	**731.3**	**664.3**	**908**	**760.7**	**760.4**	**1000**	**843.5**	**573.2**	**680**
HOSHANGABAD	54.4	62.2	1143	66.8	74.8	1120	60.6	67.7	1117	52.6	68.0	1293
HARDA	20.8	30.9	1486	23.3	33.4	1433	24.8	33.1	1335	18.7	21.2	1134
BETUL	35.8	22.1	617	73.1	43.6	596	78.4	47.3	603	76.3	42.8	561
DIVISION TOTAL	**111.0**	**115.2**	**1038**	**163.2**	**151.8**	**930**	**163.8**	**148.1**	**904**	**147.6**	**132.0**	**894**
NON-REPORTED	9.5	4.4		17.1	11.0		17.0	11.0		16.9	11.1	
M.P.STATE	**3412.6**	**2811.2**	**824**	**4331.7**	**3257.8**	**752**	**4267.3**	**3351.3**	**785**	**4400.6**	**2674.7**	**608**

Similarly District wise area (in thousand hectares), production (in thousand tonnes) and yield (in kilograms per hectare) for Oilseed crops for the years 2003 – 04, 2005 – 06, 2006 - 07and 2007 – 08 are shown in the table below:

Table 2.17 (d) District wise, Year wise Area, Production & Yield under the Oilseed in Madhya Pradesh

DISTRICTWISE AREA,PRODUCTION & YIELD OF TOTAL OILSEEDS (KHARIF & RABI)												
MADHYA-PRADESH	**AREA:-000'HECTARE ,PRODUCTION:-000'TONNES, YIELD:-KG./HECTARE**											
DISTRICT	**2003-2004**			**2005-2006**			**2006-2007**			**2007-2008**		
	AREA	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	AREA	PROD.	YIELD
JABALPUR	12.8	7.5	586	15.2	9.8	645	15.4	8.9	578	17.4	7.4	425
KATNI	11.1	4.6	414	9.6	3.9	406	10.9	3.2	294	9.3	2.6	280
BALAGHAT	25.8	14.4	558	23.2	11.6	500	23.3	11.4	489	22.4	11.6	518
CHHINDWARA	162.3	207.9	1281	175.1	149.5	854	185.5	229.0	1235	189.4	256.7	1355
SEONI	104.6	102.0	975	117.2	85.3	728	128.5	123.5	961	136.9	119.7	874

MANDLA	30.4	17.1	563	31.3	17.6	562	29.4	16.0	544	31.6	17.5	554
NARSINGHPUR	65.2	119.7	1836	55.0	93.0	1691	53.9	84.3	1564	64.6	82.7	1280
DIVISION TOTAL	**412.2**	**473.2**	**1148**	**426.6**	**370.7**	**869**	**446.9**	**476.3**	**1066**	**471.6**	**498.2**	**1056**
SAGAR	174.3	166.9	958	179.8	146.1	813	212.5	174.3	820	328.3	188.3	574
DAMOH	39.8	36.6	920	53.2	50.8	955	61.6	48.7	791	114.2	64.6	566
PANNA	12.0	4.0	333	13.0	5.9	454	12.7	4.7	370	16.7	7.3	437
TIKAMGARH	75.5	79.2	1049	85.3	58.5	686	76.8	39.4	513	92.7	40.2	434
CHHATARPUR	77.4	33.9	438	100.8	39.9	396	88.8	26.9	303	115.3	37.8	328
DIVISION TOTAL	**379.0**	**320.6**	**846**	**432.1**	**301.2**	**697**	**452.4**	**294.0**	**650**	**667.2**	**338.2**	**507**
REWA	35.3	13.6	385	36.4	16.0	440	38.1	16.2	425	40.8	16.6	407
SIDHI	45.1	12.9	286	44.9	15.3	341	44.6	14.4	323	44.0	16.1	366
SINGROLI				0.0	0.0		0.0	0.0		0.0	0.0	
SATNA	20.6	9.4	456	29.7	15.5	522	40.2	17.4	433	56.3	23.9	425
DIVISION TOTAL	**101.0**	**35.9**	**355**	**111.0**	**46.8**	**422**	**122.9**	**48.0**	**391**	**141.1**	**56.6**	**401**
SHAHDOL	14.1	4.2	298	15.5	4.6	297	14.5	4.2	290	15.1	4.9	325
UMARIA	27.7	8.6	310	17.7	5.4	305	17.7	5.2	294	17.2	5.3	308
ANUPPUR	16.3	4.8	294	26.0	8.9	342	25.6	8.4	328	24.9	7.1	285
DINDORI	55.2	23.2	420	56.4	19.3	342	55.5	20.0	360	53.4	19.5	365
DIVISION TOTAL	**113.3**	**40.8**	**360**	**115.6**	**38.2**	**330**	**113.3**	**37.8**	**334**	**110.6**	**36.8**	**333**
INDORE	219.0	236.0	1078	211.1	237.3	1124	225.3	277.1	1230	227.0	316.3	1393
DHAR	230.6	266.3	1155	251.4	317.0	1261	252.3	315.0	1249	255.1	335.2	1314
JHABUA	43.6	37.9	869.3	50.4	38.3	760	54.5	39.9	732	60.4	48.7	806
KHARGONE	66.2	60.1	908	73.3	42.4	578	70.0	50.8	726	66.3	51.5	777
BARWANI	43.1	34.9	809.7	47.4	20.3	428	44.0	19.1	434	45.7	23.6	516
KHANDWA	165.9	104.5	630	156.7	94.5	603	156.7	107.7	687	158.6	113.2	714
BURHANPUR	11.6	8.5	732.8	13.9	9.1	655	13.9	10.3	741	15.0	9.2	613
ALIRAJPUR				0.0	0.0		0.0	0.0		0.0	0.0	
DIVISION TOTAL	**780.0**	**748.2**	**959**	**804.2**	**758.9**	**944**	**816.7**	**819.9**	**1004**	**828.1**	**897.7**	**1084**
UJJAIN	366.7	398.3	1086	432.8	452.1	1045	436.2	473.0	1084	435.3	516.1	1186
MANDSAUR	210.7	220.2	1045	291.4	200.2	687	312.9	276.5	884	297.3	248.8	837
NEEMUCH	109.3	137.3	1256	168.1	116.4	692	158.1	118.1	747	147.6	116.3	788
RATLAM	162.0	186.4	1151	198.9	199.5	1003	202.4	239.8	1185	209.1	251.1	1201
DEWAS	273.0	385.4	1412	282.6	362.5	1283	284.5	338.4	1189	297.7	357.9	1202
SHAJAPUR	310.3	306.6	988	333.2	325.3	976	334.7	279.9	836	338.0	313.9	929
DIVISION TOTAL	**1432.0**	**1634.2**	**1141**	**1707.0**	**1656.0**	**970**	**1728.8**	**1725.7**	**998**	**1725.0**	**1804.1**	**1046**
MORENA	139.9	186.6	1334	156.9	225.6	1438	152.8	197.4	1292	143.9	196.2	1363

SHEOPUR KALAN	90.0	130.1	1446	122.9	135.5	1103	120.8	119.6	990	110.2	105.7	959
BHIND	127.1	148.4	1168	155.5	190.4	1224	163.0	136.8	839	167.5	147.4	880
DIVISION TOTAL	**357.0**	**465.1**	**1303**	**435.3**	**551.5**	**1267**	**436.6**	**453.8**	**1039**	**421.6**	**449.3**	**1066**
GWALIOR	52.0	56.3	1083	96.7	115.9	1199	92.7	75.3	812	80.4	63.0	784
SHIVPURI	184.6	182.2	987	255.0	255.4	1002	235.4	190.0	807	228.7	138.8	607
GUNA	125.7	132.7	1056	166.9	172.5	1034	161.4	154.0	954	174.8	196.1	1122
ASHOKNAGAR	48.8	46.5	953	52.8	52.1	987	54.0	52.7	976	55.3	57.7	1043
DATIA	20.5	15.8	771	35.1	25.0	712	60.8	32.6	536	66.0	29.0	439
DIVISION TOTAL	**431.6**	**433.5**	**1004**	**606.5**	**620.9**	**1024**	**604.3**	**504.6**	**835**	**605.2**	**484.6**	**801**
BHOPAL	87.6	92.9	1061	91.8	106.1	1156	93.4	96.3	1031	97.1	120.6	1242
SEHORE	257.1	333.1	1296	271.2	345.5	1274	245.1	217.4	887	285.7	341.4	1195
RAISEN	75.1	72.2	961	76.0	81.0	1066	74.0	84.6	1143	131.4	156.0	1187
VIDISHA	127.7	109.5	857	127.2	143.0	1124	145.4	142.0	977	182.2	183.0	1004
RAJGARH	254.6	288.3	1132	270.5	319.9	1183	277.2	232.2	838	281.5	275.8	980
DIVISION TOTAL	**802.1**	**896.0**	**1117**	**836.7**	**995.5**	**1190**	**835.1**	**772.5**	**925**	**977.9**	**1076.8**	**1101**
HOSHANGABAD	202.3	206.5	1021	189.5	198.8	1049	195.7	237.5	1214	207.5	225.8	1088
HARDA	153.1	202.4	1322	162.7	293.6	1805	161.0	267.2	1660	168.1	234.3	1394
BETUL	178.9	152.5	852	208.4	205.6	987	209.2	199.1	952	220.8	215.3	975
DIVISION TOTAL	**534.3**	**561.4**	**1051**	**560.6**	**698.0**	**1245**	**565.9**	**703.8**	**1244**	**596.4**	**675.4**	**1132**
NON-REPORTED	19.6	14.7		19.7	14.9		19.6	14.7		19.6	14.8	
M.P.STATE	**4102.0**	**4226.6**	**1030**	**6055.3**	**6052.6**	**1000**	**6142.5**	**5851.1**	**953**	**6564.3**	**6332.5**	**965**
	SOURCE:- COMMISSIONER OF LAND RECORDS,M.P.,GWALIOR.											

District wise, division wise, year wise, area production and yields of all types of crops, taken together is indicated in the table below for the years 2003 - 04, 2005 - 06, 2006 - 07 and 2007 - 08.

Table 2.17 (e) District wise, Year wise Area, Prod. and yield under all crops in Madhya Pradesh

{DISTRICTWISE AREA, PRODUCTION & YIELD OF TOTAL (KHARIF & RABI)}

DISTRICTWISE AREA,PRODUCTION & YIELD OF TOTAL (KHARIF & RABI)												
MADHYA-PRADESH	**AREA:-000'HECTARE ,PRODUCTION:-000'TONNES, YIELD:-KG./HECTARE**											
DISTRICT	**2003-2004**			**2005-2006**			**2006-2007**			**2007-2008**		
	AREA	PROD.	YIELD	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**	**AREA**	**PROD.**	**YIELD**
JABALPUR	131.1	112.2	856	340.8	396.3	1163	346.1	379.7	1097	352.7	283.3	803
KATNI	45.3	25.2	556	254.0	205.5	809	240.5	120.1	499	196.3	100.1	510
BALAGHAT	25.4	14.9	587	338.6	429.3	1268	336.0	352.8	1050	337.6	410.8	1217
CHHINDWARA	39.1	40.9	1046	560.5	669.7	1195	587.9	840.2	1429	592.0	940.5	1589
SEONI	75.9	45.6	601	475.3	407.3	857	485.5	439.6	905	498.0	432.0	867
MANDLA	39.6	14.8	374	283.3	177.5	627	275.3	160.4	583	278.8	170.5	612
NARSINGHPUR	186.5	174.5	936	375.3	581.4	1549	373.3	610.7	1636	392.3	612.5	1561
DIVISION TOTAL	**543.1**	**428.1**	**788**	**2660.7**	**2883.8**	**1084**	**2644.6**	**2903.5**	**1098**	**2647.7**	**2949.7**	**1114**
SAGAR	289.1	205.0	709	672.6	549.8	817	700.0	572.8	818	779.4	491.6	631
DAMOH	192.0	156.6	816	391.5	359.8	919	398.4	340.8	855	460.3	331.9	721
PANNA	126.4	89.2	706	293.7	217.5	741	265.6	175.8	662	264.5	176.9	669
TIKAMGARH	52.5	44.6	850	343.1	286.7	836	276.3	188.3	682	250.2	130.0	520
CHHATARPUR	147.7	123.7	838	486.3	412.5	848	382.8	248.3	649	360.1	180.5	501
DIVISION TOTAL	**807.7**	**619.1**	**766**	**2187.2**	**1826.3**	**835**	**2023.1**	**1526.0**	**754**	**2114.5**	**1310.9**	**620**
REWA	90.3	62.9	697	495.7	418.8	845	472.2	317.2	672	458.8	268.2	585
SIDHI	46.7	20.3	435	474.5	296.9	626	475.4	298.5	628	466.2	265.0	568
SINGROLI				0.0	0.0		0.0	0.0		0.0	0.0	
SATNA	135.3	80.5	595	470.8	420.2	893	446.4	278.2	623	449.9	204.6	455
DIVISION TOTAL	**272.3**	**163.7**	**601**	**1428.9**	**1130.8**	**791**	**1382.5**	**889.0**	**643**	**1363.4**	**733.5**	**538**
SHAHDOL	5.6	2.4	429	204.4	159.2	779	199.3	131.5	660	194.2	110.4	568
ANUPPUR	12.8	5.2	406	125.4	71.0	566	124.1	56.2	453	123.2	56.7	460
UMARIA	13.3	5.6	421	206.7	167.7	811	204.7	150.3	734	203.2	112.3	553
DINDORI	36.6	9.7	265	273.2	140.1	513	274.0	127.2	464	279.4	137.0	490
DIVISION TOTAL	**68.4**	**22.9**	**335**	**821.9**	**543.1**	**661**	**813.6**	**470.1**	**578**	**811.5**	**420.7**	**518**
INDORE	27.3	24.5	897	307.8	362.9	1179	403.5	654.7	1623	401.3	607.0	1513
DHAR	35.4	29.6	836	605.4	705.2	1165	710.1	970.0	1366	743.0	1077.6	1450
JHABUA	21.8	13.4	615	397.4	330.4	831	413.0	276.6	670	420.1	363.5	865
KHARGONE	5.8	3.1	534	429.3	327.9	764	455.7	453.5	995	460.8	498.4	1082
BARWANI	2.9	1.3	448	244.1	149.0	610	257.0	195.0	759	259.5	200.0	771
KHANDWA	15.3	12.5	817	362.8	283.9	783	367.1	326.8	890	369.7	357.3	966
BURHANPUR	2.6	2.7	1038	100.3	93.8	935	101.2	92.6	915	101.2	94.3	932
ALIRAJPUR				0.0	0.0		0.0	0.0		0.0	0.0	
DIVISION TOTAL	**111.2**	**87.1**	**783**	**2447.2**	**2253.2**	**921**	**2707.6**	**2969.2**	**1097**	**2755.6**	**3198.1**	**1161**
UJJAIN	82.8	62.9	760	614.1	660.7	1076	762.1	1180.1	1548	780.9	967.8	1239

MANDSAUR	27.6	16.7	605	417.3	333.6	799	477.2	545.2	1142	452.6	458.9	1014
NEEMUCH	27.4	31.8	1161	253.6	266.3	1050	253.2	258.8	1022	229.4	235.7	1027
RATLAM	40.7	21.9	538	395.2	551.3	1395	444.2	659.4	1484	440.7	653.8	1484
DEWAS	89.8	104.4	1163	522.3	691.0	1323	560.9	797.4	1422	586.5	752.2	1283
SHAJAPUR	85.6	72.4	846	552.1	613.9	1112	603.4	650.7	1078	637.9	629.7	987
DIVISION TOTAL	**353.9**	**310.1**	**876**	**2754.6**	**3116.8**	**1131**	**3101.0**	**4091.5**	**1319**	**3128.0**	**3698.1**	**1182**
MORENA	10.5	12.2	1162	324.7	623.4	1920	329.5	587.0	1781	326.7	541.2	1657
SHEOPUR KALAN	5.6	6.8	1214	191.2	267.7	1400	190.8	252.0	1321	190.7	257.0	1348
BHIND	52.4	45.6	870	347.6	467.6	1345	333.0	362.7	1089	326.8	332.5	1017
DIVISION TOTAL	**68.5**	**64.6**	**943**	**863.5**	**1358.7**	**1573**	**853.3**	**1201.7**	**1408**	**844.2**	**1130.7**	**1339**
GWALIOR	28.9	33.4	1156	253.7	455.5	1795	240.0	359.3	1497	208.4	240.7	1155
SHIVPURI	69.7	65.1	934	508.3	617.3	1214	465.4	496.6	1067	452.3	345.3	763
GUNA	69.0	61.6	893	360.5	407.3	1130	360.9	396.5	1099	376.0	398.5	1060
ASKHONAGAR	148.9	128.4	862	356.7	356.0	998	361.5	362.4	1002	369.4	305.1	826
DATIA	83.4	77.1	924	222.3	293.8	1322	232.0	268.4	1157	226.1	238.1	1053
DIVISION TOTAL	**399.9**	**365.6**	**914**	**1701.5**	**2129.9**	**1252**	**1659.8**	**1883.2**	**1135**	**1632.2**	**1527.7**	**936**
BHOPAL	39.7	39.7	1000	207.9	275.9	1327	210.9	268.1	1271	211.8	281.4	1329
SEHORE	88.8	84.1	947	535.4	743.8	1389	563.1	745.0	1323	598.1	655.4	1096
RAISEN	197.1	192.0	974	489.4	606.7	1240	493.1	638.3	1294	547.6	553.8	1011
VIDISHA	280.3	260.5	929	646.7	741.9	1147	669.7	800.2	1195	716.3	605.1	845
RAJGARH	61.3	54.1	883	479.1	533.2	1113	533.3	517.0	969	551.0	558.9	1014
DIVISION TOTAL	**667.1**	**630.4**	**945**	**2358.1**	**2901.4**	**1230**	**2469.7**	**2968.5**	**1202**	**2624.6**	**2654.5**	**1011**
HOSHANGABAD	54.4	62.2	1143	479.3	750.0	1565	487.4	903.8	1854	500.4	1029.0	2056
HARDA	20.8	30.9	1486	308.0	589.4	1914	311.7	559.3	1794	319.4	675.7	2116
BETUL	35.8	22.1	617	516.9	579.5	1121	532.1	545.9	1026	553.5	597.8	1080
DIVISION TOTAL	**111.0**	**115.2**	**1038**	**1304.4**	**1918.9**	**1471**	**1331.5**	**2009.1**	**1509**	**1373.4**	**2302.7**	**1677**
NON-REPORTED	9.5	4.4		102.1	73.4		101.9	73.3		101.5	73.3	
M.P.STATE	**3412.6**	**2811.2**	**824**	**18630.1**	**20136.1**	**1081**	**19088.6**	**20985.1**	**1099**	**19396.6**	**19999.9**	**1031**

2.9. Horticulture

Allied sectors including horticulture would provide additional employment opportunities and additional income to the farm families. Thus the income of the farm families is supplemented by the allied sectors.

The State is endowed with agro-climatic conditions conducive for growing a wide range of horticulture crops such as fruits, vegetables, spices, plantation crops, flowers, medicinal and aromatic plants.

The area and yield of major horticultural crops remained stagnant during the periods 1982 – 83 to 1991 – 92. But from 1991 – 92, when awareness about both crops and eating habits of the people changed, this sector has been witnessing an upward trend, from 424512 in area in 1992 -93 to 515946 in 2004 – 05;

similarly the production grew from 32 to 40.63, in the same period.

The production of vegetables registered an increase of 13 percent respectively in year of 2004-05. Similarly, the production of spices increased to 13 percent respectively in the year 2004-05, and flower production is stable in the year of 2004-05. The details of area and production of core groups in horticultural crops are furnished in **Table 2.19.**

Table 2.19 Horticultural Crops In Madhya Pradesh

YEAR	FRUITS		VEGETABLES		SPICES		FLOWERS		MEDICINAL &AROMATIC		GRAND TOTAL	
	AREA	PROD.	AREA	PROD.	AREA	PROD.	AREA	PROD.	AREA	PROD.	AREA	PROD.
1982-83	56679	9.04	123269	16.61	134158	0.62	-	-		-	314106	26.27
1985-86	52175	9.69	131322	16.80	142980	0.70	-	-	-	-	326477	27.19
1991-92	61313	11.59	158909	19.52	198538	1.755	964	0.0057	-	-	419724	32.8707
1992-93	57892	10.64	162186	19.95	203608	1.497	826	0.0049	-	-	424512	32.0919
1993-94	58441	10.71	173608	21.43	234669	1.697	915	0.0054	-	-	467633	33.8424
1994-95	61022	11.23	180811	22.41	236634	2.076	1270	0.0076	-	-	479737	35.7236
1995-96	59709	11.23	189081	23.27	249858	2.466	1388	0.0083	23328	1.40	523364	38.3743
1996-97	59469	12.38	202910	28.39	262077	3.256	1435	0.0086	26510	1.59	552401	45.6246
1997-98	60129	13.09	212729	29.79	331028	3.08	1778	0.0106	27892	1.67	633556	47.6436
1998-99	63941	14.31	237129	33.24	315331	3.14	1261	0.0080	20225	1.21	637887	51.908
1999-2000	57485	15.79	223840	23.78	293232	3.22	3425	0.02	20825	1.24	598807	44.05
2000-2001	51521	13.38	130854	18.61	171415	1.50	3761	0.02	15196	0.91	372747	34.42

2001-2002	46263	11.43	140882	20.23	195905	1.87	1437	0.008	18364	1.10	402851	34.64
2002-2003	47554	11.13	144095	20.49	144706	1.60	1418	0.009	10249	0.61	348022	33.84
2003-2004	47257	9.10	163474	23.31	239867	2.64	1633	0.01	15763	0.95	467994	36.01
2004-2005	47856	10.33	184950	26.21	265811	3.15	1747	0.01	15582	0.93	515946	40.63

The area (in hectare), production (in Tonnes0 and productivity (in Tonnes per hectare) for flowers and medicinal and aromatic plants are indicated in the table below, for a ten years period from 1995 – 96 to 2004 - 05

Table 2.19 (a) Area, Production & Productivity of Flowers & Medicinal / Aromatic crops in Madhya Pradesh

Area, production & productivity of flowers & medicinal/aromatic crops in M.P.(Year 1995-96 To 2004-2005)

(Area in Hectare, Production in Tonnes, Productivity in Tonne / Hect).						
YEAR	FLOWERS			MEDICINAL & AROMATIC		
	AREA	PRODUCTION	PRODUCTVITY	AREA	PRODUCTION	PRODUCTVITY
1	2	3	4	5	6	7
1995-1996	1388	833	0.60	23328	139968	6.00
1996-1997	1435	861	0.60	26510	159060	6.00
1997-1998	1778	1067	0.60	27892	167352	6.00
1998-1999	1261	757	0.60	20225	121350	6.00
1999-2000	3425	2055	0.60	20825	124950	6.00
2000-2001	3761	2257	0.60	15196	91176	6.00
2001-2002	1437	862	0.60	18364	110184	6.00
2002-2003	1418	851	0.60	10249	61494	6.00
2003-2004	1633	980	0.60	15763	94578	6.00
2004-2005	1747	1048	0.60	15582	93492	6.00

Mango has been traditionally grown in Madhya Pradesh, in both forests and in individual farms. The area (in hectare), production (in Tonnes0 and productivity (in Tonnes per hectare) for fruit crops; are indicated in the table below, for a ten years period from 1995 – 96 to 2004 - 05

Table 2.19 (b) Area, Production & Productivity of Fruit Crops In Madhya Pradesh

Area, Production & Productivity Of Fruit Crops In M.P. Year 1995-96 To 2004-2005

FRUITS :- Area in Hectare, Production in Tonne, Productivity in Tonne / Hect.												
YEAR	MANGO			ORANGE			MOUSAMBI			LIIME		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1995-1996	17549	157941	9.00	9185	146960	16.00	296	4736	16.00	1509	24144	16.00
1996-1997	17148	154332	9.00	9373	149968	16.00	283	4528	16.00	1408	22528	16.00
1997-1998	16199	145791	9.00	9460	151360	16.00	554	8864	16.00	1352	21632	16.00
1998-1999	16361	147249	9.00	9763	156208	16.00	242	3872	16.00	1464	23424	16.00
1999-2000	7676	69084	9.00	10252	164032	16.00	241	3856	16.00	1244	19904	16.00
2000-2001	7775	69975	9.00	11274	180384	16.00	279	4464	16.00	1089	17424	16.00
2001-2002	7000	63000	9.00	11663	186608	16.00	251	4016	16.00	1128	18048	16.00
2002-2003	7098	63882	9.00	14680	234880	16.00	245	3920	16.00	1071	17136	16.00
2003-2004	6849	61641	9.00	14835	237360	16.00	176	2816	16.00	1083	17328	16.00
2004-2005	6886	61974	9.00	14910	238560	16.00	236	3776	16.00	1051	16816	16.00
YEAR	BANANA			GUAVA			PAPAYA			GRAPES		
1995-1996	16698	584430	35.00	7222	144440	20.00	978	24450	25.00	139	3475	25.00
1996-1997	16829	680901	40.46	7241	144820	20.00	989	48461	49.00	120	3000	25.00
1997-1998	18991	768375	40.46	6729	134580	20.00	829	40621	49.00	51	1275	25.00

1998-1999	21691	877617	40.46	6921	138420	20.00	897	43953	49.00	63	1575	25.00
1999-2000	29194	1181189	40.46	3691	73820	20.00	829	40621	49.00	47	1175	25.00
2000-2001	22852	924592	40.46	3605	72100	20.00	928	45472	49.00	80	2000	25.00
2001-2002	18204	736534	40.46	3652	73040	20.00	800	39200	49.00	104	2600	25.00
2002-2003	16159	653793	40.46	3467	69340	20.00	897	43953	49.00	108	2700	25.00
2003-2004	16027	480810	30.00	2876	57520	20.00	885	23895	27.00	93	2325	25.00
2004-2005	14941	597640	40.00	2763	55260	20.00	684	18468	27.00	100	2500	25.00
YEAR	**OTHER FRUITS**			**TOTAL FRUITS**								
1995-1996	5532	33192	6.00	59108	1123768							
1996-1997	6078	36468	6.00	59469	1245006							
1997-1998	5964	35784	6.00	60129	1308282							
1998-1999	6539	39234	6.00	63941	1431552							
1999-2000	4311	25866	6.00	57485	1579547							
2000-2001	3639	21834	6.00	51521	1338245							
2001-2002	3461	20766	6.00	46263	1143812							
2002-2003	3829	22974	6.00	47554	1112578							
2003-2004	4433	26598	6.00	47257	910293							
2004-2005	6285	37710	6.00	47856	1032704							
SOURCES :- (1) Year 1995-1996 to 2004-2005 from Commisioner land records of M.P.												

As is evident from the table, the productivity of most the fruit crops remain stagnant, during the period, however it was Papaya, that saw a major growth in

from 25 to 49 tonnes / ha. During 1995 -96 to 2002 -03.

The major spices grown in Madhya Pradesh are Chillies, Coriander, Turmeric, Ginger, and Garlic. In almost all the spices there is an upward trend in production. As is indicated in the table below:

Table 2.19 (c) Area, Production & Productivity of Spices In Madhya Pradesh

Area, Production & Productivity Of Spices In M.P. Year 1995-96 To 2004-2005

SPICES :- Area in Hectare, Production in Tonnes, Productivity in Tonne / Hect.												
YEAR	CHILLIES			GINGER			TURMERIC			GARLIC		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1	2	3	4	5	6	7	8	9	10	11	12	13
1995-1996	42147	15172	0.34	3011	4215	1.40	637	637	1.00	41444	145054	3.50
1996-1997	48450	22287	0.46	3699	6769	1.83	685	2398	3.50	33983	139330	4.10
1997-1998	48933	22509	0.46	4014	7346	1.83	815	2853	3.50	37135	152254	4.10
1998-1999	50048	23022	0.46	4311	7889	1.83	824	2884	3.50	40344	165410	4.10
1999-2000	46824	21539	0.46	3976	7276	1.83	925	3792	3.50	53874	188559	4.10
2000-2001	43448	19986	0.46	4282	7836	1.83	375	1313	3.50	17590	72119	4.10
2001-2002	39938	18371	0.46	4967	9090	1.83	384	1344	3.50	22723	93164	4.10
2002-2003	44180	20323	0.46	5204	9523	1.83	558	1953	3.50	22712	93119	4.10
2003-2004	49062	38268.36	0.78	5084	9303.72	1.83	657	2299.50	3.50	33196	137763.40	4.15
2004-2005	47091	42852.81	0.91	5233	5913.29	1.13	664	637.44	0.96	42292	178472.24	4.22
YEAR	CORIENDER			OTHER SPICES			TOTAL SPICES					
	Area	Production	Productivity	Area	Production	Productivity						

1995-1996	113382	34015	0.30	49237	49237	1.00	249858	248330				
1996-1997	134030	53612	0.40	41230	41230	1.00	262077	265626				
1997-1998	196513	78605	0.40	43618	43618	1.00	331028	307185				
1998-1999	174415	69766	0.40	45389	45389	1.00	315331	314360				
1999-2000	144307	57722	0.40	43326	43326	1.00	293232	322214				
2000-2001	94741	37896	0.40	10979	10979	1.00	171415	150129				
2001-2002	103789	41516	0.40	24104	24104	1.00	195905	187589				
2002-2003	62078	24831	0.40	9974	9974	1.00	144706	159723				
2003-2004	125110	50044	0.40	26758	26758	1.00	239867	264437				
2004-2005	136388	53191	0.39	34143	34143	1.00	265811	315210				

Horticulture Training Centers in M.P. Horticulture Training Centers in M.P. : The department is running four training centres, at, Pachmari, Rehli (Sagar district), Govindgarh (Rewa district) and Indore. While the centre at Pachmari is for training officers, the other three centres are for training gardners.

1	PACHMARHI	-	OFFICERS TRAINING
2	REHLI (SAGAR)		MALI TRAINING
3	GOVINDGARH (REWA)	-	MALI TRAINING
4	INDORE	-	MALI TRAINING

Horticulture Nurseries in M.P. Horticulture Nurseries in Madhya Pradesh: To promote and encourage horticultural crop growth in the state, the department is running 307 nurseries and farms; that includes; 253 nurseries; 45 station gardens and 9 vegetable seed farms.

1	NURSERIES	253
2	STATION GARDEN	45
3	VEGETABLE SEED FARM	9
	TOTAL NURSERIES & FARMS	308

Food Preservation Centers A Food Preservation Center is also being run at Indore, where food processing trainings for making Jam, Jelly and pickles etc. are imparted.

2.10. Agricultural Engineering

The mechanization ensures reduction of drudgery associated with various farm operations as also to economize the utilization of inputs and thereby harnessing the potential of available resources. The priorities for mechanization are decided as per the actual requirement of various agro-climatic zones and involve land preparation equipment and crop production techniques for cereal crops, cash crops, oil seeds, pulses, horticultural crops etc.

The constraints in the promotion of mechanization include the varied requirement of equipments for each agro-climate zone, the small and fragmented land holding, low investment capacity of the farmers, inadequate irrigation facilities, know how status of the farmers, repairs and maintenance facilities etc.

However, there has been an upwards trend in adopting to various mechanized devices in agriculture, as is evident from the table below. The use of tractors have increased from 186404 to 284532, i.e. almost doubled. Similarly erratic supply and shortage of electricity has proved to be a boon for the increased use of diesel pumps, again doubling from 194662 in 1999 – 2000 to 325211 in 2007 - 08. In case of sugarcane crushing farmers are shifting from bullock driven to power driven crushers. It is only the ploughs, where people still prefer wooden ploughs and iron ploughs are not encouraged.

Table 2.10 : Use of Mechanized devices for agricultural practises

YEA	PUMPS		TRACTORS	SUGARCANE CRUSHERS		PLOUGHS	
	ELECTRIC	DIESEL		POWER DRIVEN	BULLOCK DRIVEN	WOODEN (' 000)	IRON (' 000)
1999-00	1175625	194662	186404	6619	6310	3370	462
2000-01	1095147	193328	195022	7763	11651	3345	484

2001-02	1121257	190415	203400	6600	4000	3271	511
2002-03	1158512	218076	218052	6274	3582	3218	527
2003-04	1411640	348334	243145	7421	7103	3265	578
2004-05	1435975	358373	251583	7635	6874	3188	613
2005-06	1459184	322918	266591	7514	6103	3214	625
2006-07	1493099	328188	268927	7356	5878	3194	640
2007-08	1552159	325211	284532	11254	4301	3119	651

2.11. Animal Husbandry

Activities allied to agriculture *viz.,* Animal Husbandry, Fisheries and Poultry have the potential for providing significant employment opportunities to rural and urban population. Allied activities provide supplementary occupation to the people besides contributing to Gross State Domestic Product. The dependence on the agricultural sector for supporting livelihood is well known while the allied sectors offer scope for absorbing surplus labour from the agriculture sector.

The total livestock population of the State which stood at 328.80 lakhs in 2007 comprising 65.53 lacks Bull and Bullocks, 51.78 lacks are cows, 34.64 lacks are buffaloes, 5.93 lacks are sheeps, 74.18 lacks goats and 38 thousands are horse, 5.61 lacks are pig and 54 thousands are recorded as other animals during the 2006-07. The details of livestock particulars are furnished in Table 2.11

This huge population of animals can change the economy of state by increasing their productivity and performance, it can provide us the sufficient quantity of milk and meat, however there are potential to use of bullock quantum in the agriculture for reducing the labour cost as well as by product of animals as dung can provide us the organic manure and power for farm and domestic purpose by proper utilization of by product.

Table 2.11. District wise Livestock Census of Madhya Pradesh

	LIVE STOCK IN MADHYA PRADESH 2006-07								LIVE STOCK IN MADHYA PRADESH 2006-07					
						UNIT :- 000 NOS.							UNIT :- 000 NOS.	
DISTRICT	ABOVE 3 YEARS		YOUNG STOCK	TOTAL	ABOVE 3 YEARS		YOUNG STOCK	TOTAL	SHEEP	GOATS	HORSES	PIGS	OTHER CATTLES	TOTAL CATTLES
	BULL BULLOCKS	COWS			HE BUFFALOES	BUFFAL-OES								
JABALPUR	86.1	127.6	152.9	366.6	4.1	51.6	40.6	96.3	3.9	116.0	0.4	15.2	0.3	598.7
KATNI	175.2	97.6	143.8	416.6	12.4	26.8	44.2	83.4	8.3	85.7	0.2	5.7	0.1	600.0
BALAGHAT	258.8	146.9	147.1	552.8	37.4	47.7	109.8	194.9	0.0	202.2	0.2	22.2	0.0	972.3
CHHINDWARA	274.4	180.0	247.1	701.5	5.9	64.8	95.0	165.7	1.6	277.5	2.9	62.7	1.2	1213.1
SEONI	221.6	113.7	164.9	500.2	10.0	48.6	56.2	114.8	0.1	139.7	0.7	6.0	0.1	761.6
MANDLA	159.5	106.6	113.3	379.4	22.3	25.7	28.3	76.3	0.5	92.3	1.6	21.7	0.6	572.4
DENDORI	144.8	77.7	64.8	287.3	16.6	14.9	16.8	48.3	0.2	57.1	3.5	7.4	0.0	403.8
NARSINGHPUR	87.5	84.7	105.9	278.1	1.8	37.7	45.9	85.4	1.4	67.5	1.4	4.6	1.7	440.1
DN. TOTAL	**1407.9**	**934.8**	**1139.8**	**3482.5**	**110.5**	**317.8**	**436.8**	**865.1**	**16.0**	**1038.0**	**10.9**	**145.5**	**4.0**	**5562.0**
SAGAR	142.3	194.0	225.2	561.5	2.5	65.8	74.4	142.7	5.8	118.5	1.4	12.5	0.6	843.0
DAMOH	116.6	129.3	153.8	399.7	2.9	41.0	45.0	88.9	7.0	96.4	0.5	9.0	0.6	602.1
PANNA	164.6	195.1	165.2	524.9	12.6	132.9	103.1	248.6	9.2	143.5	0.2	86.4	1.0	1013.8
TIKAMGARH	162.6	105.3	112.0	379.9	1.8	79.9	72.9	154.6	51.2	249.1	0.7	7.7	0.6	843.8
CHHATARPUR	198.0	142.4	167.5	507.9	6.5	108.9	105.0	220.4	49.5	311.8	0.7	24.2	2.8	1117.3
DN. TOTAL	**784.1**	**766.1**	**823.7**	**2373.9**	**26.3**	**428.5**	**400.4**	**855.2**	**122.7**	**919.3**	**3.5**	**139.8**	**5.6**	**4420.0**
REWA	289.6	189.3	256.5	735.4	5.3	77.8	92.6	175.7	22.2	173.3	0.5	23.3	0.7	1131.1
SIDHI	329.2	215.3	240.2	784.7	7.1	84.9	82.8	174.8	23.4	340.6	0.8	11.0	0.0	1335.3
SATANA	224.1	217.9	219.9	661.9	7.4	78.0	75.3	160.7	18.8	180.1	0.2	14.9	0.9	1037.5
SHAHDOL	163.1	99.9	125.1	388.1	38.2	29.4	43.2	110.8	8.1	100.7	0.3	8.7	0.1	616.8
ANUPPUR	126.9	60.8	74.8	262.5	35.5	15.4	15.4	66.3	0.5	60.7	1.8	4.8	0.0	396.6
UMARIA	112.2	61.2	79.9	253.3	7.5	18.8	20.9	47.2	4.4	72.0	0.3	2.1	0.1	379.4
DN. TOTAL	**1245.1**	**844.4**	**996.4**	**3085.9**	**101.0**	**304.3**	**330.2**	**735.5**	**77.4**	**927.4**	**3.9**	**64.8**	**1.8**	**4896.7**
INDORE	45.5	56.9	68.8	171.2	1.2	103.1	48.4	152.7	1.7	128.2	0.6	7.8	0.9	463.1
DHAR	227.3	104.3	141.5	473.1	2.3	94.3	83.1	179.7	8.8	325.1	0.5	2.6	1.8	991.6
JHABUA	310.2	145.8	164.5	620.5	2.8	62.4	55.2	120.4	13.5	469.9	0.4	1.0	2.1	1227.8
KHARGONE	213.2	124.4	138.7	476.3	2.7	93.8	69.6	166.1	5.0	302.0	0.6	2.6	1.8	954.4
BARWANI	159.9	99.3	93.7	352.9	1.0	200.3	45.6	246.9	22.2	270.4	0.2	4.2	1.4	898.2
KHANDWA	155.0	76.7	90.4	322.1	2.3	53.2	39.1	94.6	0.0	121.2	0.3	3.4	0.5	542.1
BURHANPUR	37.1	18.1	22.4	77.6	1.7	11.6	11.0	24.3	9.1	40.0	0.4	0.6	0.5	152.5
DN. TOTAL	**1148.2**	**625.5**	**720.0**	**2493.7**	**14.0**	**618.7**	**352.0**	**984.7**	**60.3**	**1656.8**	**3.0**	**22.2**	**9.0**	**5229.7**
UJJAIN	89.2	83.5	87.8	260.5	1.5	96.8	78.9	177.2	7.2	125.1	1.2	9.9	1.9	583.0
MANDSAUR	56.7	77.6	77.3	211.6	1.7	68.2	126.9	196.8	24.6	155.5	1.2	3.8	4.8	598.3

NEEMUCH	48.6	94.2	82.8	225.6	1.4	59.5	55.4	116.3	12.3	174.8	0.3	2.3	1.7	533.3
RATLAM	90.6	88.2	91.3	270.1	1.3	76.1	59.1	136.5	9.7	203.1	0.6	19.6	1.4	641.0
DEWAS	134.0	141.9	77.1	353.0	2.0	66.0	67.2	135.2	0.3	123.3	0.5	15.2	1.1	628.6
SHAJAPUR	115.2	134.4	150.9	400.5	2.2	97.6	92.1	191.9	8.1	176.7	0.6	4.6	1.9	784.3
DN. TOTAL	**534.3**	**619.8**	**567.2**	**1721.3**	**10.1**	**464.2**	**479.6**	**953.9**	**62.2**	**958.5**	**4.4**	**55.4**	**12.8**	**3768.5**
MORENA	66.1	49.9	60.3	176.3	3.4	171.7	148.6	323.7	30.8	142.8	0.7	9.9	3.3	687.5
SHEOPURKALA	50.8	66.0	59.9	176.7	1.6	50.8	46.0	98.4	15.0	114.7	0.1	3.7	0.6	409.2
BHIND	46.5	58.5	57.7	162.7	4.2	129.9	122.1	256.2	27.8	156.3	0.9	15.7	3.4	623.0
GWALIOR	68.1	92.0	83.4	243.5	3.4	109.2	84.6	197.2	67.3	198.3	3.6	29.1	4.4	743.4
SHIVPURI	168.0	150.4	148.9	467.3	2.5	104.5	98.1	205.1	61.6	228.9	0.2	10.3	0.7	974.1
GUNA	104.8	115.2	122.4	342.4	2.7	84.7	86.7	174.1	1.3	118.5	0.1	7.4	0.6	644.4
ASHOKNAGAR	45.2	106.5	96.5	248.2	2.0	51.4	63.8	117.2	4.0	83.2	0.2	2.9	0.1	455.8
DATIA	44.0	53.2	51.7	148.9	0.8	85.4	59.7	145.9	20.5	125.5	0.3	7.5	0.5	449.1
DN. TOTAL	**593.5**	**691.7**	**680.8**	**1966.0**	**20.6**	**787.6**	**709.6**	**1517.8**	**228.3**	**1168.2**	**6.1**	**86.5**	**13.6**	**4986.5**
BHOPAL	31.0	33.8	35.7	100.5	1.0	31.8	25.7	58.5	0.1	39.1	0.2	2.4	0.3	201.1
SEHORE	117.4	115.9	113.4	346.7	3.2	96.1	71.9	171.2	0.4	88.8	0.5	8.1	1.0	616.7
RAISEN	111.0	109.5	146.8	367.3	3.1	126.1	49.6	178.8	1.1	90.9	1.7	1.8	1.0	642.6
VIDISHA	80.3	80.8	84.8	245.9	2.1	47.2	37.8	87.1	3.9	99.2	0.5	6.4	1.8	444.8
BETUL	253.6	120.7	116.2	490.5	2.7	64.9	64.7	132.3	2.5	153.2	1.6	10.8	0.8	791.7
RAJGARH	124.8	116.2	110.7	351.7	1.0	126.0	102.2	229.2	18.2	167.0	0.9	13.9	2.4	783.3
HOSHANGABAD	64.2	88.0	50.5	202.7	9.8	28.5	16.8	55.1	0.1	61.7	0.4	3.0	0.5	323.5
HARDA	58.0	31.5	26.2	115.7	0.7	22.1	23.7	46.5	0.0	50.2	0.4	0.7	0.1	213.6
DN. TOTAL	**840.3**	**696.4**	**684.3**	**2221.0**	**23.6**	**542.7**	**392.4**	**958.7**	**26.3**	**750.1**	**6.2**	**47.1**	**7.9**	**4017.3**
TOTAL M.P.	**6553.4**	**5178.7**	**5612.2**	**17344.**	**306.1**	**3463.8**	**3101.0**	**6870.9**	**593.2**	**7418.3**	**38.0**	**561.**	**54.7**	**32880.7**

The district wise details of livestock particulars as per livestock census of 2007 are furnished in Table 2.11

2.12. Agricultural Marketing

The entire thrust and efficiency of Agriculture sector is dependent on marketingsupport so that the farmer's risk is minimized besides getting assured and fair returns. An efficient marketing system holds the key to the success of diversification of agricultural production. Market intelligence has a vital role to play.

Agricultural commodities, viz., cereals, oilseeds, pulses, cotton, turmeric etc. were notified. The prices of crop year wise detail are furnished in Table 2.12

Table 2.12. Farm Harvest Prices (Weighted Average) Of Principal Crops in Madhya

Pradesh (Rs. in Crores)

S.NO.	NAME OF CROP	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-02	2002-03	2003-04
1	**RICE**											
	SUPERIOR	767.23	972.52	1028.26	1142.73	1211.13	1354.91	1488.26	1331.75	1303.8	1328.26	1324.64
	MEDIUM	613.73	670.39	693.00	806.90	864.20	954.19	1112.44	1004.85	944.50	1006.21	937.00
	INFERIOR	519.68	581.78	570.42	679.00	726.63	782.45	838.28	954.37	716.93	828.27	813.65
2	**JOWAR**											
	KHARIF	297.91	454.12	407.25	472.59	424.09	616.64	605.45	720.92	461.44	405.24	506.7
	RABI	302.65	568.59	438.70	449.15	548.67	519.65	493.00	530.00	641.90	545.18	412.73
3	**BAJRA**	345.43	397.24	387.23	497.24	336.27	389.83	536.69	396.07	404.64	524.17	363.84
4	**MAIZE**	253.18	383.52	302.97	458.81	406.89	472.74	514.54	466.41	428.52	495.87	454.57
5	**KODON-KUTKI**	312.96	394.30	347.26	469.22	651.86	681.63	776.01	973.63	848.33	524.38	669.87
6	**TUR**											
	EARLY	983.60	1257.06	1433.52	1431.07	1463.97	1525.10	1470.10	133.47	1323.08	1501.50	1560.53
	LATE	907.26	1293.66	1612.27	1300.62	1457.64	1365.37	1466.61	1315.73	1409.91	1537.55	1503.76
7	**WHEAT(MEDIUM)**	419.38	422.29	462.47	599.36	530.61	598.37	699.91	632.03	661.67	681.14	680.22
8	**GRAM**	951.39	830.05	881.02	1139.10	1009.75	1019.02	1182.43	1550.11	1376.51	1438.29	1347.56
9	**BARLEY**	337.54	376.63	341.72	493.07	430.43	464.43	572.31	529.35	495.15	527.48	536.77
10	**GROUNDNUT**	987.17	1209.33	1310.61	1253.32	1195.51	1377.79	1282.04	1368.50	1279.78	1477.27	1547.29
11	**SESAMUM**	1353.74	1752.98	2031.56	1792.75	1698.02	2177.76	2070.89		2100.24		2501.51
12	**LINSEED**	1008.57	1132.40	1298.79	1249.69	1357.53	1376.67	1368.71	1335.63	1393.46	1693.68	1600.35
13	**RAPE & MUSTARD**	1016.26	1195.44	1070.59	1238.63	1311.14	1417.26	1158.87		1170.1		1776.06
14	**COTTON**	1402.23	2213.43	1893.85	1734.62	2122.93	2051.57	1877.66	2065.58	1685.00	1997.52	2489.24

2.13. Agricultural Inputs

Among the improved agricultural technologies, seeds, fertilizers and pesticides are the most important ones. The improved seeds have more genetic vigour for high yield potential and the fertilizers and the balanced nutrient management

trigger the potentials for increasing the yield levels. Therefore, the timely and adequate availability of these inputs, that too at affordable prices to farmers, are the essentials to keep agriculture growing. The details of agricultural inputs supplied to the farmers in the State over a period of five years from 2001-02 to 2005-06 are briefly discussed in this section.

i) Seeds

The quantities of seeds distributed over five years period from 2001-02 to 2005-06 are presented in Table 2.13 (a)

Table 2.13 (a). Distribution of improved Seeds for Crops

(Thousand Quintals)

Distribution Of Seeds											
											UNIT :- Thousand Quintals
CROP GROUP		99-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2004-05	2005-06	2006-07	2007-08
CEREALS	Kharif	29.37	33.48	49.57	68.76	73.16	63.15	93.39	65.43	90.96	122.67
	Rabi	199.56	72.29	146.86	147.78	217.80	308.65	379.50	349.08	427.96	462.13
	Total	228.93	105.77	196.43	216.54	290.96	371.80	472.89	414.51	518.92	584.80
PULSES	Kharif	1.77	1.37	3.19	4.78	9.11	5.69	6.40	4.80	8.91	13.12
	Rabi	26.44	24.27	29.92	45.22	53.10	60.30	46.04	58.42	72.89	108.02
	Total	28.21	25.64	33.11	50.00	62.21	65.99	52.44	63.22	81.80	121.14
OILSEEDS	Kharif	167.23	132.03	199.74	180.15	327.05	476.52	493.80	543.37	540.13	748.87
	Rabi	4.00	2.36	2.33	2.19	2.44	6.41	9.72	10.56	8.07	8.67
	Total	171.23	134.39	202.07	182.34	329.49	482.93	503.52	553.93	548.20	757.54
FIBER	Kharif	3.59	2.72	6.14	9.66	21.28	7.55	9.37	5.82	7.98	4.14

FODDER	Rabi	0.07	0.08	0.42	0.03	0.03	0.04	0.31	0.41	0.08	0.01
ALL CROPS	Kharif	201.96	169.60	258.64	263.35	430.60	552.91	602.97	619.42	647.98	888.80
	Rabi	230.07	99.00	179.53	195.22	273.37	375.40	435.59	418.47	509.00	578.83
	Total	432.03	268.60	438.17	458.57	703.97	928.31	1038.56	1037.89	1156.98	1467.63
Source:- Directorate Of Agriculture, M.P.											

It could be discerned from the table that cereal seeds distribution for both kharif and rabi crops have almost doubled from 228.93 thousand quintals to 584.80 thousand quintals. In case of pulses the growth is almost five times from 28.21 to 121.14. Similarly in other types of crops also an upward trend is visible. The total distribution of improved seeds have almost grown four times from 432.03 thousand quintals distributed in 2000 -01 to 1467.63 thousand quintals in 2007 - 08.

To increase the productivity of crops, another factor that plays an important role is SRR (Seed Replacement Rate). Indicated below in the table 2.13 (b) are the seed replacement rates for various types of crops. In cases such as Cotton the replacement rate is 100 percent (owing to replacement of cotton seed with BT cotton. The other crop where replacement rate was high is Bajra, where it is 51 percent. Seed Replacement rates for most other crops are almost around 10 percent only.

Table 2.13 (b) Seed Replacement by Crops - Percentage to Total Cropped Area

Seed Replacement Rate (in percentage)

KHARIF									
CROP	**2000-01**	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**	**2006-07**	**2007-08**	**2008-09**
PADDY	9.77	3.30	3.91	3.90	3.39	6.41	6.73	8.85	11.05
MAIZE	2.03	8.05	7.06	8.95	13.77	16.96	17.81	11.06	18.43
JOWAR	4.76	5.99	8.91	10.23	10.63	19.97	20.97	13.59	13.52
BAJRA	2.14	35.17	31.30	48.15	55.05	43.98	46.18	48.61	51.43
URAD	1.02	1.39	4.13	6.26	3.11	3.85	4.04	4.76	7.42
MOONG	1.00	2.47	4.65	7.19	7.54	9.21	9.67	15.72	21.27
ARHAR	1.77	2.78	4.13	5.66	2.79	4.33	4.55	4.00	7.83

TIL	0.67	0.76	3.10	2.11	1.39	1.55	1.63	1.88	2.15
RAMTIL	0.79	0.84	0.24	2.43	2.00	4.74	4.98	0.83	0.45
SUNFLOWER	8.00	0.00	0.00	8.60	-	3.33	3.50	0.82	5.33
GROUNDNUT	0.17	0.03	0.35	0.21	0.03	0.08	0.08	0.39	0.57
SOYBEAN	4.51	6.35	6.04	10.43	12.48	15.68	16.47	14.75	19.37
COTTON (HY.)	100.0	100.0	100.0	100.0	100.0	100.00	100.00	100.00	100.00
RABI									
WHEAT	3.63	5.64	6.51	6.28	6.17	10.28	11.01	9.19	13.62
GRAM	1.51	1.29	2.26	1.88	2.33	1.85	1.94	2.90	4.91
PEAS	2.35	3.14	2.68	5.41	8.30	3.48	3.65	4.56	4.01
MASOOR (LENTIL)	0.68	0.50	0.93	0.91	0.65	0.99	1.04	0.77	0.73
MUSTARD	9.30	7.15	10.80	9.56	14.56	21.29	22.36	16.88	21.19
TORIA		4.11	10.25	2.60	8.45	11.60	11.72	7.20	0.19
LINSEED	0.35	0.57	0.44	0.34	0.17	5.32	5.59	0.97	0.55
SUNFLOWER	13.33	15.00	0.00	0.00		0.00	0.00	-	-
SAFFLOWER	11.50	17.00	18.13	32.75	48.50	8.88	9.32	0.63	-
SOURCE:- DIRECTORATE OF AGRICULTURE, M.P.									

The above table indicates the need for increasing seed production particularly in State seed farms. Moreover, in the recent years, the farmers buying behaviour with reference to seeds have changed towards the use of more and more purchased seeds. This trend again reinforces the need for production and distribution of more quality seeds each year.

ii) Fertilizers

The details given in Table 2.13 (c) indicate the trend in fertilizer distribution in the State.

Table 2.13 (c) - Distribution of Nitrogen, Phosphorus and Potash

(in thousand tonnes)

S. No.	Year	N	P	K	Total	Nutrient ratio N:P:K
	1999 – 00	527.1	372.2	44.2	**943.5**	12:08:01
	2000-01	384.3	300.3	30.6	**715.2**	13:10:01
	2001-02	432.1	308.4	32	**772.5**	13:10:01

	2002-03	387.1	285	32.6	**704.7**	12:09:01
	2003-04	586.4	347.9	49.1	**983.4**	12:07:01
	2004-05	617.7	393.3	55.3	**1066.3**	11:07:01
	2005-06	559.9	322.1	58.8	**940.4**	10:05:01
	2006-07	730.1	409.8	65.2	**1205.1**	11:06:01
	2007-08	795.7	430.3	75.8	**1301.8**	10:06:01
	2008 -09	803.4	530	90	**1423.4**	9:06:01
	2009-10 (estimated)	941.8	605.6	113.7	**1661.1**	9:06:01

Source :Fertilizer Statistics of India and Compendium of Agriculture Statistics

The farmers have to be educated and trained in the application of proper proportions of NPK in the crop fields. Introduction of bio-fertilizers is yet another recent land mark that adds to the increased crop productivity with the least cost. However, it is yet to gain momentum among farmers and hence a special thrust in the plan may be given for popularizing bio-fertilizers among the farmers of Madhya Pradesh. The Integrated Fertilizer Management (IFM) through the use of judicious mix of Organic Manure, Bio-fertilizers, Green Manures and Chemical Fertilizers require urgent attention for minimizing the adverse environmental effects in the long run. Similarly, the effective implementation of Integrated Pest Management (IPM) should be there to interanalise the pesticides externalities at the farm level.

iii) Pesticides

The particulars on pesticides consumption in the State over a period of 15 years from 1990-91 to 2005-06 are furnished in Table 2.13 (d).

Table 2.13 (d). Pesticide Consumption (Technical Grade in MT)

S.No.	Year	Target	Achievement
1	**1990-91**	**2840**	**2606**
2	**1991-92**	**3500**	**2400**
3	**1992-93**	**2258**	**1494**
4	**1993-94**	**2520**	**1739**
5	**1994-95**	**2039**	**1939**

6	**1995-96**	**1580**	**1208**
7	**1996-97**	**1052**	**822**
8	**1997-98**	**1008**	**1149**
9	**1998-99**	**1211**	**1151**
10	**1999-00**	**1145**	**982**
11	**2000-01**	**924**	**665**
12	**2001-02**	**610**	**733**
13	**2002-03**	**941**	**662**
14	**2003-04**	**1026**	**679**
15	**2004-05**	**1091**	**749**
16	**2005-06**	**1086**	**787**

Perusal of the details in the above table, clearly exhibits the fact that the utilization of pesticides was around 2606 metric tonnes in 1990-91 and it started declining thereafter drastically reaching 662 tonnes of technical grade in 2002-03. The drastic reduction in the pesticides use was primarily due to the advocacy of the concept of Economic Threshold Level (ETL) and the concept of Integrated Pest Management (IPM) as well. The introduction of bio pesticides also reduced the chemical uses. Thus, the need-based plant protection measures are becoming popular among the farmers in the State, so as to reduce the cost of production of the crops and the unnecessary environmental pollution with chemicals. However, to make the concepts of ETL and IPM more popular among all categories of farmers, effective extension education with field demonstrations are the need of the hour, on which the planned activities have to be focused in the future. Use of bio-pesticides on the other hand, is gradually increasing and organizations like NABARD etc. are not only advocating but slowly encouraging and introducing use of Bio pesticides in their WADI like programmes.

CHAPTER III

STRENGTH, WEAKNESS, OPPORTUNITIES AND CHALLENGES.

3. SWOC Analysis:

Informative analysis on **S**trength, **W**eakness, **O**pportunities and **C**hallenges, serve as management tools for strategic decision-making as well as a diagnostic technique which catalyses in streamlining the future projections and applications. This analysis has been used in corporate management but now a day it has become an integral component in majority of operational fields of life. SWOC analysis pertains to agriculture and allied sectors and other related sectors is a very effective tool in understanding the emerging challenges of farming and different ecosystems and integrating them with production requirements in right perspectives. SWOC analysis of four major sectors viz., Agriculture, horticulture, animal husbandry and fisheries for Madhya Pradesh state is given below:

3.1 Agriculture Sector

Strengths

- Round the year bright sun-shine and average rainfall of 1100mm are the boons to the living of human beings, the animal and plant kingdom on this State of India.
- The State possesses 11 agro-climatic zones ranging from arid, semi-arid climatic conditions and 5 crop regions.
- Two agricultural universities,11 Agricultural colleges and KVKs in almost every district with sound back-up support of research and extension services.
- 4500 PACS, *Mandi* Board having 240 *Mandi,s* spread through out the state.

- The major types of soils like red, black cotton, alluvial, loamy and sandy loam found in the State are highly suitable for growing a variety of crops.
- Functional Narmada Development Authority for exploiting irrigation waters for agricultural productivity. Large acreage of agriculturally productive land in Narmada, Tawa, Wainganga, Denwa, Betwa, Pench, Hirri, Sagar, Ken, Son, Johila, Budner, Haloan, Pench, Jam and Machna basins and catchments areas.
- A wide range of crops such as cereals, pulses, oilseeds, spices and condiments, fruits, vegetables and other crops are cultivated under varied agro-climatic conditions in the State.
- People in the State, though majority of them are poor, are hard-working and hence a modern technological back-up can go a long way in improving agricultural production.
- 57% of total area of soybean of country is concentrated in MP. Well-developed agri-based soybean industries are the added strengths for the rapid growth of the economy.
- Perennial rivers are the boons for fresh water aquaculture with existence of heritage water tanks and village ponds. This indicate the high growth potential of fishery sector in the State.
- There exists very good potential for boosting production of milk and goat / poultry meat in the State through scientific feeding, breeding and health management. This is more evident from the sizable livestock population the State.
- The rail as well as road transport systems, which are essential for agricultural development, are fairly – knitted in the State.
- Well established warehousing system by the CWC, SWC and co-operatives with three-tier approaches adds strength to the marketing system in the State and

- Changing life style and food habits of the people especially in the context of urbanization, industrialization and Information Technology revolution.

Weaknesses

- Sixty five percent of the landholders in the state area are marginal small farmers owning 26 percent of the cultivable land. The state has 20 percent of the nation's tribal population, the largest in any state. Poor in financial resources, however dedicated, these farmers would need continued special attention and incentives to adopt modern farming practices.
- Water is the primary requirement for successful agriculture. Frequent monsoon failures, low, erratic and uncertain rainfall and its skewed distribution affect the momentum of agricultural growth.
- Major area under cultivation is rainfed. Some of the irrigation reservoirs are in pathetic situation due to their limited maintenance resources. Irrigation tanks and water ways are highly silted and filled with the growth of obnoxious aquatic weeds. Improper up-keep of canal and river bunds results in severe water losses or non-availability of water at the requires time results in decreased agricultural productivity
- Devoid of significant entrepreneur activities /industries due to poor power availability in the rural hinterlands.
- The state has not been able to support a large seed replacement programme.
- Absence of market led extension services.
- Lack of information and communication Technology (ICT) at village level.
- Absence of concept of farm entrepreneurship development.
- No proper attention to market based research for value addition.
- Inadequate marketing infrastructure
- Presence of innumerable intermediaries between farmers and consumers

increase the cost of marketing and reduce farmers share in the consumer's rupee.

- Post-harvest glut and consequent low prices of agricultural commodities
- Ineffective storage structures at the farm level and consequent losses of agricultural produce due to storage pests, including rats and dampness.

Opportunities

- Raising majority of field and horticultural crops round the year through out the State due to sufficient precipitation pattern.
- Market demand for better quality agricultural products and perishable foods like milk, fruits and vegetables is getting increased primarily due to urbanization. This necessitates the enhancing the yield per unit of land besides milk and meat production in the years to come.
- Ample scope exists for opportunities for agro-processing units due to increased demand for ready-to-cook as well as ready-to-eat foods.
- The red, black, alluvial and loamy soils found in the State are highly productive and their capabilities can be sustained through proper and planned soil fertility management practices.
- As the labour availability is becoming scarce, especially during peak agricultural operations like transplanting, harvesting etc., the farm mechanization is on the increase. However, the high investment requirement and non-affordability by the individual farmer, especially the marginal and small, give way for custom services and evolution of small agri-business entrepreneurs in the State
- Acceptable adoption of organic farming in predominantly low agro-chemicals consuming districts in tribal belts.
- With production and productivity plateauing in irrigated areas elsewhere in the country, the rain-fed areas of the state can be the vanguard of the second agriculture revolution.

- Industry based cultivations of wheat including export purpose for different purpose like flour, bakery etc.

Challenges

- Low and skewed distribution of rainfall especially during monsoon and consequent droughts and floods occurring often and inadequate infrastructure to control such calamities, damages the standing crops heavily and affects the production.
- Quiting agricultural profession due to price volatility with high fluctuations and non-remunerative farm products and consequent non-profitability of the farm business.
- The out – breaks of pests and diseases are often recurring in certain endemic areas of the State. These pose the threat to the crops leading to complete loss to many farmers.
- In the recent years, due to heavy pumping of ground-water especially in summer and early *Kharif* seasons, the reversal of ground water flow results in high cost for irrigation.
- Fast urbanization and industrialization and indiscriminate conversion of agricultural land to non-agricultural purposes, pose a great threat of contraction of land put to agricultural uses and consequent reduction in production.
- Spurious/substandard input material supply
- Volatile prices / wide price fluctuations are the major threats that make the agricultural proposition non-profitable and perforce the farmers to exit agricultural profession, once for all and
- Increasing quality parameters and food safety standards in domestic and export markets
- Training farmers on scientific farming.
- Ensuring adequate supply of quality agro-inputs.
- Crack down on spurious farm products.
- Improve power and irrigation facilities.

3.2 Horticulture Sector

Strengths

- Horticulture crops in general are high value crops in the State
- Soil and climatic conditions are highly favourable for raising varied horticultural crops.
- The Department of Horticulture Crops in the State has got the entire needed technical where-withal, supported by a separate Horticulture College and Horticulture Research Stations in the State.
- Increasing industrialization and urbanization and consequent per capita income increase create an effective internal and external demand for horticultural products, which are supposed to be the protective foods in human nutrition.
- The state has a very good potential of high value spices and condiments crops.
- The state support for horticulture development in the form of National Horticulture Mission and Spices Board is an added strength to grow a variety of horticultural crops.
- Suitable Land for all semi-arid tropic fruits orchards.
- State Govt. has number of horticultural nurseries and vegetable seed production farm
- Well established warehousing system by the CWC, SWC and co-operatives with three-tier approaches adds strength to the marketing system in the State and
- Changing life style and food habits of the people especially in the context of urbanization, industrialization and Information Technology revolution.

Weaknesses

- The major weakness is the high-cost of cultivation of high value horticultural crops.

- Most of the fruit crops are highly season-bound and hence the year-round production is not possible.
- Lack of adequate demand for processed fruit and vegetable products and infrastructure for processing value-added products.
- Inadequate network of horticultural extension machinery in the State.
- Highly perishable nature of horticulture products.
- Absence of advance research center for fruit, vegetables and spices crops.
- Non-availability of potato seeds of farmer's choice.
- Inadequate supply of quality planting material.
- Unscientific management of orange orchards.
- Lack of popularizing use of green houses in horticultural crop production promotion to innovations (greenhouse) at field level..
- Non-existence of specialized training programmes for horticultural crops.
- Limited attention to market based research for value addition.
- Absence of appropriate insurance policies for vegetables crop/fruits.
- Large number of marginal and small farms
- Majority of the farmers are resource poor
- Perishable nature of the farm products and the information asymmetry about market and price trend favour the intermediaries and weaken the bargaining power of the farmers. Ineffective storage structures at the farm level and consequent losses of agricultural produce due to storage pests, including rats and dampness.
- The post-harvest losses have been estimated at 30 per cent for fruits and vegetables and 10 percent for food grains
- Agri-processing system is yet to develop in a big way and
- Absence of cold chain development.

Opportunities

- As the urbanization, industrialization and the family income have shown an increasing trend in the recent years, the effective demand for protective foods is growing. Hence there exist ample opportunities to increase the fruit and vegetable production in the State.
- Natural undulating land topography provides opportunities for development of horticulture crops in the State
- The tempo of liberalization of the economies in the world and the functioning of WTO give impetus to the export of horticultural products.
- Season-bound production, highly perishable nature of products and the year round demand provide excellent opportunity for the agro-processing entrepreneurs.
- Crop diversification from low-return field crops to high value horticultural crops is another possible opportunity.
- Strengthening the existing marketing organizations
- Deregulation of marketing activities
- Construction of more rural godown at village level
- Giving fillip to the growth of agro-processing industry
- Developing effective communication network
- Capacity building among farmers through training and exposure visits.
- Development of cold chains for perishables
- Strengthening storage system at farm level and
- Tapping the export markets.
- Encouraging farmers for setting up green houses and MIS.

Challenges

- High-cost of high-tech cultivation of horticulture crops and low financial capability of majority of farmers
- Presence of rocky sub-soils and lack of awareness among the farmers

pose severe threat to many orchard farmers.

- High perishability and inadequate post-harvest care also pose threat to grow horticultural crops and
- Post-harvest glut of season-bound fruits and highly fluctuating prices are the other threats confronted by horticultural farmers.
- Un-certainty of Power Supply.
- Supply of spurious quality input materials.
- Unstable market.
- Gap between supply and demand.
- Volatile prices / wide price fluctuations are the major threats that make the agricultural proposition non-profitable and perforce the farmers to exit agricultural profession, once for all and
- Increasing quality parameters and food safety standards in domestic and export markets

3.3 Animal Husbandry Sector

Strengths

- Sizeable cattle population in the State
- Increasing cross-bred cows population
- Eagerness of SHGs on dairying
- Readily available bank credit
- Ready market for fluid milk and its by-products
- Involvement of private dairy is also on the increase in milk procurement and distribution
- Very high export potential for hides and skins
- The availability of fairly large number of veterinary institutions along with infrastructure facilities
- Propensity of dairy farmers to market the surplus milk through co-operatives and excellent network of dairy co-operatives

- Availability of superior germ plasm with high exotic blood levels and
- Availability of fairly a large number of Artificial Insemination Centres in the State.

Weaknesses

- Shortage of green fodder to the tune of above 80 per cent of the requirement.
- Lack of adequate knowledge on enriching the available dry fodder with nutrient supplements.
- Lack of knowledge among the farmers on hygienic milk production, scientific rearing of calves and management of cross bred cows during advanced pregnancy period.
- Insufficient cold chain management of vaccines
- Poor quality control system
- Problems in controlling the disease out-breaks
- Improper housing and frequent incidence of diseases
- Poor slaughter facilities
- Non-availability of veterinary services within the easy reach of the farmers due to insufficient technical manpower.
- Delayed conceivement, shy bearing in buffaloes and limited percentage of artificial insemination success and
- Decreasing buffalo population

Opportunities

- Constantly increasing demand for milk and milk products from both domestic and export markets.
- The performance of genetically up-graded non-descript local breeds are quite promising in terms of increased milk productivity

- Financial institutions, especially the commercial banks, are liberal in extending credit facilities for starting mini-dairy farms
- Technology empowerment on scientific dairy farming among farmers / rural women to boost milk production.
- Presence of well – knit SHGs all over the State and
- Availability of well-knit co-operative milk marketing system and the growth of private procurement and distribution business units.

Challenges

- Diminishing grazing land area in the recent times
- High incidence of mastitis and loss of milk productivity
- Increasing cost of feeds
- Non-availability of labour and high labour cost and
- Sudden outbreaks of diseases like Anthrax, black quarter, foot and mouth disease etc.

3.4 Fishery Sector

Strengths

- Madhya Pradesh is blessed with good number of perennial rivers viz., Narmada, Tawa, Wainganga, Denwa, Betwa, Pench, Hirri, Sagar, Ken, Son, Johila, Budner, Haloan, Pench, Jam and Machna
- Diversified flora and fauna to support sweat water psiculture.
- The inland fishery sprawls over vast water spread area comprising reservoirs, major irrigation and long seasonal tanks, short seasonal tanks and ponds.
- Many fishermen cooperatives are functioning in the State. The fisheries policy of the state is cooperatives based. The state has 1617 primary cooperatives societies and one apex body i.e. Madhya Pradesh Fisheries Federation, which is engaged in fisheries development in the state.

- Sizable fishermen / fisher women population in the State and
- The state has one fisheries training centre, one research unit of fisheries development and various research station of the Indian Council of Agriculture Research (ICAR) provide research, extension and training support to the state fisheries department from time to time.

Weaknesses

- Majority of water bodies received water only during monsoon season
- Inadequate infrastructure facilities for seed production, rearing, and marketing
- Fish culture in natural and small water systems is being practiced by stock and harvest method and not by scientific culture method
- Insufficient post-harvest facility like cold storage and fish processing unit near the site.
- Low fish productivity of tanks
- Inadequate fish seed production and non-availability of stock size quality fish seeds throughout the year
- Insufficient funds to fish seed rearing centres
- Inadequate training packages on fish culture, breeding and seed rearing, feed formulation and fish diseases diagnosis etc.
- Insufficient area for fish seed production
- Lack of hygienic handling of fish in marketing
- Low infrastructure support for artisanal fisherman impede the growth in fish production
- Under-utilization of short seasonal tanks and
- Conflicting demand on available water

Opportunities

- Large scale river aquaculture is possible
- Rehabilitating the affected and unutilized fish farms for mari-culture activities.
- Ample opportunities for developing fish product based industries on large scale with greater rigor.
- Effective utilization of short seasonal tanks and ponds in the network of inland water ways for fish production and
- Establishment of large scale seed production and supply centres.
- Integrating fish farming with rain-water harvesting.

Challenges

- Frequent monsoon failures, are the natural hazards that pose major threats to the growth of the fishery industry as a whole
- Inadequate infrastructure for seed production discourages the farmers in taking up fresh water fish culture
- High siltation of tanks and water ways and lack of periodic de-silting activities.
- Managing conflicting demand for water.

CHAPTER IV

MADHYA PRADESH : VISION 2020

Vision Statement

"IMPROVING LIVELIHOOD OF RURAL HOUSEHOLS BY REBALANCING AGRICULTURE THROUGH CONSERVING AGRICULTURE & AN INTEGRATED DIVERSIFIED FARMING SYSTEM"

India has made impressive strides on the agricultural front during the last three decades. Much of the credit for this success should go to the several million small farming families that form the backbone of Indian agriculture and economy. Policy support, production strategies, public investment in infrastructure, research and extension for crop, livestock and fisheries have significantly helped to increase food production and its availability. During the last 30 years, India's foodgrain production nearly doubled from 102 million tons in the triennium ending 1973 to nearly 200 million tons (mt) in the triennium ending (TE) 1999. Virtually all of the increase in the production resulted from yield gains rather than expansion of cultivated area. Availability of foodgrains per person increased from 452 gm/capita/day to over 476 gm/capita/day, even as the country's population almost doubled, swelling from 548 million to nearly 1000 million.

Increased agricultural productivity and rapid industrial growth in the recent years have contributed to a significant reduction in poverty level, from 55 percent in 1973 to 26 percent in 1998. Despite the impressive growth and development, India is still home to the largest number of poor people of the world. With about

250 million below the poverty line, India accounts for about one-fifth of the world's poor. Child malnutrition extracts its highest toll in this country. About 25% children suffer from serious malnutrition. More than 50 percent of the pre-school children and pregnant women are anemic. The depth of hunger among the undernourished is also high.

India has high population pressure on land and other resources to meet its food and development needs. The natural resource base of land, water and bio-diversity is under severe pressure. The massive increase in population (despite the slowing down of the rate of growth) and substantial income growth, demand an extra about 2.5 mt of foodgrains annually, besides significant increases needed in the supply of livestock, fish and horticultural products. Under the assumption of 3.5% growth in per capita GDP (low income growth scenario), demand for foodgrains (including feed, seed, wastage and export) is projected in the year 2020 at the level of 256 mt comprising 112mt of rice, 82mt of wheat, 39mt of coarse grains and 22mt of pulses. The demand for sugar, fruits, vegetables, and milk is estimated to grow to a level 33mt, 77mt, 136mt and 116mt respectively. The demand for meat is projected at 9mt, fish 11mt and eggs 77.5 billion (Table 1).

Future increases in the production of cereals and non-cereal agricultural commodities will have to be essentially achieved through increases in productivity, as the possibilities of expansion of area and livestock population are minimal. To meet the projected demand in the year 2020, country must attain a per hectare yield of 2.7 tons for rice, 3.1 tons for wheat, 2.1 tons for maize, 1.3 tons for coarse cereals, 2.4 tons for cereal, 1.3 tons for pulses, 22.3 tons for potato, 25.7 for vegetables, and 24.1 tons for fruits. The production of livestock and poultry products must be improved 61% for milk, 76% for meat, 91% for fish, and 169% for eggs by the year 2020 over the base year TE 1999. Average yields of most crops in India are still rather low.

Table 4.1: Demand for Agricultural Commodities

Item	Achieved TE 1997-99			Demand in 2020 (million tons)		Yield target in 2020	
	Area (Million ha)	Production (Million tons)	Yield (Kg/ha)	LIG	HIG	LIG	HIG
Rice	42.2	85.7	1903	112.4	111.9	2664	2652
Wheat	26.2	69.1	2582	82.3	79.9	3137	3045
Coarse cereal	30.7	30.4	1041	38.9	37.3	1268	1214
Cereal	99.1	185.2	1814	233.6	229.0	2357	2311
Pulses	21.7	13.8	608	22.3	23.8	1029	1095
Food grains	120.8	199.0	1595	255.9	252.8	2119	2092
Edible oil	28.6	6.4	269	10.8	11.4	379.7	399
Potato	1.2	21.6	17188	27.8	30.6	22279	24566
Vegetables	5.3	74.5	14204	135.6	168.0	25673	31812
Fruits	3.2	43.0	13437	77.0	93.6	24064	29259
Sugarcane Gur	3.7	26.9	7006	32.6	33.7	8788	9088
Milk	-	71.2	-	115.8	137.3	-	-
Meat	-	5.0	-	8.8	11.4	-	-
Eggs number	-	2873	-	7750	10000	-	-
Fish	-	5.3	-	10.1	12.8	-	-

Source: Food Production and Demand in South Asia. Agril. Econ. Res. Rev. 13(1):1-24.
LIG: Low income growth 3.5% per capita GDP growth
HIG: High income growth 5.5% per capita GDP growth

Demand includes export 4.7mt rice, 3.6 mt wheat, and vegetables 2.2 mt fruits 1.4mt And fish 0.49 mt.

4.1 Emerging Trends

The agriculture sector recorded satisfactory growth due to improved technology, irrigation, inputs and pricing policies. Livestock, poultry, fisheries and horticulture are surging ahead in production growth in recent years and will have greater demand in the future. Industrial and service sectors have expanded faster than agriculture sector resulting in declining share of agriculture in national accounts. Despite the structural change, agriculture still remains a key sector, providing

both employment and livelihood opportunities to more than 70 percent of the country's population who live in rural areas. The contribution of small farmers to the national and household food security has been steadily increasing. The water availability for agricultural uses has reached a critical level and deserves urgent attention of all concerned.

Madhya Pradesh too just like other states of the country has high population pressure on land and other resources to meet its food and development needs. The natural resource base of land, water and bio-diversity is under severe pressure. Food demand challenges ahead are formidable considering the non-availability of favourable factors of past growth, fast declining factor productivity in major cropping systems and rapidly shrinking resource base.

Vast uncommon opportunities to harness agricultural potential still remain, which can be tapped to achieve future targets. There are serious gaps both in yield potential and technology transfer as the state average yields of most of the commodities are low, which if addressed properly could be harnessed.

Concentration was on enhanced production of a few commodities like rice and wheat, which could quickly contribute to increased total food and agricultural production. This resulted in considerable depletion of natural resources and the rainfed dry areas having maximum concentration of resource poor farmers remained ignored, aggravating problems of inequity and regional imbalances. This also led to a high concentration of malnourished people in these rainfed, low productive areas. This era also witnessed rapid loss of soil nutrients, agro-biodiversity including indigenous land races and breeds.

The agriculture policy must accelerate all-round development and economic viability of agriculture in comprehensive terms. Farmers must be provided the necessary support, encouragement and incentives. It must focus both on income and greater on-farm and off-farm job and livelihood opportunities.

4.2 Main Issues

In State priority setting, the following recurring and emerging issues for sustainable agricultural development and poverty alleviation must be considered:

a) Population pressure and demographic transition;
b) Resource base degradation and water scarcity;
c) Investment in agriculture, structural adjustment and impact on the poor;
d) Globalization and implication on the poor;
e) Modern science and technology and support to research and technology development; and
f) Rapid urbanization and urbanization of poverty, and deceleration in rural poverty reduction.

While addressing the above issues, a statement on agriculture must take note of the following uncommon opportunities:

- ❖Conservation of natural resources and protection of environment.
- ❖Vast untapped potential of our soil and water resources, and farming systems
- ❖Technology revolution especially in the areas of molecular biology, biotechnology, ecology and management.
- ❖Revolution in informatics and communication and the opportunity of linking farmers, extension workers and scientists with the national and international databases

4.3 Vision

The Agriculture vision document of Madhya Pradesh must articulate a clear vision on following few basic parameters of the agricultural sector around which a do'able framework must be developed.

- ❖Organization of agriculture: A clear long-term vision where inter-sectoral linkages are explicit.
- ❖Sustainability and natural resource management: Prescription must lie in the domain of political economy. Otherwise, allocating funds for watershed development, agro forestry, soil conservation, and so on will not produce desired results.
- ❖Institutional change: Policy document must spell out new approaches and new institutions free from the shackles of bureaucratic and self-help framework.
- ❖Investment priorities: There is a need to develop a consensus on investment themes, priorities and policies. Policy document must lend strength to the claim for greater investment in rural areas, and also re-examine its programmes in the light of complementarities.
- ❖Incentives: Document must articulate a clear vision on the incentive framework.
- ❖Risk management

4.4 Challenges, Policies and Strategies

(a) Enhancing Yield of Major Commodities: Yield of major crops and livestock in the region is much lower than that in the rest of the country. Considering that the frontiers of expansion of cultivated area are limited in the region, the future increase in food production to meet the continuing high demand must come from increase in yield. There is a need to strengthen adaptive research and technology assessment, refinement and transfer capabilities of the state so that the existing wide technology transfer gaps are bridged. For this, an appropriate network of extension service needs to be created to stimulate and encourage both top-down and bottom-up flows of information between farmers, extension workers, and research scientists to promote the generation, adoption, and evaluation of location specific farm technologies. Ample scope exists for increasing genetic yield potential of a large number of vegetables, fruits as

well as other food crops and livestock and fisheries products. Besides maintenance breeding, greater effort should be made towards developing hybrid varieties as well as varieties suitable for export purposes. Agronomic and soil researches in the region need to be intensified to address location specific problems as factor productivity growth is decelerating in major production regimes. Research on coarse grains, pulses and oilseeds must achieve a production breakthrough. Hybrid rice, single cross hybrids of maize and pigeonpea hybrids offer new opportunities. Soybean, sunflower and oil palm will help in meeting future oil demands successfully. Forest cover must be preserved to keep off climatic disturbances and to provide enough of fuel and fodder. Milk, meat and draught capacity of our animals needs to be improved quickly through better management practices.

(b) Integrated nutrient management: Attention should be given to balanced use of nutrients. Phosphorus deficiency is now the most widespread soil fertility problem in both irrigated and unirrigated areas. Correcting the distortion in relative prices of primary fertilizers could help correct the imbalances in the use of primary plant nutrients -nitrogen, phosphorus, and potash and use of bio-fertilizers. To improve efficiency of fertilizer use, what is really needed is enhanced location-specific research on efficient fertilizer practices (such as balanced use of nutrients, correct timing and placement of fertilizers, and, wherever necessary, use of micronutrient and soil amendments), improvement in soil testing services, development of improved fertilizer supply and distribution systems, and development of physical and institutional infrastructure.

(c) Arresting deceleration in total factor productivity: Public investment in irrigation, infrastructure development (road, electricity), research and extension and efficient use of water and plant nutrients are the dominant sources of TFP growth. The sharp deceleration in total investment and more so in public sector investment in agriculture is the main cause for the deceleration. This has resulted in the slow-down in the growth of irrigated area and a sharp deceleration in

the rate of growth of fertiliser consumption. The most serious effect of deceleration in total investment has been on agricultural research and extension. This trend must be reversed as the projected increase in food and non-food production must accrue essentially through increasing yield per hectare. Recognising that there are serious yield gaps and there are already proven paths for increasing productivity, it is very important for Madhya Pradesh to maintain a steady growth rate in total factor productivity. As the TFP increases, the cost of production decreases and the prices also decrease and stabilise. Both producer and consumer share the benefits. The fall in food prices will benefit the urban and rural poor more than the upper income groups, because the former spend a much larger proportion of their income on cereals than the latter. All the efforts need to be concentrated on accelerating growth in TFP, whilst conserving natural resources and promoting ecological integrity of agricultural system. More than half of the required growth in yield to meet the target of demand must be met from research efforts by developing location specific and low input use technologies with the emphasis on the regions where the current yields are below the required national average yield.

Literacy had a positive and significant relation with crop productivity and a strong link exists between literacy and farm modernisation. A study some time back, conducted by IARI , has shown that literacy emerged as an important source of growth in adoption of technology, use of modern inputs like machines, fertilisers, and yield. Recognising that in the liberalised economic environment, efficiency and growth orientation will attract maximum attention. Literacy will play a far more important role in the globalised world than it did in the past. Contribution of literacy, through TFP, will be substantial on yield growth and domestic supply. As future agriculture will increasingly be science-led and will require modern economic management, high return to investment on education is expected.

The investments that are good for agricultural growth-technology and its dissemination, rural infrastructure (roads), education and irrigation - amount

to a 'win-win' strategy for reducing rural poverty by also increasing the non-farm economy and raising rural wages. Creating infrastructure in less developed areas, better management of infrastructure and introduction of new technologies can further enhance resource productivity and TFP. Generation and effective assessment and diffusion of packages of appropriate technologies involving system and programme based approach, participatory mechanisms, greater congruency between productivity and sustainability through integrated pest management and integrated soil-water-irrigation-nutrient management should be aggressively promoted to bridge the yield gaps in most field crops. Besides this, efforts must be in place to defend the gains and to make new gains particularly through the congruence of gene revolution, informatics revolution, management revolution and eco-technology.

Many observers have expressed concern that technological gains have not occurred in a number of crops, notably coarse cereals, pulses and in rainfed areas. Recent analysis on TFP growth based on cost of cultivation data does not prove this perception (Table 2). In all the 18 major crops considered in the analysis, several states have recorded positive TFP growth. This is spread over major cereals, coarse grains, pulses, oilseeds, fibres, vegetables, etc. In most cases, in the major producing states, rainfed crops also, showed productivity gains. There is thus strong evidence that technological change has generally pervaded the entire crop sector. There are, of course, crops and states where technological stagnation or decline is apparent and these are the priorities for present and future agricultural research. Farming system research to develop location specific technologies and strategy to make grey areas green by adopting three-pronged approach - watershed management, hybrid technology and small farm mechanisation will accelerate growth. It is necessary to enlarge the efforts for promoting available dry land technologies. Promoting efficient fertiliser practices, improving soil-testing services, strengthening distribution channel of critical inputs specially quality seed and development of physical and institutional

infrastructure will help resource-poor farmers.

(d) Bridging Yield Gaps: Vast untapped potential in the yield exists for all crops in most of the districts accounting for more than three-fourths of crop area. Emphasis must be given to the districts in which current yield levels are below the state average yield.

For wheat we must focus mainly on Hoshangabad, Vidisha, Sehore, Raisen, Rewa, Ashoknagar, which are accounting for 68% of wheat area. Similarly Balaghat, Katni, Mandla, Seoni are the priority districts accounting for 66% of rice area which need emphasis on bridging yield gaps to attain target demand and yield growth. For coarse cereals, major emphasis must be given Guna, Gwalior, Ashoknagar, Betul etc. To meet the demand for pulses greater emphasis is needed in almost all the districts with particular focus on Chhattarpur, Tikamgarh, Narsinghpur, Dindori etc. which have three-fourths of total pulse area. The target growth in pulse yield from these districts annually must be more than 6 per cent; otherwise the state and nation will experience shortage of pulses for all times to come. The task of attaining self sufficient in pulses production looks difficult without area expansion and irrigation. In cases of oilseeds greater emphasis is needed on districts to increase the yield by about 4 per cent. The possibilities of developing processing industry for extracting edible oils from non-oilseeds commodities, like rice bran etc, needing to be explored. The introduction of palm cultivation for oil production may release pressure on traditional oilseeds crops to meet future edible oil demand.

In case of sugarcane, political willingness of the government and research and development efforts are to be strengthened in the state, to increase the yields per hectare by about 4% per annum. The demand for sugar can also be met by developing mini sugar mills so that substantial sugarcane production can be diverted from Khandsari to sugar production. This may also help release some sugarcane area to other crops. Cotton crop requires greater yield

improvement emphasis on 81 per cent of the cotton area Khargone, Barwani and Burhanpur.

(e) Water for Sustainable Food Security: Madhya Pradesh just like other states will be required to produce more and more from less and less land and water resources. Alarming rates of ground water depletion and serious environmental and social problems of some of the major irrigation projects on one hand, and the multiple benefits of irrigation water in enhancing production and productivity, food security, poverty alleviation, as mentioned earlier, are well known to be further elaborated here: In India, water availability per capita was over 5000 cubic metres (m^3) per annum in 1950. It now stands at around 2000 m^3 and is projected to decline to 1500 m^3 by 2025. Further, the quality of available water is deteriorating. Also, there are gross inequalities between basins and geographic regions.

Agriculture is the biggest user of water, accounting for about 80 percent of the water withdrawals. There are pressures for diverting water from agriculture to other sectors. A study. has warned that re-allocation of water out of agriculture can have a dramatic impact on global food markets. It is projected that availability of water for agricultural use in India may be reduced by 21 percent by 2020, resulting: in drop of yields of irrigated crops, especially rice, thus price rise and withdrawal of food from poor masses. Policy reforms are needed from now to avoid the negative developments in the years to come. These reforms may include the establishment of secure water rights to users, the decentralization and privatization of water. management functions to appropriate levels, pricing reforms, markets in tradable property rights, and the introduction of appropriate water-saving technologies.

The needs of other sectors for water cannot be ignored. Therefore it is necessary that an integrated water use policy is formulated and judiciously implemented. Several international initiatives on this aspect have been taken in recent

years. Our state should critically examine these initiatives and develop its state - specific system for judicious and integrated use and management of water. An institution should be established to assess the various issues, regulatory concerns, water laws and legislations, research and technology development and dissemination, social mobilization and participatory and community involvement, including gender and equity concerns and economic aspects.

(f) Emphasis on Rainfed Ecosystem: Resource-poor farmers in the rainfed ecosystems practice less-intensive agriculture, and since their incomes depend on local agriculture, they benefit little from increased food production in irrigated areas. To help them, efforts must be increased to disseminate available dry land technologies and to generate new ones. It will be necessary to enlarge the efforts for promoting available dry land technologies, increasing the stock of this knowledge, and removing pro-irrigation biases in public investment and expenditure, as well as credit flows, for technology-based agricultural growth. Watershed development for raising yields of rainfed crops and widening of seed revolution to cover oilseeds, pulses, fruits and vegetables. Farming system research to develop location specific technologies must be intensified in the rainfed areas. Strategy to make grey areas green will lead to second Green Revolution, which would demand three-pronged strategy - watershed management, hybrid technology and small farm mechanisation.

(g) Accent on Diversification of Agriculture and Value Addition: In the face of shrinking natural resources and ever increasing demand for larger food and agricultural production arising due to high population and income growths, agricultural intensification is the main course of future growth of agriculture in the region. Research for product diversification should be yet another important area. Besides developing technologies for promoting intensification, the country must give greater attention to the development of technologies that will facilitate agricultural diversification particularly towards intensive production of fruits, vegetables, flowers and other high value crops that are expected to

increase income growth and generate effective demand for food. The per capita availability of arable land is quite low and declining over time. Diversification towards these high value and labour intensive commodities can provide adequate income and employment to the farmers dependent on small size of farms. Due importance should be given to quality and nutritional aspects. High attention should be given to develop post-harvest handling and agro-processing and value addition technologies not only to reduce the heavy post-harvest losses and also improve quality through proper storage, packaging, handling and transport. The role of biotechnology in post-harvest management and value addition deserves to be enhanced.

(h) Accent on Post-Harvest Management, Value Addition and Cost-Effectiveness: Post-harvest losses generally range from 5 to 10 percent for non-perishables and about 30 percent for perishables. This loss could be and must be minimized. Let us remember, a grain saved is a grain produced. Emphasis should therefore be placed to develop post-harvest handling, agro-processing and value-addition technologies not only to prevent the high losses, but also to improve quality through proper storage, packaging, handling and transport. With the thrust on globalization and increasing competitiveness, this approach will improve the agricultural export contribution of India, which is proportionately extremely low. Cost-effectiveness in production and post-harvest handling through the application of latest technologies will be a necessity. The agro-processing facilities should preferably be located close to the points of production in rural areas, which will greatly promote off-farm employment. Such centres of processing and value addition will encourage production by masses against mass production in factories located in urban areas. Agricultural cooperatives and Gram Panchayats must play a leading role in this effort. In doing so, the needs of small farmers should be kept in mind.

(i) Increased Investment in Agriculture and Infrastructures: The public investment in agriculture has been declining and is one of the main reasons

behind the declining productivity and low capital formation in the agriculture sector. With the burden on productivity - driven growth in the future, this worrisome trend must be reversed. Private investment in agriculture has also been slow and must be stimulated through appropriate policies. Considering that nearly 70 percent of India still lives in villages, agricultural growth will continue to be the engine of broad-based economic growth and development as well as of natural resource conservation, leave alone food security and poverty alleviation. Accelerated investment are needed to facilitate agricultural and rural development through:

- ❖Productivity increasing varieties of crops, breeds of livestock, strains of microbes and efficient packages of technologies, particularly those for land and water management, for obviating biotic, a biotic, socio-economic and environmental constraints;
- ❖Yield increasing and environmentally-friendly production and post-harvest and value-addition technologies;
- ❖Reliable and timely availability of quality inputs at reasonable prices, institutional and credit supports, especially for small and resource-poor farmers, and support to land and water resources development;
- ❖Effective and credible technology, procurement, assessment and transfer and extension system involving appropriate linkages and partnerships; again with an emphasis on reaching the small farmers;
- ❖Improved institutional and credit support and increased rural employment opportunities, including those through creating agriculture-based rural agro-processing and agro-industries, improved rural infrastructures, including access to information, and effective markets, farm to market roads and related infrastructure;
- ❖Particular attention to the needs and participation of women farmers; and
- ❖Primary education, health care, clean drinking water, safe sanitation, adequate nutrition, particularly for children (including through mid-day meal at schools) and women.

The above investments will need to be supported through appropriate policies that do not discriminate against agriculture and the rural poor. Given the increasing role of small farmers in food security and poverty alleviation, development efforts must be geared to meet the needs and potential of such farmers through their active participation in the growth process.

Government should facilitate and support community level action by private voluntary organizations, including farmers groups aimed at improving food security, reducing poverty, and assuring sustainability in the management of natural resources. In addition, governments should enhance efforts to ensure good nutrition and access to sufficient food for all through primary health care and education for all.

Increased attention will also have to be given to development of sustainable systems that protect the natural resource base. Recent evidence of resource degradation and declining productivity in some intensively cropped areas is of particular concern. Also population driven intensification of agriculture without the use of external inputs, is leading to a serious problem of mining soil fertility

Mobilize the best of science and development efforts (including traditional knowledge and modern scientific approach) through partnerships involving national and international research institutions, NGOs, farmers' organizations and private sector in order to tackle the present and future problems of food security and production.

Donors and Government must urgently increase funding for agricultural research targeted at the needs of the rural and urban poor, and every effort must be made to ensure the free flow of information, technology and germplasm so that a proper sustainable agriculture can be achieved.

(j) Accent on Empowering the Small Farmers: Contributions of small holders in securing food for growing population have increased considerably even

though they are most insecure and vulnerable group in the society. The off-farm and non-farm employment opportunities can play an important role. Against expectation under the liberalized scenario, the non-agricultural employment in rural areas has not improved. Greater emphasis needs to be placed on non-farm employment and appropriate budgetary allocations and rural credit through banking systems should be in place to promote appropriate rural enterprises. Specific human resource and skill development programmes to train them will make them better decision-makers and highly productive. Human resource development for increasing productivity of these small holders should get high priority. Thus, knowledge and skill development of rural people both in agriculture and non-agriculture sectors is essential for achieving economic and social goals. A careful balance will therefore need to be maintained between the agricultural and non-agricultural employment and farm and non-farm economy, as the two sectors are closely inter-connected.

Raising agricultural productivity requires continuing investments in human resource development, agricultural research and development, improved information and extension, market, roads and related infrastructure development and efficient small-scale, farmer-controlled irrigation technologies, and custom hiring services. Such investments would give small farmers the options and flexibility to adjust and respond to market conditions.

For poor farm-households whose major endowment is its labour force, economic growth with equity will give increased entitlement by offering favourable markets for its products and more employment opportunities. Economic growth if not managed suitably, can lead to growing inequalities. Agrarian reforms to alleviate unequal access to land, compounded by unequal access to water, credit, knowledge and markets, have not only rectified income distribution but also resulted in sharp increases in productivity and hence need to be adopted widely. Further, targeted measures that not only address the immediate food and health care requirements of disadvantaged groups, but also provide them with

developmental means, like access to inputs, infrastructure, services and most important, education should be taken.

Identification of need-based productive programs is very critical, which can be explored through characterisation of production environment. We have to develop demand-driven and location-specific programs to meet the requirements of different regions to meet the nutritional security of most vulnerable population in the rural areas. Improved agricultural technology, irrigation, livestock sector and literacy will be most important instruments for improving the nutritional security of the farm-households. Watershed development and water saving techniques will have far reaching implications in increasing agricultural production and raising calorie intake in the rainfed areas. Livestock sector should receive high priority with multiple objectives of diversifying agriculture, raising income and meeting the nutritional security of the poor farm households. Need based and location-specific community programs, which promise to raise nutritional security, should be identified and effectively implemented. Expansion of micro credit programmes for income-generation activities, innovative approaches to promote family planning and providing primary health services to people and livestock and education should enhance labour productivity and adoption of new technologies. Development of the post-harvest sector, co-operatives, roads, education, and research and development should be an investment priority. A congenial policy environment is needed to enable smaller holders to take the advantage of available techniques of production, which can generate more incomes and employment in villages. For this poor farmer needs the support of necessary services in the form of backward and forward linkages. Small-mechanised tools, which minimise drudgery and do not reduce employment, but only add value to the working hours are needed to enhance labour productivity. Special safety nets should be designed and implemented for them. Can agricultural co-operatives internalise and galvanize these marginal and excluded people? Off-farm employment provided through co-operatives will

go a long way in pulling them out of the state where poverty breeds poverty. Therefore, investment in the empowerment of the small landholders will pay off handsomely. Let us create rural centres of production and processing by masses through co-operatives or empowerment of Gram Panchayats to promote co-operatives. This will improve efficiency of input and output marketing and give higher income. There is need to disseminate widely post-harvest handling and agro-processing and value addition technologies not only to reduce the heavy post-harvest losses but also improve quality through proper storage, packaging, handling and transport. Panchayati Raj institutions and co-operatives can play significant role in all these directions. Giving them power over the administration, as contemplated under the 73rd and 74th Amendment of the Constitution has not been implemented seriously so far in any of the states.

(k) Disaster Management: The frequency and intensity of disasters such as floods, droughts, cyclones and earthquakes have increased in the recent years. The devastating earthquake in Gujarat has brought untold miseries to the whole state and caused a national disaster. Special effort should be made to develop appropriate technologies for increasing preparedness to predict and to manage the disasters. Effective and reliable information and communication systems, contingency planning and national and international mobilization of technologies and resources are a must. Experiences of other countries in prevention and management of the disasters should be shared.

(l) Exploiting Cyberspace: Information is power and will underpin future progress and prosperity. Efforts must be made to strengthen the informatics in agriculture by developing new databases, linking databases with international databases and adding value to information to facilitate decision making at various levels. Development of production models for various agro-ecological regimes to forecast the, production potential should assume greater importance. Using the remote sensing and GIS technologies, natural and other agricultural resource should be mapped at micro and macro levels and effectively used for land

and water use planning as well as agricultural forecasting, market intelligence and e-business, contingency planning and prediction of disease and pest incidences.

CHAPTER –V

DEVELOPMENT OF AGRICULTURE SECTOR

Keeping in view of the natural resource base potential and the inputs management practices, development issues in agriculture sector have been identified and highlighted. In addition, the on-going schemes have been listed and the constraints have been brought to light. Finally, the required interventions have been recommended in this chapter.

5.1 Issues of Agriculture Sector

The issues of agriculture sector can be summarized as under:

1. Erratic and inadequate monsoon rain;
2. Declining trend of net area sown;
3. Diversion of fertile agricultural lands to non-agricultural purposes;
4. Cropping intensity hovering around fixed in the last five decades;
5. Depletion of ground water;
6. Increase in fallow lands
7. Deterioration of soil health
8. Unfavourable pattern of land ownership
9. Yield gap in majority of the crops
10. Slowdown in productivity
11. Inadequate seed availability
12. Poor seed replacement rates for most of the crops
13. Over use of certain chemical fertilizers and leaching away of organic matter of the soil
14. Dissemination of appropriate agricultural technologies

15. Access to credit from organized financial institutions at reasonable interest rate
16. Promoting rational use and management of surface and groundwater
17. Strengthening of area under rain-fed crops by introduction of drought resistant varieties
18. Incentivizing water saving techniques; and
19. Timely availability of quality seeds, fertilizers and pesticides.

5.2 On-going Schemes

The details on the schemes sponsored by the State and Central Governments and implemented by the Department of Agriculture in Madhya Pradesh are given in below.

a) ISOPOM scheme;
b) Saghan Kapas Vikas Yojana;
c) Saghan Ganna Vikas Yojana;
d) Integrated Anaj Vikas Karyakram (Mota Anaj & Chawal);
e) Annapurna Yojana;
f) Integrated Nutrient Management;
g) Balram Tal Yojana;
h) Ground Water Augmentation scheme;
i) National Biogas Yojana;
j) National Crop Insurance scheme;
k) River Valley / Flood prone River Project;
l) Tubewell scheme;
m) National Watershed Development Programme for Rain-fed Areas;
n) Surajdhara Yojana;
o) MAPWA (Madhya Pradesh Women in Agriculture Yojana);
p) ATMA;
q) Bullackcart Scheme;
r) Seed village Scheme;

s) SC / ST Training scheme;
t) National Food Security Mission;
u) Rashtriya Krishi Vikas Yojana (RKVY)

The Madhya Pradesh State government, Department of farmer's Welfare & Agricultural Development, has a dedicated web site, wherein details of all above mentioned schemes, for the benefit of farmers, including availability of details of the scheme, whom to contact, available subsidy and other details have been provided.

The slogan of hon'ble Chief Minister of Madhya Pradesh is "Madhya Pradesh mein Kheti ko Labhkari banayenge" (We will make Agriculture profitable in Madhya Pradesh).

The decision taken by the Madhya Pradesh government in the favour of farmer's includes:

- **Crop Loan @ 3 percent:** It has been decided to provide crop loan to farme's @ 3 percent, which is lowest in the country. It was earlier @ 5 percent. The balance 2 percent is being provided by the government to Banks.
- **Bonus on the procurement of Wheat and Paddy:** The wheat and paddy are being procured on the support prices as declared by the government of India. Madhya Pradesh government has declared an additional payment of Rs. 100 and 50 as bonus to farmer's per quintal on wheat and paddy, during the year 2008 - 09.
- **Direct deposition of subsidy amount in the bank account of farmer's:** The subsidies payable under various schemes, shall be directly deposited in to the bank accounts of beneficiary farme.

- **Ban on Complex Fertilizers:** Complex grade compound fertilizers of ratios 12:32:16 and 20:20:0 have been banned in Madhya Pradesh. (Earlier above grade fertilizer of sub standard were being supplied to farmer's by societies).
- **Encouragement / Promotion of hand and bullock operated Agricultural tools & implements:** The SC & ST caste farmer's are being provided 25 percent subsidy by government of India. An additional 50 percent top up will be provided by Madhya Pradesh government. This will made availability implements at 75 percent subsidy and will encourage animal based agriculture.
- **Haldhar Yojana:** The small and marginal farmer's are not doing deep ploughing as they do not have the cost bearing capacity. Thus to encourage deep ploughing Haldhar yojana is started. Under the scheme, Rs. 1000/- per hectare is being provided to farmers.
- **Top up on Sprinkler and Drip Irrigation schemes:** To encourage better irrigation water usage, a 30 percent top up subsidy will be provided.
- **Inclusion of representatives of weighters & labours in the management board of Mandi Board:** To Include the representatives of weighters & labours in the management board of Mandi Board, a resolution has been passed in the vidhan sabha.
- **Establishment of International Research Centre:** A state of the art International Wheat and Maize research centre is being established at Jabalpur with the assistance of **SEMIT**, Mexico, in the name of famous Ag scientist Dr. Borlagoue. The State Government is providing 500 acre land free for this centre.

- **The other schemes / programmes, in the interest of farmer's to be launched soon includes; Encouragement to organic farming, Soil health card, encouragement / popularization of agricultural**

mechanization, expansion of custom hiring facilities (to encourage Pulses and oilseed productivity), recogninition of MP Organic certification agency, from APEDA.

5.3. Productivity Level of Selected Crops and Constraints

Before we talk about the productivity levels of selected crops, both Kharif and Rabi, let us first see the cropping pattern of Madhya Pradesh, as regards, cereals, pulses, Oilseeds, commercial crops and other crops; that includes medicinal crops (rising area) fruits and vegetables and fodder etc., as given in the table below:

Table 5.1 Crop Group wise area of different Crops in M.P.

CROP GROUPS	CROPS	AREA (Lakh ha.) 2007-08	Percent to Gross Cropped Area
CEREALS	PADDY	16.45	8
	WHEAT	41.01	20
	JOWAR	5.50	3
	MAIZE	8.53	4
	SMALL- MILLETS	5.82	3
	TOTAL	**77.31**	**38**
PULSES	ARHAR	3.04	1
	URAD & MOONG	6.56	3
	GRAM	26.62	13
	Others	7.76	4
	TOTAL	**43.98**	**21**
OILSEEDS	SOYBEAN	52.02	25
	GROUNDNUT	2.04	1
	MUSTARD	6.36	3
	SESAMUM	3.09	1
	NIGER	1.01	1
	LINSEED	1.09	1
	OTHERS	0.03	0
	TOTAL	**65.64**	**32**
COMMERCIAL	COTTON	6.25	3
CROPS	SUGARCANE	0.77	0

	TOTAL	7.02	3

Fig 5.1 Cropping Pattern of Cereal Crops

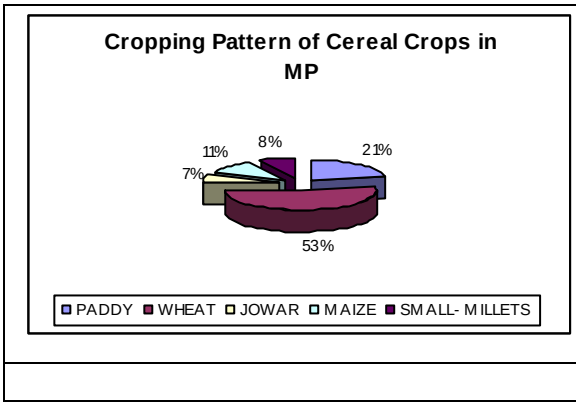


Fig 5.2 Cropping Pattern of Pulses Crops

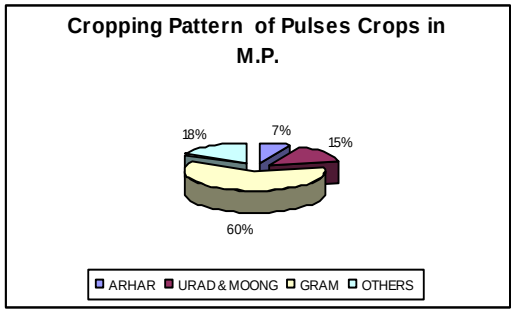


Fig 5.3 Total area of different Crop groups

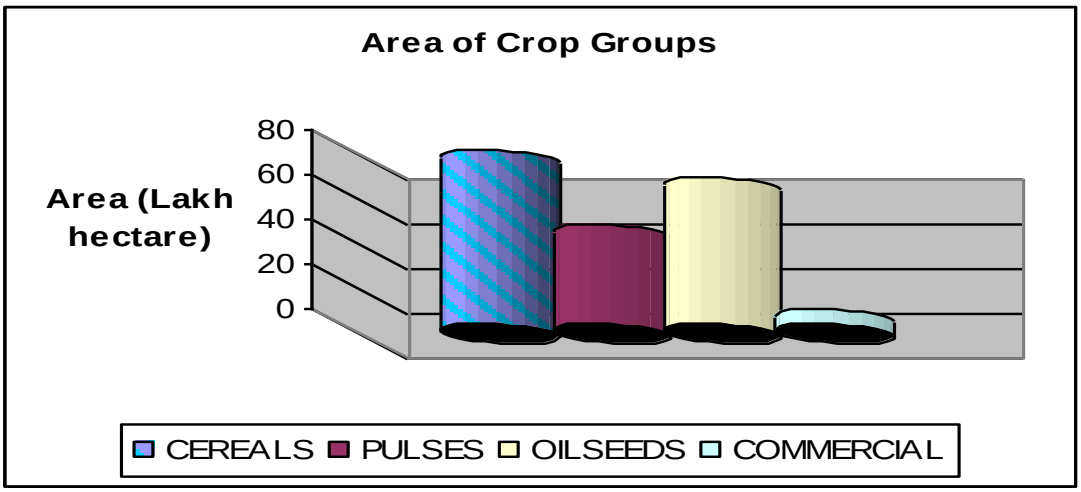


Fig 5.4 Cropping Pattern of Oilseeds

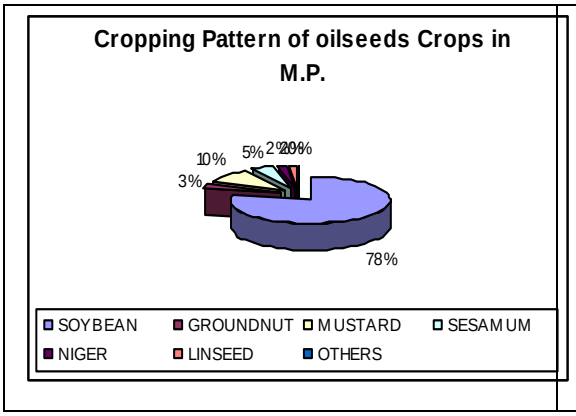
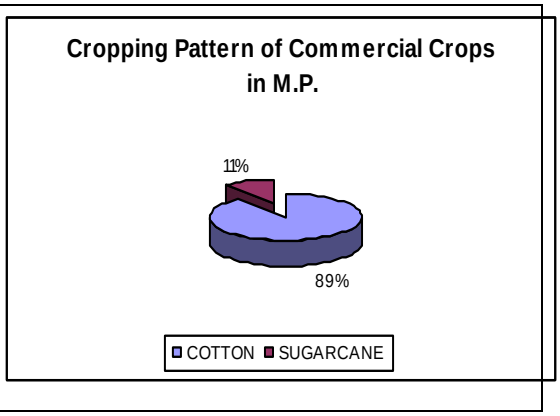


Fig 5.5 Cropping Pattern of Commercial Crops



As is evident from the table and the figures above highest area under crops is that of cereals (38 percent), next is oilseeds (being 32 percent). Area under Pulses occupies the third place, being 21 percent. Only 9 percent area is used for growing commercial crops and other crops, such as cotton, sugarcane, fruits and vegetables and medicinal and aromatic plants.

Wheat, Maize and Paddy plays an important role in providing food security to the people of Madhya Pradesh. Wheat production saw a growth of 2.83 percent over the period 1970-71 to 2004 -05, but during last 15 years from 1990 – 91 to 2007 -8, the growth is 1.07 percent only. Similarly in case of Maize, a negative growth rate is being witnessed – 0.04 percent and so is rice from 0.97 percent between 1970 -71 to -0.50 percent during 1990 -91 to 2007 -08. Wheat has come to stagnation in recent years due to many constraints with almost no scope for increasing area under wheat cultivation. This could be achieved through increasing the productivity of wheat grown under rainfed and correcting the imbalances in adoption of various technological inputs. Evidences indicate that at 1.9 percent population growth and 5 percent income growth, the demand projection for sustaining the present level of calorie supply would need 158 million tonnes of grain production by 2010 in India which accounts to annual productivity growth of 2.4 percent. A comparison of rice productivity among various States in India reveals that productivity of paddy in Madhya Pradesh is much above that of the All India average.

Jowar has continuously seeing a negative growth rate; being -5.79 during the period 1991-91 to 2007 -08, but there in an upsurge in case of Bajra, being 4.11 percent during the same period. The crop is primarily grown in districts of Rajgarh, Betul, Guna, Dewas, Burhanpur, Khandwa, Dhar, Tikamgarh, Chhattarpur and Rewa.

Gram is also on a declining trend to 0.48 percent growth during the period 1990 -91 to 2007 -08. The districts where this crop is grown includes; many districts of jabalpur, Sagar, Indore Ujjain and Gwalior division. division,

Soyabean, the yellow gold of MP, which saw a highest growth rate of 17.41 percent, during long term period of 1970 -71 to 2004 -05, is also now on a low trend of 6.19 percent growth (still being highest in all categories of crops grown). The Soyabean crop is primarily taken in districts; Chhindwara, Seoni, Narsinghpur, Sagar, Damoh, Tikamgarh, Chhattarpur, Rewa, Satna, Indore, Dhar, Jhabua, Khargone, Badwani, Khandwa, Burhanpur, Ujjain (being highest are in MP), Mandsaor, Neemuch, Ratla, Dewas, Shajapur and Gwalior.

The table below describes the compound growth rate of production in MP:

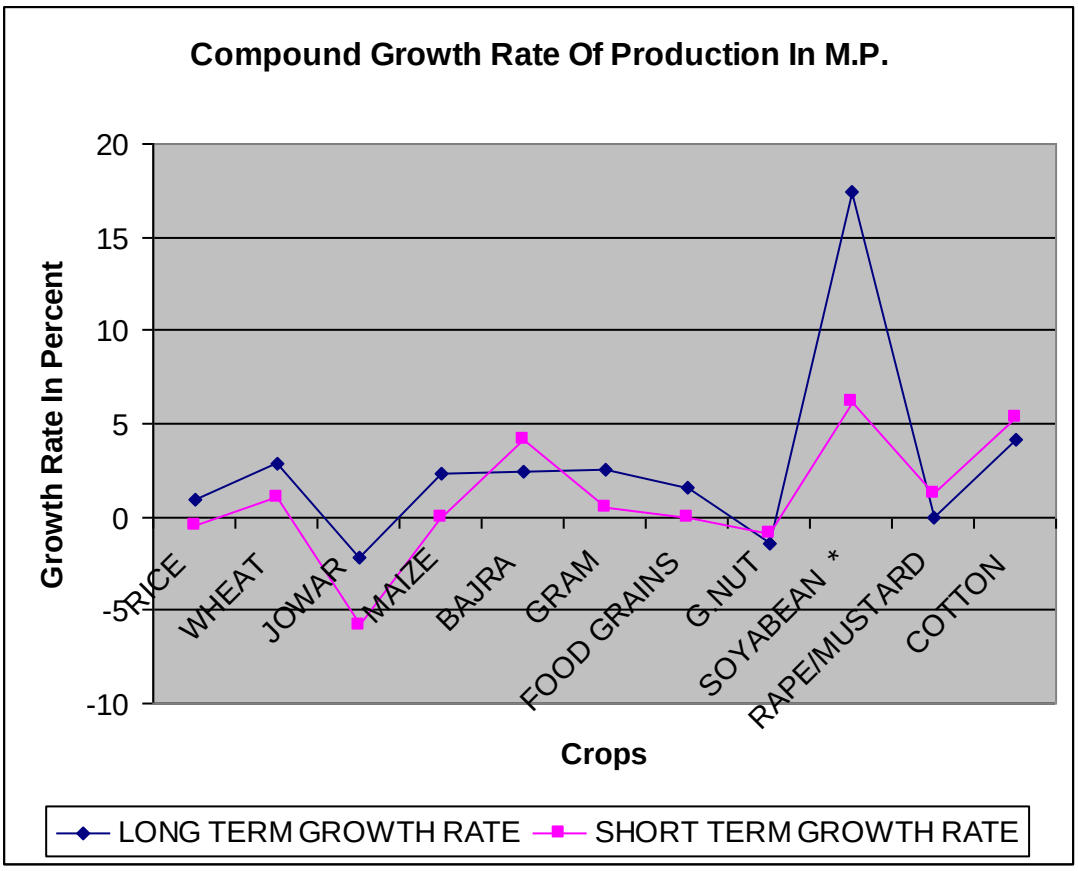
Table 5.2 Long Term & Short Term Growth Rate Of Production In M.P

S.No.	CROPS	LONG TERM GROWTH RATE (1970-71 TO 2004-05)			SHORT TERM GROWTH RATE (1990-91 TO 2007-08)		
		1970-71	2007-08	GROWTH RATE%	1990-91	2007-08	GROWTH RATE%
1.	RICE	950	1332	0.97	1435	1332	-0.50
2.	WHEAT	2536	6737	2.83	5742	6737	1.07
3.	JOWAR	1322	600	-2.23	1468	600	-5.79
4.	MAIZE	505	1119	2.30	1126	1119	-0.04
5.	BAJRA	120	278	2.43	152	278	4.11
6.	GRAM	803	1926	2.53	1792	1926	0.48
7.	FOOD GRAINS	7380	12895	1.61	12896	12895	0.00
8.	G.NUT	311	191	-1.38	218	191	-0.88
9.	SOYABEAN *	97	5368	17.41	2182	5368	6.19
10.	RAPE/MUSTARD	44	594	7.72	492	594	1.26
11.	COTTON	208	869	4.17	397	869	5.36

Note : Unit :- Thousand Tonnes

It is evident from the above table and the figure below; that it is Soyabean where a triphant long term growth rate of more than 17 percent is witnessed. However, Jowar and Groundnut have witnessed negative growth rate of 2 and 1 .5 percent respectively. Cotton has seen a short term growth rate of 5.36 percent.

Fig 5.6 Long Term & Short Term Growth Rate Of Production In M.P



Note: Long term growth rate period is 1970 -71 to 2004 -05, while short term growth rate period is 1990 -91 to 2007 -08, as per data provided by Directorate of FW & AD

The table below, indicates the major cropping pattern of different crops in Madhya Pradesh. The major crops grown in each district with area in thousand hectares, is shown in the below mentioned table:

Table 5.3. District-wise area sown of major crops in Madhya Pradesh

CROPPING PATTERN IN MADHYA PRADESH 2006-07	
	UNIT:-000,HECTARE.
JABALPUR	WHEAT 88, GRAM 66, PADDY 64, MASOOR 40, PEAS 22, URAD 21, KODOKUTKI 13.
KATNI	PADDY 109, WHEAT 56, GRAM 19, MASOOR 17.
BALAGHAT	PADDY 249, WHEAT 15, KODOKUTKI 12, LINSEED12, TEORA 11.
CHHINDWADA	SOYBEAN 140, WHEAT 106, MAIZE 85, JOWAR 44, GRAM 35, KODON 27, COTTON 31, G.NUT 25, PADDY 21,TUR 18, URAD 15.
SEONI	PADDY 119, WHEAT 105, SOYBEAN 100, GRAM 46, KODOKUKTI 20, MASOOR 12, MAIZE 12, TEORA 11, LINSEED 11.
MANDLA	PADDY 114, KODOKUTKI 40, WHEAT 29, MAIZE 18, PEAS 16, MASOOR 14, RAPEMUSTARD 14.
DINDORI	PADDY 79, KODOKUTKI 44, WHEAT 34, MASOOR 23, MAIZE 18, RAPEMUSTARED 17.
NARSINGHPUR	GRAM 137, WHEAT 53, SOYBEAN 53, MASOOR 32, PADDY 14, URAD 13, PEAS 13.
SAGAR	SOYBEAN 203 , GRAM 199, WHEAT 164, MASOOR 74, URAD 18.
DAMOH	GRAM 165, WHEAT 70, SOYBEAN 55, PADDY 53, URAD 14.
PANNA	GRAM 89, WHEAT 62, PADDY 56,
TIKAMGARH	URAD 62, WHEAT 58, SOYBEAN 25, SESAMUM 23, GRAM 21, GROUND NUT 15, RAPE & MUST. 14, JOWAR 12, PEAS 11.

CHHATARPUR	WHEAT 102, GRAM 77, SESAMUM 37, URAD 36, SOYBEAN 22, PEAS 21, JOWAR 14, PADDY 12, RAPE & MUST. 12, LINSEED 11.
REWA	WHEAT 156, PADDY 138, GRAM 59, SOYBEAN 19, JOWAR 16, TUR 14, LINSEED 14, URAD 10.
SIDHI	PADDY 127, WHEAT 89, KODOKUTKI 42, GRAM 38, MAIZE 36, TUR 33, BARELAY 20, SESAMUM 20, JOWAR 15, LINSEED 14, URAD 10.
SATNA	WHEAT 142, PADDY 95, GRAM 90, MASOOR 32, SOYBEAN 31, URAD 15, TUR 12.
SHAHDOL	PADDY 108, WHEAT 23, KODOKUTKI 20, MAIZE 11.
ANUPPUR	PADDY 101, KODOKUTIKI 18, WHEAT 14, MAIZE 12.
UMARIA	PADDY 44, WHEAT 26, KODOKUTKI 18.
INDORE	SOYBEAN 224, WHEAT 132, GRAM 36.
DHAR	SOYBEAN 247, WHEAT 188, COTTON 115, MAIZE 62, GRAM 42, JOWAR 18.
JHABUA	MAIZE 114, URAD 65, WHEAT 39, COTTON 37, SOYBEAN 34, PADDY 23, GRAM 22, G. NUT 20, JOWAR 18, BAJRA 17, KULTHI 12.
KHARGONE	COTTON 191, JOWAR 66, WHEAT 63, SOYBEAN 57, MAIZE 20, TUR 14, GROUNDNUT12, MOONG 10.
BADWANI	COTTON 53, JOWAR 50, MAIZE 34, WHEAT 32, SOYBEAN 30, GROUNDNUT 14, BAJRA 10.
KHANDWA	SOYBEAN 150, COTTON 76, WHEAT 60, JOWAR 22, GRAM 14.
BURHANPUR	COTTON 48, SOYBEAN 13, JOWAR 13.
UJJAIN	SOYBEAN 430, WHEAT 183, GRAM 119, MAIZE 11.

MANDSAOUR	SOYBEAN 251, WHEAT 71, RAPE MUSTARD 58, MAIZE 39, GRAM 27, URAD 15.
NEEMUCH	SOYBEAN 123, WHEAT 40, RAPEMUSTARED 31, MAIZE 24, GRAM 22.
RATLAM	SOYBEAN 188, WHEAT 83, MAIZE 60, GRAM 51, COTTON 33, RAPEMUSTARED 12.
DEWAS	SOYBEAN 282, WHEAT 105, GRAM 95, COTTON 38, JOWAR 14, MAIZE 13.
SHAJAPUR	SOYBEAN 327, GRAM 99, WHEAT 86, MAIZE 43, JOWAR 25.
MORENA	RAPEMUSTARED 147, BAJRA 83, WHEAT 75.
SHEOPURKALA	RAPEMUSTATED 82, WHEAT 38, SESAMUM 24, BAJRA 17, SOYBEAN 15.
BHIND	RAPEMUSTARED 152, WHEAT 73, BAJRA 32, GRAM 29, SESAMUM 11.
GWALIOR	WHEAT 87, RAPEMUSTARED 56, GRAM 22, SESAMUM 21,PADDY 16, SOYBEAN 16.
SHIVPURI	WHEAT 104, WHEAT 99, GRAOUNDNUT 65, RAPE 55, GRAM 54, MAIZE 25, URAD 16, SESAMUM 12.
GUNA	SOYBEAN 141, WHEAT 85, GRAM 70, MAIZE 19, RAPE MUSTARD 19, JOWAR 17.
ASHOKNAGAR	GRAM 123, WHEAT 112, SOYBEAN 46, URAD 30, MASOOR 24.
DATIA	WHEAT 97, SESAMUM 45, GRAM 25, PEAS 19.
BHOPAL	SOYBEAN 92, WHEAT 70, GRAM 36.
SEHORE	SOYBEAN 244, WHEAT162, GRAM 87, MAIZE 46.
RAISEN	WHEAT 178, GRAM 136, SOYBEAN 70, MASOOR 42, TUR 20, PADDY 12, PEAS 12, TEORA 10.
VIDISHA	WHEAT 213, GRAM 196, SOYBEAN 143, MASOOR 74, URAD 20.

BETUL	SOYBEAN 174, WHEAT 94, MAIZE 48, JOWAR 45, PADDY 41, GRAM 32, TUR 28.
RAJGARH	SOYBEAN 273, GRAM 79, WHEAT 70, MAIZE 48, JOWAR 42.
HOSHANGABAD	WHEAT 209, SOYBEAN 195, GRAM 47, PADDY 15.
HARDA	SOYBEAN 161, WHEAT 116, GRAM 20.

4.4 Interventions Recommended

The interventions recommended for augmenting the productivity of the crops and achieving the desired growth rate of four percent in agriculture are summarized district wise as under:

(a) Agriculture practices and crop productivity enhancement:-

- Integrated rice productivity improvement programme (IRPIP)
- Integrated development of major food crops *viz*., paddy, maize, groundnut, gingerly and sunflower.
- Integration of farmers and farmer groups in seed multiplication
- Integrated pest management'
- Integrated nutrient management
- Integrated soil health management
- Strengthening infrastructure facilities in State Seed Farm and Problem soil management by adopting reclamation methods
- Dry farming techniques
- Provision of community thrashing floor
- Distribution of Hybrid seed, micronutrient mixture, green manure seeds and Organizing maize marketing group
- Distribution of paddy transplanter and power thresher
- Pheromone trap distribution for rhinoceros beetle

- Enriched FYM preparation and demonstration and Activities related to enhancement of soil health.
- Improving the use of organics and bio fertilizers and Enhancing the production and productivity of the crops
- Hybrid seed distribution for major crops
- Distribution of micronutrient mixture
- INM and IPM in pulses
- Distribution of gypsum
- Distribution of water soluble inorganic fertilizer and Strengthening of Parasite Breeding Stations
- Strengthening of soil testing and pesticide testing laboratories
- Use of improved seed, INM, IPM and new machinery for cultivation of paddy,
- maize, pulses, groundnut, (rainfed and irrigated) gingelly
- Hybrid rice seed production and distribution subsidy
- Promotion of SRI – Distribution of marker, transplanter and conoweeder
- Precision farming by sprinkler
- High yielding and high quality varieties of paddy
- Improving soil health and crop nutrition
- Plant protection intensification
- Technological innovation
- Development of varieties and management practices for salinity and alkalinity
- Cultivation of high value crops under precision farming
- Establishing seed processing unit in State seed farm Exposure visit to officers / inside / outside the country and
- Certified seed production and distribution
- System of Rice Intensification (SRI)
- Assistance for vermi compost production

- Distribution of phenomenon trap for red palm weevil control
- Strengthening state seed farms, Parasite Breeding Station, Soil Testing
- Laboratories and pesticide testing laboratories
- Increasing the productivity of sorghum, blackgram, greengram and horsegram
- Grant to certified seed production and distribution
- Massive Rat eradication campaign in village
- Upgradation of existing seed processing units
- Maximizing crop productivity in drylands
- Precision farming in agricultural crops
- Farm mechanization to reduce the cost of cultivation
- Distribution of hybrid seeds in maize, cumbu and cotton
- Distribution of green manure seeds in paddy
- Distribution of gypsum for groundnut
- Production of foundation and certified seeds Improving existing seed processing units
- Distribution of bio-pesticides / weedicides
- Distribution of improved farm machinery and Distribution of hybrid cotton seeds
- Seed subsidy for trap crops viz. maize, cowpea, sunflower
- Distribution of gypsum for soil reclamation
- Distribution of seed treatment chemical
- Distribution of combine harvester / rice transplanter, drum seeder, cono Weeder, SRI marker @ 75% subsidy farmers training in running and maintenance of farm machinery
- Supply of quality certified seeds at nominal cost
- Distribution of bio-fertilizers
- Hybrid seed distribution for maize (Rainfed and sunflower)
- Quality seed development and production Nutritional management.

- Precision farming in groundnut and Establishment of agri-clinic and other extension activities
- Distribution of green manure seeds and nutrient mixture
- Precision farming for pulse crops
- Provision of certified seeds at subsidized rate to replace the seeds of farmers choice
- Assistance to vermi compost unit
- Distribution of MN mixture, micro nutrients, gypsum and green manure seeds
- Supply of implements at subsidized prices
- Distribution of hybrid sunflower mini-kits
- Distribution of Soil Health Cards
- Distribution of Micro Nutrient Mixture Distribution of Tarpaulin.
- Increasing productivity with minimum usage of water

(b) Extension

- Exposure visit to CHINA to study the advanced production techniques and dissemination of cultivation practices of rice (including Hybrid rice, SRI)
- Establishment of model farms to demonstrate latest technologies
- Exposure visit of farms – Interstate / Intrastate
- Organising district level exhibitions / kissan melas
- Farmers field school for Rat control publicity and training
- Transfer of technology and Human resource development
- Supply of machines and equipments and Scaling up extension activities
- Extension activities Use of machinery like power tiller, paddy planter, paddy harvester.
- Video facilities at district headquarters
- Strengthening of Government Farms Exposure visit to farmers and officials and Quality seed materials and encouragement to produce

adequate quantity of Organizing Training Programmes, District Level Workshops and Inter State.

- Exposure visit to inside / outside the state for officers
- Establishment of village knowledge centres
- Upgradation of farmers training centres
- Farmers field school for training in IPM technology
- Farmers exposure visits within the state and outside the state Exposure visit / officials to MANAGE / ICRISAT Hybderabad, IARI, New Delhi Successful NGOs
- Introduction of multi-purpose traces in community / private and Capacity building to officials / stake holders
- Organizing farmers training / extension workers training and Crop diversification
- Strengthening the support system of agricultural extension machinery
- Establishment of automatic weather stations
- Establishment of Agri-clinics-cum-mini soil testing labs.
- Establishing agri-clinics-cum-mini soil testing laboratories
- Assistance to agri-preneurs for setting up agri clinics / agri business centres.
- Technology demonstration
- Organizing micronutrients demonstration
- Extension activities Organic farming system

(c) Market development

- Market led extension
- Establishment of market intelligence cell in regulated market and Seed production and distribution subsidy for SHGs
- Construction of rural godowns.
- Establishment of cold storage unit for chillies & other Capacity building of the farmers and

- Incentive for seed production to self-help-group
- Strengthening of extension activities and Developing marketing infrastructure Technology adoption
- Assistance to agri-preneurs for setting up agri business centres.

(d) Horticultural development

- Subsidy for tree climber for harvesting coconut
- Seed minikit of new high yielding varieties
- Establishment of cold storage unit for chillies & other Capacity building of the farmers and
- Establishing coconut nursery state seed farms

(e) Land and water development

- Land development measures with technology and credit facilities
- Wasteland development programmes with active participation of local Community.
- Preparation of land resources interventions and GIS data base
- *In situ* water harvesting through farm pond cluster
- Recharging ground water using old and new bore wells
- Digging farm ponds
- Water budgeting and water-use efficiency
- Special projects on harnessing and conservation of water resources and Farm mechanization
- Reclamation of soil and water resources affected by water logging and

(f) Others

- Establishing solar fencing for stray animals
- Establishment of prosophin bio fuel units
- Establishment of community fodder plots by SHGs / FIGs

CHAPTER – VI

DEVELOPMENT OF ALLIED SECTORS

The focus of the plan is to bring about economic development and improve the quality of public services with emphasis on the poor and the marginalized. In this regard, careful planning is essential to achieve integration across sectors associated with agricultural sector. In what follows, a brief account of issues, ongoing schemes, constraints and interventions recommended in horticulture, agricultural engineering, agricultural marketing and agri business, animal husbandry, fisheries and irrigation systems are presented.

6.1 Horticulture Sector

The horticulture sector in Madhya Pradesh has seen a drastic upward trend of new projects taken up for the benefit of farmers with an investment of Rs. 328.83 lakh in the beginning of 11th five year plan.

6.1.1 Issues

- Raising orchards and vegetables is a high investment proposition and many farmers with poor resource-base are unable to take up cultivation of horticultural crops;
- Immediate post-harvest glut slashes down the unit prices and erodes the profit of the farmers;
- Highly perishable nature of horticultural products and lack of adequate cold storage facilities at cheaper cost;
- Horticultural crops are high-tech oriented and many farmers lack knowledge of the same;
- Long gestation period from planting to economic bearing of fruit trees;

- Seasonal aberrations due to eratic monsonic behavior affects the crop yields drastically;
- Highly fluctuating prices and slashing down of prices to the lowest ebb especially during harvest season;
- Lack of appropriate transport mechanisms and remoteness of production centres result in huge transportation cost;
- Non-availability of adequate farm labourers especially during harvest seasons pose a major threat to the farmers; and
- Ill-developed cold chain system also result in huge spoilage of raw fruits and Vegetables.

6.1.2 Interventions Recommended

- ❖ Provision of Net house structure;
- ❖ Nursery / vegetable production;
- ❖ Pandal for vegetable production;
- ❖ Package for plant protection;
- ❖ Plastic crates (Banana, Vegetables);
- ❖ Bore well with casing pipe;
- ❖ Banana bunch cover;
- ❖ Banana sucker treatment kit;
- ❖ Humic acid / Effective E.M.;
- ❖ Support System for crops like; Banana;
- ❖ Sales outlet-cum-information centre;
- ❖ District level farmers workshop;
- ❖ Inter state exposure visit (5days);
- ❖ 10 Ha Mega demo plot for the district;
- ❖ .Enterprising farmers associations;
- ❖ Support for Betel vine growers; and
- ❖ Model fertigation plot for vegetables.

6.1.3 Constraints

- High investment cost
- Long gestation period
- High tech involved
- Non-availability of good quality seeds and planting materials and
- Lack of awareness among farmers on the profitability of horticultural crops.

6.2 Agricultural Engineering

6.2.1 Issues

- The development of agricultural engineering in the State is still in its infancy and is yet to gain momentum
- Peak seasonal operations and scarcity of labour promote ample opportunities for hastening the process of farm mechanization.
- Water and soil conservation works are to be intensified especially in dryland tracts
- There exists vast scope for the development of water harvesting structures and Farmers need training in the up-keep of the machineries and implements.

6.2.2 Constraints

- Heavy investment requirement for agricultural machineries, implements and tools
- Usage of machineries for seasonal operations only
- Exorbitant rental charges charged by the custom service providers
- Timely non-availability of machine labour
- Inadequate repairing facilities / workshop with trained manpower in rural
- Areas; and

- Size of holdings in majority of the areas, restrict the usage of mechanical power.

6.2.3 Interventions Recommended

- Popularisation of Agricultural mechanisation through conventional machinery / Equipments
- Water Harvesting Structures
- Soil Conservation works
- Water Management works
    - ❖ Introduction of newly developed Agricultural machinery / Implements
    - ❖ Innavotive water harvesting structures
    - ❖ Promoting the concept of mechanized villages
    - ❖ Control of sea water intrusion in coastal belt
    - ❖ Special scheme for the beneficiaries of land reforms – Innovative Scheme for OFD with special focus in SC land holdings; and
    - ❖ Farmers Training.

6.3 Agricultural Marketing and Agri business

6.3.1 Issues

- Dominance of unorganized non-formal channels
- Institutional innovation for efficient alterative system responsive to market signals
- Developing wholesale markets by providing necessary facilities
- Prevention of wastage at pre-harvest and post-harvest levels
- Construction of roads linking villages with nearby assembling and wholesale markets
- Encouraging private investment in revamping agricultural marketing

- Developing commodity exchanges
- Prior knowledge on post-harvest management, value addition and processing among the farmers and Strengthening of marketing Intelligence and Information system

6.4. National Horticulture Mission

6.4.1. Constraints

- Lack of proper and adequate storage facilities at farm level
- Exploitation of farmers by the middleman
- High seasonal fluctuations in prices of major agricultural commodities
- Market information and intelligence activities are still in its infancy
- Regulated markets in many districts are yet to improve their functional efficiency
- Cooperative marketing system is yet to develop in a big way and
- Lack of adequate processing infrastructure

6.4.2. Interventions Recommended

- ❖ Establishment/ organization of commodity groups for marketing in the state with financial assistance from NADP
- ❖ Facilitation of Contract Farming between farmers and bulk buyers in the state with financial assistance from NADP
- ❖ Dissemination of Market intelligence
- ❖ Arrangement of Buyers - Sellers Meet
- ❖ Organizing the exposure visits to important markets within the state and out side the state by commodity groups / farmers and extension functionaries and
- ❖ Strengthening of market extension centre at each district/ block level for capacity building and dissemination of marketing information

6.5. Animal Husbandry

6.5.1 Issues

- The gap between requirements and supply of green fodder is rather wide and
- needs bridging or atleast narrowing
- Diminishing pasture / grazing lands and their poor quality
- Lack of knowledge on balanced feeding of animal especially cross breed cows and on supplementary micro nutrients
- Infertility problem among cross-bred cows and low/delayed conceivement among buffaloes
- Heifer rearing on scientific lines
- Scientific calf rearing to avoid calf mortality
- Lack of adequate genetically superior male breeder and buck
- Non availability of superior Rams and bucks
- Popularization of rabbit farming and Japanese animal farming (quakes / ducks)
- Strengthening of veterinary institutions
- Insufficient processing and marketing facilities in most of the Milk Producers
- Unions
- Production of milk products like butter, ghee, ice cream, palpeda etc., on large scale and
- Improving infrastructure for collection, transportation, handling and procurement of milk and processing, packing and marketing of milk and milk products.

6.5.2. Ongoing Schemes of Animal Husbandry Sector

Livestock rearing is an important economic activity for the rural people. It generates more value both economically and socially. The growth in human

population, availability and cost of agricultural lands, limited water sources and introduction of better yielding livestock have led farmers to shift to some kind of livestock rearing to earn their livelihood. Hence to provide employment, to enhance the participation of the poor in livestock rearing and as a part of poverty alleviation programmes, the Department is implementing various livestock oriented schemes.

The interventions by the department in the area are:

- Delivery of veterinary services and breeding support to livestock reared by farmers in unserved areas by establishing Veterinary Units, utilising the services of unemployed veterinary graduates
- Improving the quality in delivery of veterinary services and diagnosis by
- strengthening the essential and needy infrastructure of veterinary institutions
- Utilising the high-yielding frozen semen straws for artificial insemination.
- Increasing the availability of green fodder by bringing more area under fodder cultivation
- Ensuring total health care and improving the conception rate by conducting Infertility cum total health care camps and distribution of mineral mixture; and
- Improving the know-how level of farmers on best animal husbandry practices / techniques by conducting various information, education, communication and

6.5.3. Constraints

- Heavy shortage of fodder
- Non-availability of good pedigree herds
- Distance to dispensaries / hospitals
- Ignorance of farmers on quality milk production

- Lack of knowledge among farmers on scientific calf rearing.
- Sudden Outbreaks of epidemic diseases
- Lack of adequate grazing lands / areas and Non-availability of organized markets for selling the animals.

6.5.4 Interventions Recommended

The interventions recommended are furnished in what follows.

- Augmentation of fodder production through SHGs / women entrepreneurs.
- Supply of by-pass protein feed to the milch animals
- Strengthening of veterinary institutions with basic facilities
- Buffalo calf development programme
- Control of parasitic diseases through treatment to enhance vaccine response
- Popularizing mineral mixture to improve livestock production
- Disaster management
- Bulk milk and walk in coolers
- AC based automatic milk collection station to IDF village / milk producer Co-operation and district level livestock farmers workshop
- Renovation of existing veterinary dispensaries
- Programmed breeding of indigenous cattle and buffalo calf development programme
- Milk weighing machine for milk producers cooperative societies
- Establishment of model livestock village for educating farmers and Improvement of livestock health for cattle, sheep, goat and poultry
- Extension activities
- Genetic upgradation for bovines and small ruminants
- Processing and marketing facilities
- Extension facilities for livestock farming
- Strengthening of buffaloes breeding farm

- Strengthening of pig breeding
- Genetic upgradation for cattle, buffalo, sheep, goat, poultry and pigs
- Improvement of livestock health for cattle, buffalo and poultry
- Feed and fodder development for cattle, buffalo, sheep, goat, poultry, pig and others
- Establishment of cattle feed plant
- PC based automatic milk collection stations to IDF villages / milk producers
- cooperative societies and Semi intensive sheep / goat farming to improve meat production by SHGs
- Infrastructure improvement of veterinary institution
- Establishment of AIDU along with mobile veterinary diagnostic laboratories.
- Semi-intensive goat farming to supply germ plasm by SHGs
- Identification and traceability of Breedable bovine population
- Supply of ELISA kits to PDDL to establish NAI free poultry farms
- Strengthening of infrastructure for sheep and goat at VC & RI, to distribute germ plasm
- Establishing model livestock villages for educating farmers and establishment of value added symbiotic and conventional dairy food manufacturing unit cum instructional dairy plant.
- Distribution of bucks and rams
- Animal intelligence unit for health cover
- Identification and traceability of bovines
- Revival of dormant milk producers co-operative societies and Milk weighing machine to milk producers cooperative societies
- Processing facilities for cattle and buffalo and Mobile input units
- Portable milking machines for farmers
- Farmers study tour

- Skill development for technical staff and Establishment of training centre for capacity building
- Identification and traceability of breedable bovine population
- Semi-intensive goat farming to supply germplasm by SHGs
- Supply of by-pass protein feed to the milch animals at 50 per cent subsidized cost
- Supplementation of mineral mixture to prevent infertility and augment production to farmers
- Bulk and walk-in milk protein
- Strengthening of veterinary institution with basic facilities and Semi-intensive sheep / goat farming to improve meat production by SHGs.
- Establishment of mobile veterinary clinics in each Block
- Processing facilities and Extension facilities for cattle, buffalo, sheep, goat and poultry.
- Identification and traceability of breedable bovines
- Establishment of Animal Disease Intelligence Unit
- Supply of stall-fed goat units to SHGs
- Sensitization of public on dairy activities
- Product production and delivery facilities
- Operational efficiency improvement for dairying
- Establishment of livestock and poultry entrepreneurship development complex
- Improving the productivity of the sheep through introduction of exotic germplasm
- Popularizing mineral mixture to improve livestock production
- Supply of mineral mixture to milch animals at subsidized price
- Milk weighing machine for MPCs and Milk pouch film manufacturing facilities

6.6. Fisheries Sector

6.6.1. Issues

- Socio-economic upliftment of the fisher men and fisher women
- Improvement of processing infrastructure facilities
- Development of cold / refrigerated / insulated transport facilities
- Development of retailing services and retail points
- Provision of fishing gadgets at subsidized prices
- Training of farmers venturing into fish farming and Training to the fisher-folk on scientific fish farming
- Sustainable fish production
- Strengthening infrastructural facilities for fish landing
- Reduction of post-harvest losses
- Encouragement of integrated fish farming, cage farming and several leg fish Farming and Production of artificial reefs

6.6.2. Constraints

- Lack of adequate and appropriate infrastructural facilities in catching and landing
- Lack of adequate necessary facilities
- Lack of awareness and interest among majority of the farmers in taking up fish
- farming
- Seasonal water availability in the inland water bodies and Inadequate marketing infrastructure including retail outlets.

6.6.3. Interventions Recommended

The interventions recommended are as follows.

- Repair and renovation of fish seed farm
- Creation of additional nursery space

- Farmers training for capacity building and Establishment of fish culture and post harvest technology
- Expansion of fish culture in hitherto unutilized water bodies
- Subsidy assistance to private fish seed rearing and Moped-cum-insulated ice box for fish marketing.
- Seed stocking in open waters
- Marketing value added product and Modernization of indigenous FRT long liner.
- Training programme on advanced technologies
- Assessment of productivity for enhancing fish production Breeding of ornamental fishes
- Ornamental Fish Park and Training fish farmers.
- Supply of fishing implements
- Setting of modern retail outlet for fish and Supply of moped with ice box for fish marketing
- Development of post harvest infrastructure in selected landing centres
- Culture for fish rearing
- Creation of farm ponds desilting of tanks
- Establishment of endemic ornamental fish culture unit
- River ranching and Farmers training
- 50% subsidy to ornamental fish cultures
- Establishing rural herbal nursery units for SHG women solar powered units
- Introduction of modern fishing fleet to help the off shore resources
- Artificial rocks and sustain / retain the existing infrastructure facility for aquaculture
- Setting up of modern fish stall and establishment of fish culture and post harvest technology demonstration unit.
- Subsidy assistance to private fish seed rearing / fish seed production and

Repairs to existing rearing nurseries & government fish seed farms

- Development of artificial fish habitats
- Infrastructure development for modern market
- Fishermen training and Expansion of fish culture by streaking fingerlings.
- Creation of additional nursery space for fish seed production
- Supply of fish seeds at 50 per cent subsidy
- Introduction of fish culture in cages with 90 per cent subsidy
- Supply of fishing implements with 90 per cent subsidy
- Development of landing centre with 100 per cent grant
- Setting up of modern fish stall
- Expansion of fish culture in unutilized water bodies by stocking fingerlings.
- To sustain / retain the existing infrastructure facilities for aquaculture
- Infrastructure development to conserve the endangered native fish
- Capacity building of fish farmers and Establishment of water and soil testing laboratory
- Modernization of mechanized fishing vessels
- Modernization of traditional fishing vessels
- Deployment of artificial reefs
- Development of sperm bank for production of quality fish seeds
- Production of transgenic fish
- Fisheries bio-diversity reference unit for conservation and Resource mapping of marine and inland fisheries.
- Establishment of wholesale markets
- Development of market strategies for fish.
- Extension facilities
- Complete renovation of old department fish seed farm with infrastructure facility
- Subsidy assistance to private fish seed rearing units and Repair of existing fish seed rearing ponds and creation of additional rearing space for

landing centre.

- Provision of subsidy for the purchase of drag net
- Development of ornamental fish and Algal culture unit and Demonstration.
- 50 percent subsidy assistance to provide fish seed / fish seed production
- Creation of additional fish rearing facilities
- Expansion of fish culture in hither to unutilized water bodies by stocking and Modern fish retail outlet (50 percent subsidy).

6.7. Agricultural Credit

67.1. Credit Disbursement

Government of India, State Government, Reserve Bank of India and NABARD have taken a number of steps and policy measures for the growth and development of Agriculture and Rural sectors. Besides, they have introduced several innovations in Agricultural Credit flow system to augment access of the rural people to the banking system. Some of the important policy measures / innovations are outlined below:

I. Policy Innovations of Government of India:

- Agricultural Debt Waiver (For Small Farmers / Marginal Farmers) and Debt
- Relief (for other Farmers) Scheme covering direct Agricultural Credit;
- Short Term Crop Loans continued to be disbursed at five per cent with interest subvention;
- National Agricultural Insurance Scheme (NAIS) to continue in the present form for Kharif and Rabi 2008-09.
- Adoption of concept of Total Financial Inclusion (TFI) and meeting the entire credit requirement of Self-Help-Groups.
- Implementation of Rain-fed Area Development Programme with an

allocation of Rs.348 crores with priority to areas not benefited by Watershed Development Schemes.

- Central Banks and Rural Regional Banks (RRBs) to add 250 accounts every year in Rural and Semi-urban branches.
- Guidelines on Priority Sector Lending (PSL) revised enlarging its scope.
- CBs/RRBs to introduce on a pilot basis in one district, a simplified cyclical credit product whereby the farmers can use core component of 20 per cent of credit limit throughout the year, provided interest is serviced.
- Banks are allowed to utilize the services of retired bank / Government employees and ex-servicemen as business correspondents.

II. Policy and Development Initiatives of NABARD:

- NABARD to play an active and supportive role in the implementation of 'Rural Business Hub' Scheme of Ministry of Panchayat Raj envisaging Public – Private - Panchayat Partnership to develop holistic and integrated partnership between decentralized rural production units and larger corporate entities.
- A new find "Farmers' Technology Transfer Fund" created to support programmes, workshops / seminars on technology transfer, marketing of agriculture produce and imparting training on new technologies / agriculture practices.
- NABARD in collaboration with Department of Posts, Government of India, to set up showcases in 100 post offices across the country to showcase the products of SHGs and rural artisans.
- Krishak Saathi Scheme introduced to provide refinance to banks to provide loans to farmers to free themselves from the clutches of money lenders.

CHAPTER - VII

STATE PLAN

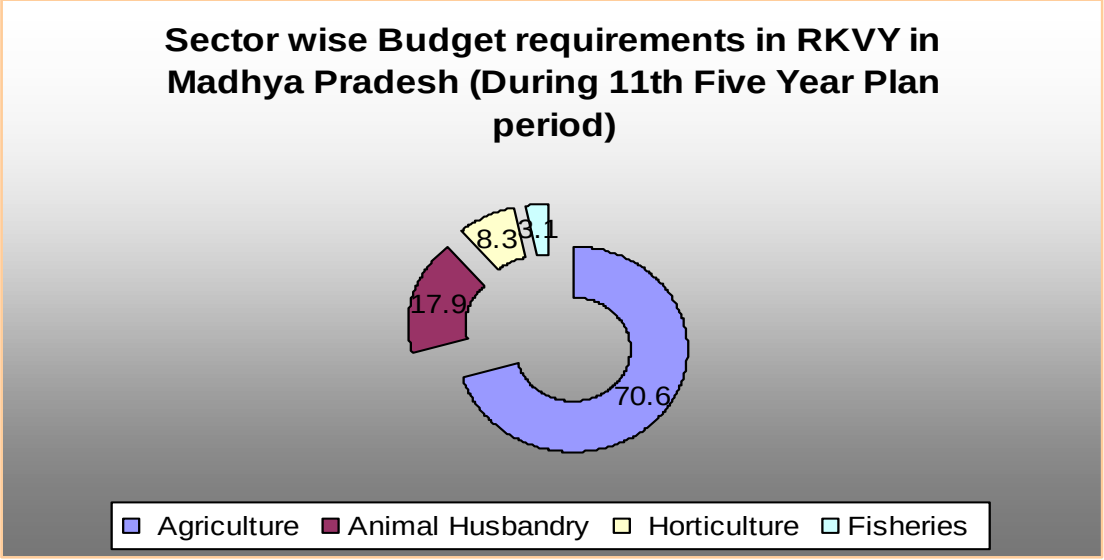
The Eleventh Five Year Plan lays emphasis not only on economic growth but also on eliminating social, spatial and sectoral imbalances. Based on the interventions recommended, strategies identified and projects contemplated, it has been estimated that the State would need an amount of Rs. 2316.10crore for the overall development of agriculture and allied sectors during Eleventh Five Year Plan period, as detailed in Table 7.1, below.

Table 7.1 Sector-wise Budget Requirements

S. No.	Sector Name	Year						
		2007 – 08	2008 – 09	2009 – 10	2010 – 11	2011 – 12	Total	%
1	Agriculture	6796.12	12043.30	10651.33	54112.93	80000	163603.68	70.60
2	Animal Husbandry	587.37	3268.95	5363.46	12208.72	20000	41428.5	17.90
3	Horticulture	328.83	1204.55	1400	6280.48	10000	19213.86	8.30
4	Fisheries	200	688.20	656.40	2619.11	3200	7363.71	3.10
	Total	**7912.32**	**17205.0**	**18071.19**	**75221.24**	**113200**	**231609.75**	**100**

Note: The amounts indicated during the financial years; 2007 -8, 2008 – 09, 2009 -10 and 2010 -11 have been duly approved in the State Level Sanctioning Committee meetings held during …., July'2009, February' 2010, June' 2010 and July' 2010, respectively.

Figure 7.1 Sector wise Budget requirements in RKVY in MP



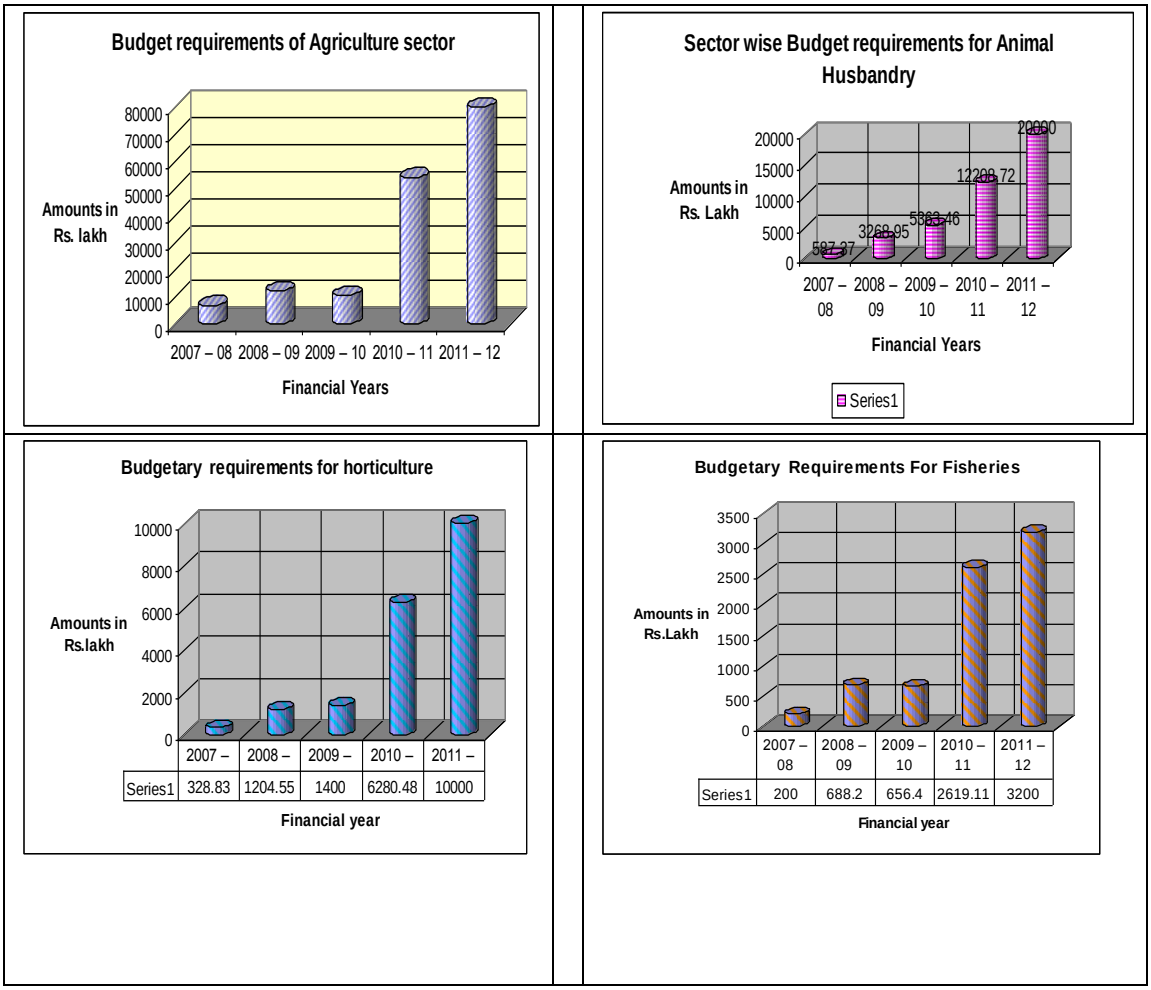
It could be seen from the table above, and the figure below that the agriculture sector demanded Rs.163603.68 lakh for implementing the action plans over a period of five years from 2007 - 08 and it accounted for almost 71 per cent of the total budget requirement.

Figure 7.2 Sector wise Budget requirements in Agriculture sector

Figure 7.3 Sector wise Budget requirements in Animal Husbandry sector

Figure 7.4 Sector wise Budget requirements in Horticulture sector

Figure 7.5 Sector wise Budget requirements in Fishries sector



Next to Agriculture Sector, the Animal Husbandry Department prepared project plans to the tune of Rs. 41428.5 lakh (17.90 per cent).

A sum of Rs. 19213.86 lakh (8.30 per cent) was demanded by Horticulture Department.

The Fisheries Department, accounted for 3.10 per cent of the total budget requirement of the State; i.e. 7363.71 lakh

The district-wise sectoral financial outlays are given in Tables below:

Table 7.2 Division wise District wise Budget requirements in All sectors

DISTRICTWISE PRPOSED BUDGETS AS PER CDAPs PREPARED -

SUMMARY OF ALL SECTORS								
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	NAME OF DIVISION	NAME OF DISTRICT	2007 -08	2008 09	2009 -10	2010 - 11	2011 - 12	TOTAL
1	BHOPAL	BHOPAL	0.00	186.50	710.06	1653.37	1347.87	3949.72
2		SEHORE	0.00	387.48	1913.28	3031.81	2676.56	7823.88
3		RAISEN	28.18	213.30	3163.83	6436.36	6296.36	16074.85
4		RAJGARH	437.08	355.40	1639.52	3165.28	2729.03	8506.48
5		VIDISHA	0.00	419.06	2803.06	5476.38	5296.13	16674.77
		Sub Total	**465.26**	**1561.74**	**10229.75**	**19763.20**	**18345.95**	**53029.69**
6	NARMADAPURAM	BETUL	465.26	1561.74	10229.75	19763.20	18345.95	53029.69
7		HOSHANGABAD	1395.77	4685.22	30689.24	59289.59	55037.84	159089.06
8		CHHINDWARA	0.00	0.00	3167.02	3486.72	3702.07	10355.82
9		HARDA	0.00	0.00	2907.40	2912.19	2826.30	8645.88
		Sub Total	**1861.02**	**6246.96**	**46993.41**	**85451.70**	**79912.16**	**231120.44**
10	INDORE	INDORE	0.00	0.00	1529.69	1849.07	2229.96	5608.72
11		JHABUA	0.00	0.00	3952.48	6764.31	6407.51	17124.31
12		ALIRAJPUR	0.00	0.00	1213.76	2567.51	3764.22	11432.78
13		KHARGONE	0.00	0.00	29899.60	21273.27	12759.73	63932.60
14		BADWANI	0.00	0.00	3374.70	2028.92	1412.17	6815.77
15		KHANDWA	0.00	0.00	2942.19	1735.18	1887.51	6564.88
16		BURHANPUR	0.00	0.00	774.39	1141.60	393.74	2309.73
17		DHAR	0.00	0.00	0.00	0.00	0.00	0.00
		Sub Total	**0.00**	**0.00**	**43686.81**	**37359.86**	**28854.84**	**113788.79**
18	UJJAIN	DEWAS	0.00	0.00	0.00	0.00	0.00	0.00
19		RATLAM	0.00	0.00	8308.72	9058.04	7772.08	25138.84
20		SHAJAPUR	0.00	0.00	2721.25	3129.43	0.00	3911.78
21		MANDSAUR	0.00	0.00	4667.20	4138.67	4704.57	13510.43
22		NEEMUCH	0.00	0.00	6977.77	9058.39	10371.58	26407.74
23		UJJAIN	0.00	0.00	1836.00	1871.50	2483.50	6191.00
		Sub Total	**0.00**	**0.00**	**24510.94**	**27256.03**	**25331.73**	**75159.79**
24	GWALIOR AMBAL	GWALIOR	0.00	0.00	6672.46	7501.47	7327.66	21501.58
25		SHIVPURI	0.00	0.00	10498.76	11139.50	10389.87	32028.13
26		GUNA	0.00	0.00	8358.43	8955.39	9285.47	26599.28
27		ASHOK NAGAR	0.00	0.00	6022.79	6706.61	5662.17	18391.57
28		DATIA	0.00	0.00	4932.72	5251.07	3726.98	13910.77
		Sub Total	**0.00**	**0.00**	**36485.16**	**39554.04**	**36392.15**	**112431.33**
29		BHIND	0.00	0.00	3230.16	4179.55	5003.17	12412.88

30		MORENA	0.00	0.00	3003.29	7023.28	6631.24	16657.84
31		SHEOPUR	0.00	0.00	3490.52	6466.59	4880.15	14837.25
		Sub Total	**0.00**	**0.00**	**9723.97**	**17669.42**	**16514.56**	**43907.97**
32	**SAGAR**	SAGAR	0.00	1139.71	3415.07	6086.38	5610.13	16032.32
33		DAMOH	0.00	0.00	1639.52	3165.28	2729.03	7714.01
34		PANNA	0.00	387.48	2035.33	3340.90	2920.65	8524.10
35		CHHATARPUR	0.00	0.00	2491.32	4082.64	3592.64	10326.89
36		TIKAMGARH	225.56	226.96	2233.20	3484.39	3076.39	8921.56
		Sub Total	**225.56**	**1754.14**	**11814.42**	**20159.59**	**17928.84**	**51518.87**
37	**JABALPUR**	JABALPUR	0.00	0.00	2989.85	3068.12	3207.56	9065.54
38		KATNI	0.00	0.00	3593.38	3876.35	4241.60	11711.33
39		NARSINGHPUR	0.00	0.00	3254.00	3579.00	3898.00	10731.00
40		SEONI	0.00	0.00	2934.97	3228.46	3375.21	9538.65
41		MANDLA	0.00	0.00	2979.03	3307.68	3496.62	9783.33
42		BALAGHAT	0.00	0.00	2391.63	2455.39	2611.41	7458.43
		Sub Total	**0.00**	**0.00**	**18142.86**	**19515.00**	**20830.40**	**58288.28**
43	**REWA &SHAHDOL**	REWA	0.00	0.00	2779.99	2679.62	2793.60	8253.21
44		SIDHI	0.00	0.00	2687.22	2861.06	3185.89	8734.17
45		SINGRAOULI	0.00	0.00	5081.00	6512.00	8048.00	19641.00
46		SATNA	0.00	0.00	5663.71	5655.47	6007.07	17326.25
47		UMARIYA	0.00	0.00	2473.43	2720.77	2844.81	8039.02
48		DINDORI	0.00	0.00	15895.00	25358.00	36810.00	78063.00
49		SHAHDOL	0.00	0.00	6274.94	5507.44	5439.44	17221.82
50		ANUPPUR	0.00	0.00	6853.50	6844.26	6735.46	20433.22
		Sub Total	**0.00**	**0.00**	**47708.79**	**58138.62**	**71864.27**	**177711.69**
	GRAND TOTAL		**2551.84**	**9562.84**	**249296.12**	**324867.46**	**315974.90**	**916956.84**

7.1 Agriculture Sector

Based on the development issues identified, various projects both in the state and district sectors have been identified and proposed, for the eleventh five year plan period. Further, these major recommended interventions have been projectized in the form of action plans of the concerned CDAPs. A brief descreption of the major interventions recommended is given below:

Table 7.3 Division wise District wise Budget requirements in Agriculture sector

	DISTRICTWISE PRAPOSED BUDGETS AS PER CDAPs PREPARED -							
	AGRICULTURE SECTOR							
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	NAME OF DIVISION	NAME OF DISTRICT	2007 - 08	2008 09	2009 -10	2010 - 11	2011 - 12	TOTAL
1		BHOPAL	0.00	185.00	181.69	483.39	413.39	1263.47
2		SEHORE	0.00	60.62	365.60	911.20	781.20	2118.62
3		RAISEN	6.05	94.70	693.15	1496.31	1356.31	3607.72
4		RAJGARH	337.44	244.75	451.85	1153.70	953.70	3141.44
5		VIDISHA	0.00	419.06	455.12	1025.24	960.24	2859.66
	BHOPAL	**Sub Total**	**343.49**	**1004.14**	**2147.42**	**5069.84**	**4464.84**	**12990.91**
6		BETUL	0.00	0.00	2031.75	2234.92	2336.51	6603.18
7		HOSHANGABAD	0.00	0.00	3593.40	4012.40	4828.66	12434.46
8		CHHINDWARA	0.00	0.00	1320.15	1452.17	1518.17	4290.49
9		HARDA	0.00	0.00	1878.92	1812.97	1984.62	5676.50
	NARMADAPURAM	**Sub Total**	**0.00**	**0.00**	**8824.22**	**9512.45**	**10667.96**	**29004.63**
10		INDORE	0.00	0.00	0.00	0.00	0.00	0.00
11		JHABUA	0.00	0.00	3535.81	6477.77	6234.77	16248.35
12		ALIRAJPUR	0.00	0.00	583.81	1580.48	1474.44	3638.74
13		KHARGONE	0.00	0.00	21143.30	12973.86	8352.89	42470.05
14		BADWANI	0.00	0.00	2918.40	1754.18	1222.23	5894.80
15		KHANDWA	0.00	0.00	2514.84	1537.97	1777.43	5830.24
16		BURHANPUR	0.00	0.00	431.34	619.53	84.02	1134.89
17		DHAR	0.00	0.00	0.00	0.00	0.00	0.00
	INDORE	**Sub Total**	**0.00**	**0.00**	**31127.50**	**24943.78**	**19145.78**	**75217.06**
18		DEWAS	0.00	0.00	0.00	0.00	0.00	0.00
19		RATLAM	0.00	0.00	3599.39	3716.84	4181.77	11497.99
20		SHAJAPUR	0.00	0.00	2169.27	2594.32	0.00	2857.68
21		MANDSAUR	0.00	0.00	2953.75	2590.85	3100.85	8645.44
22		NEEMUCH	0.00	0.00	3366.79	4559.37	5868.37	13794.53
23		UJJAIN	0.00	0.00	1087.70	1234.04	1321.30	3643.04
	UJJAIN	**Sub Total**	**0.00**	**0.00**	**13176.90**	**14695.42**	**14472.29**	**40438.68**
24		GWALIOR	0.00	0.00	2847.20	2814.95	2882.56	8544.71
25	**GWALIOR**	SHIVPURI	0.00	0.00	4286.40	3664.53	4656.75	12607.67

26		GUNA	0.00	0.00	6113.77	5600.07	6268.46	17982.30
27		ASHOK NAGAR	0.00	0.00	2561.29	2558.29	2598.29	7717.86
28		DATIA	0.00	0.00	2312.87	1825.50	1902.37	6040.74
		Sub Total	**0.00**	**0.00**	**18121.53**	**16463.34**	**18308.43**	**52893.28**
29		BHIND	0.00	0.00	2200.24	2884.29	3425.08	8509.61
30		MORENA	0.00	0.00	2092.50	4943.90	4819.20	11855.60
31		SHEOPUR	0.00	0.00	2678.32	4900.88	3624.73	11203.92
	CHAMBAL	**Sub Total**	**0.00**	**0.00**	**6971.06**	**12729.07**	**11869.01**	**31569.13**
32		SAGAR	0.00	812.85	1446.44	3072.88	2992.88	8325.05
33		DAMOH	0.00	0.00	451.85	1153.70	953.70	2559.25
34		PANNA	0.00	60.62	447.50	1115.00	945.00	2568.12
35		CHHATARPUR	0.00	0.00	526.99	1293.97	1103.97	2924.93
36		TIKAMGARH	225.56	226.96	401.85	1003.70	853.70	2259.25
	SAGAR	**Sub Total**	**225.56**	**1100.43**	**3274.63**	**7639.25**	**6849.25**	**18636.60**
37		JABALPUR	0.00	0.00	1999.75	2199.75	2299.73	6499.23
38		KATNI	0.00	0.00	2742.28	2883.00	3099.00	8724.28
39		NARSINGHPUR	0.00	0.00	1891.00	2080.00	2175.00	6146.00
40		SEONI	0.00	0.00	2492.99	2742.28	2866.93	8102.20
41		MANDLA	0.00	0.00	2098.98	2308.88	2413.83	6821.69
42		BALAGHAT	0.00	0.00	1604.28	1764.61	1844.92	5213.81
	JABALPUR	**Sub Total**	**0.00**	**0.00**	**12829.27**	**13978.52**	**14699.41**	**41507.20**
43		REWA	0.00	0.00	924.35	911.02	921.12	2756.49
44		SIDHI	0.00	0.00	426.27	426.27	426.27	1278.81
45		SINGRAOULI	0.00	0.00	455.00	477.00	561.00	1493.00
46		SATNA	0.00	0.00	1219.98	1301.40	1392.02	3913.40
47		UMARIYA	0.00	0.00	1972.60	2169.86	2268.86	6411.32
48		DINDORI	0.00	0.00	4682.00	6915.00	11466.00	23063.00
49		SHAHDOL	0.00	0.00	4662.71	4209.71	4159.71	13032.13
50		ANUPPUR	0.00	0.00	5578.00	5498.00	5518.00	16594.00
	REWA &SHAHDOL	**Sub Total**	**0.00**	**0.00**	**19920.91**	**21908.26**	**26712.98**	**68542.15**
	GRAND TOTAL		**569.05**	**2104.57**	**116393.44**	**126939.93**	**127189.95**	**370799.64**

Projects under District Sector

1. Project on Use of underground Water (Tube Well)

Once the activities under the ground water recharge and moisture conservation are undertaken, the natural outcome will be the enhancement of ground water levels. Consequently, the efforts should be to make use of this water wisely and effectively.

This is a significant project for the effective utilization of the enhanced groundwater by means of drilling of tube wells with installation of lifting devices. This project will lead to enhance the agricultural production and productivity. **:**Already **t**here exists a State govt. scheme for the Schedule cast and Schedule tribe category of cultivators . To provide this facility to small and marginal cultivators of general category also, provision is being proposed under RKVY.

S. No	Year	Project sectioned by SLSC Rs. lakh	Physical Target (no's of tube well)
1	2007-08	480.00	2000
2	2008-09	2500.00	13250
3	2009-10	480.00	960
4	2010 – 11	2500.00	10417

The scheme is being implemented in all 50 districts.

2. Project water Lifting Devices (Diesel/ Electric Pump Sets)

To assist the small & marginal farmers in increasing the irrigated area by means of water lifting devices, in the Departmental scheme as well as Kapil Dhara scheme of Department of Rural Development .

S.No.	Year	Project sectioned by SLSC lakh Rs.	Physical Target (nos. of Pump set)
1	2008-09	200.00	2785
2	2009-10	200.00	2000
	2010 -11	1200	12000
	2011 -12	NA	NA

The strategy is to provide water lifting mechanism in the dug well constructed by Dept;. of Rural Development under Kapildhara scheme.18 District will be taken under RKVY. The object is benefit to the small & marginal farmers.

The table below gives year wise proposed outlays for the project:

Diesel/Electric pumps will be provided under his project from RKVY for which It is proposed to sanction an additional amount of Rs. 900.00 lakh for 9000 pumps.

Subsidy Structure for Diesel/Electric pumps

Sl. No.	Categories	Subsidy Patters
1.	Small and marginal farmers / All general category farmers	50 % of total cost of pump set or max. Rs. 10,000/- whichever is less

The scheme is being implemented in 18 non NFSM districts.

3. Project on Construction of Dug-wells in **Bundelkhand Region**

Bundelkhand has an extremely high rate of rural poverty. Its agricultural performance lags far behind that of many states just due to improper

access to Agricultural facilities to farmers. For socially disadvantaged and Above poveryline, general and o.bc. farmers upto the 5 hectares landholding. There are schemes to facilitate them but for the other farmers it need to create some scheme to facilitate them for irrigation facility. Directorate of farmer Welfare & Agriculture Development (DFW & AD) is willing to work in six such underdeveloped districts of Bundelkhand region which having scanty and uneven rain fall To develop micro irrigation facilities to the farmers of the region. Such as construction of Dug-well (micro irrigation) opportunities will facilitate access to and control of water which will be a key intervention to increase productivity and allow the farmers to respond to available market opportunities. The thought process of Irrigation access to the farmers of Bundelkhand is conceptualized by Govt. of M.P. and aiming to implement the same with the close and converged participations of Government of India (GoI) and other participating stakeholders with an objective of promoting micro irrigation to help the farmers of the Bundelkhand region to improve the production and thus remove poverty.

The districts of Bundelkhand constitute more than 60% of the Farming population (people involved in Agricultural activities). These under developed farmers of the region lived in live in rural areas of the the Bundelkhand region and have little access to irrigation facilities, resulting in complete dependency on rain-fed Agriculture only. The situation is even worse in these districts because here the rain is scanty. Land size and crop production never make them comfortable for the investment required for developing the irrigation facilities which is a necessity for good & stable crop yields. But as we know the mandate of the Government is to work for such people and make them socially as well as economically sustainable to live a comfortable life. This initiative is an effort in such direction.

To enable all farmers of the Bundelkhand region to get engaged in Agriculture

activities to earn more viable whole year livelihood through providing reasonable access to micro-irrigation facilities with the help of GoI

This micro irrigation project will work directly with over 2250 farmers of the Bundelkhand region to increase the additional agriculture production which in turn lead to increase in the farm production & hence the income of those families. GoMP with the help of GoI will facilitate the farmers of Bundelkhand region to establish micro irrigation facilities to have some escape from scanty rain fall in the region and enhanced surety for whole year livelihood. The efforts of the GoMP & GoI will be centered to the poor farmers who really need such kind of support to contribute optimally to Agricultural and make them economically prosperous one.

Tentative Implementation steps

- Target-group selection with scientifically designed tools for this purpose such as Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA) to ensure the highest degree of transparency and discretion free process.
- Mix of Time bound and open-ended intervention with close coordination of involved stake holders.
- Identification and implementation of most viable strategies to transform the project into reality and make it successful.
- Ensure the compliance of laws, regulations, institutions, mandate based financial distribution, social equity, etc..
- project will encompass full package intervention needed to effectively mobilize updated technology, training, form associations, infrastructure, funding etc.

Actions to be taken:

- Submission of the project to GoI for approval
- After approval, mobilize the project for approval of the project by state

Government before Implementation at ground.

- After approval project can be launched
- Preparation of the detailed project plan and guidelines After approval of GOI Panchayatwise target will be given. At first target will be issued to districts then Janpat Panchayat and JanpatPanchayat will isssue the target to Panchayat according to potential.
- Subsidy will be provided through bank creadit loan.
- In entire project Backward Grant Relief Fund guidelines will be followed.
- Beneficiary selection
- Fund releases
- Project implementation and utilization monitoring

Main challenges

- Access to water for productive use in general and for irrigation in particular is almost always linked to access to land and land tenure.
- Often, poor farmers cannot obtain the financial services, credit and collateral required to benefit fully from water projects.
- Customary and many times formal law do not always allow such farmers to have access to and control over land, water and other productive resources
- One of the major factors hindering the poor farmers participation in water and irrigation projects is their low level of literacy, resulting in lack of skills relevant to participation and often low self-confidence, besides their poor economic conditions.
- Access to water is the key tool to combat rural poverty because 70 per cent of the mobilized water resources are used for agriculture and that about half the population will be suffering water scarcity by 2025. So,. Improvements to lives and livelihoods will place water resources nearly under unsustainable pressure which has given an

unavoidable challenge in the way of development of micro irrigation facilities in the state.

The Physical and Financials for year 2009 -10

(Rs. In Lakhs)

S.No.	Distt.	2009-10	
		Phy	Fin
01	Sagar	620	496.00
02	Damoh	400	320.00
03	Panna	280	224.00
04	Tikamgarh	340	272.00
05	Chhatarpur	450	360.00
06	Datia	160	128.00
Total		2250	1800.00

The Physical and Financials for year 2010 -11

(Rs. In Lakhs)

S.No.	Distt.	2009-10	
		Phy	Fin
01	Sagar	280	224
02	Damoh	206	164.8
03	Panna	156	124.8
04	Tikamgarh	199	159.2
05	Chhatarpur	279	223.2
06	Datia	130	104.0
Total		1250	1000.0

4. Project on Seed Production and Distribution

The use of quality seeds is the most vital input for enhancing productivity. Moreover, in order to keep up the pace of food production with the growing demand in the state, it is of utmost importance that farmers be provided with a wide range of seeds of superior quality in adequate quantity on a timely basis. This has to be achieved through an improved distribution system and efficient marketing set up. It is high time to promote the distribution of seed as per the requirement of farmers on a fast track.

As a result, a scheme is proposed to make the distribution subsidy available to farmers so as to enable them to use the quality seeds up to the limit of 2 hectare Area. In ICDP Scheme there is no provision for production subsidy that is why provision for breeder seed has been made.

Hybrid seed. There is no any provision for hybrid seed distribution in GOI scheme except Paddy in NFSM distt. So provision for 50% subsidy has been planned in non NFSM distt.

5. Project on Seed Treatment

The concept of seed treatment is the use and application of biological & chemical agents that control or contain primary soil and seed borne infestation of insect and diseases. Which pose divesting consequence to crop production. Besides, it also helps in improving crop safety leading to good establishment of healthy and vigorous plants resulting better yields.

The benefits of seed treatment are as follows :

- Increase germination
- Ensure uniform seedling emergence
- Protect seeds or seedling from early season diseases
- Use of plant growth hormones may enhance crop performance during the growing season.
- Improve plant population and thus higher productivity presently, majority of the seed in the state is not treated.

In order to facilitate proper growth of the plant. Schemes for biological as well as chemical protection are being proposed under RKVY. These treatments will result in:

- Increase in germination percentage.
- Disease and pest resistance capacity increased.
- Increase in productivity.
- Crop health improved.

Subsidy Structure for seed Treatment (Chemical/Biological) and proposed outlays are as under:

	Subsidy for all farmers **(**50% cost of chemical or Rs. 100/ per ha. Whichever is less.)
2007 -08	NA
2008 -09	NA
2009-10	1000.00
2010-11	2000.00
2011-12	2000.00

6- Project on Crop Protection

Background: Agriculture is highly input intensive and depends greatly on chemical pesticide for the control of insect and pests. Indiscriminate use of pesticide in agriculture causes severe damage to different agro eco-system by polluting water as well as food chains. An excessive use of pesticide causes emergence of pesticide resistance both in target and non-target pests. At the same time, technology on crop protection contributes in raising the farm output by 30 to 40 percent.

Strategy: Under the umbrella of integrated crop management, the IPM techniques recognized the importance of favorable insecticides to be judiciously used against natural enemies. This in consort with plant and bio-based pesticide forms the basic tenet of IPM approach. In the National Agriculture Policy, a thrust has also been given to promote IPM approach under ISOPAM, NSFM to achieve sustainable increase in agricultural production. Seen in this backdrop, the schemes on crop protection are being introduced, which include bio-pesticide; nuclear polyhedrons viruses. Subsidy will be given in Non NSFM Distt.

Activities:

Integrated Pest Management/ Plant Protection Chemicals Pesticide application in early crop growth stage will destroy most of the beneficial organism, causing ecological imbalance, which leads to pest resurgence. Hence in the present day concept of IPM and the entire agro–ecosystem, bio-pesticide developed from plants (botanical) and plant extract are recommended for application.

Subsidy Structure for Crop Protection

Subsidy for all farmers	**Proposed Additional Outlay for year (in lakhs)**				
	2007-08	2008-09	2009-10	2010-11	2011-12
50 % cost of biopesticide/IPM or Rs. 750/- per ha, whichever is	NA	NA	700	800	NA

less. 80000.00 (ha)					

7. Project on Large scale Demonstration & Farm Field schools

The agricultural productivity in the state is being impeded by the lack of new crop adoption and intensification. In this scenario, demonstration is an effective tool to reach out the farmers for promoting and introducing the latest agricultural technology, package of practices and knowledge.

With an objective of introducing new technology in agricultural production system and add to intensification, scheme on large scale demonstration, System of gram / Sarso etc.

Field Demonstration.

As per this scheme, field demonstration would be organized in an area of 0.4 ha. in indivisual village. All improved package of practices will be used in demonstration. Apart from this Farm Field Schools will also be organized preferably on demo sites.

Farm Field Schools.

Grant applicable to all farmers	**Proposed Outlay for 2009-10 (in lakhs)**
Rs. 17000/- per Farm Field School.	50.00

The total proposed outlay for this activity for the year 2009-10 is Rs. 250 lakhs for 8000 demonstrations and 294 FFS.

Subsidy Structure for Field Demonstration

Subsidy for all farmers (0.4 Hectare)	**Proposed Outlay for (in lakhs)**

	2007-08	2008 -09	2009-10	2010 -11	2011 - 12
1. Rs. 2500 each for 4000 (ha)	NA	NA	401.00	850	NA

8. Project on Support for Mechanization to Small and Marginal Farmers (Haldhar Yojana)

Top soil layer becomes hard by continuous walking of tractors and bullocks for different farming operations. Normal soil tillage operations work up soils upto a depth of 2-3 inches only. Over the time the soil layer below this depth becomes impermeable to water and aeration which reduces water absorption capacity of soil and aeration, ultimately restricting the growth of plant roots. Deep ploughing is the only solution, which the farmers are already exercising since long time.

The scheme "HALDHAR" was approved by SLSC dated 9th July 2009 with an outlay of 100.00 lakh Rs for year 2009-10. Another Rs. 700 lakh was sanctiuioned in Feb'2010.The scheme is currently on-going scheme and as the area requiring improvement is very large, additional physical and financial targets are needed.

The project is taken up with following objectives :-

- Increase in water absorption capacity of soil and aeration.
- Control on weeds.
- Insects and their larvae living in the soil will be destroyed.
- Reclamation of barren but cultivable land.

In Madhya Pradesh about 75% of the farmers belong to SC, ST, small and

marginal farmers of General category. They together hold approximately 45 % of the total agriculture land. These farmers are poor and their land holdings are also small. Therefore helping them for deep ploughing of their land will finally result in increase in total production of the state. Agricultural land of these farmers normally remain fellow from March to May. Therefore this period can be utilized for taking deep ploughing activity in their fields.

(i) All farmers of SC/ST category and small and marginal farmers of General category are eligible to get subsidy at the rate of 50% of the cost of ploughing upto maximum of Rs. 1000 per hectare.

(ii) Each eligible farmer will get subsidy for ploughing of one hectare land only.

9. Project on Subsidy on Sprinklers sets, pipe lines &Rain gun

In a per view of shortage of in situ moisture and erratic and delayed rains, it is a prime need to make efficient and judicious use of available water. Accordingly this activity is proposed to provide irrigation facilities like Sprinklers on subsidy @ 50% . This 50 percent subsidy will be subject to following ceilings:

1 Sprinkler	Subsidy @ 50% or Rs. 7500.00
2. Pipe line	Subsidy @ 50% or Rs. 15000.00
3. Rain gun	Subsidy @ 50% or Rs. 6000.00

10. Ground water recharge & In-situ moisture conservation

(Percolation tank)

There is sufficient availability of water provided by nature in form of rain. However, the major impediment that comes in way of effective utilization of rainwater is its insufficient management. Consequently, most part of it goes waste as runoff through rivers and nallas. Therefore, construction of water bodies is an integral step in effective utilization of rainwater. Besides, impounding of water on surface will lead to an additional recharge of ground water. Thus construction of water bodies helps in two ways i.e. providing water for irrigation, nistar and cattle as well as recharging of wells in the area. As fields of farmers are the first receiver of rain, efforts should be made to provide rainwater right from farmer's fields to the drainage lines where it ultimately ends.

Considering the natural path of water, a strategic plan to harvest rainwater is proposed hereby. Under this concept, construction percolation tanks and micro-minor irrigation tanks are being proposed.

1.1 **Percolation Tanks** are the best means to harvest runoff water on non-arable lands. These are earthen structures constructed on suitable sites having sufficient submergence as well as higher rate of percolation. Each percolation tank will recharge ground water in its vicinity. About 8 to 10 ha of land will benefit from the soil moisture and increased water table in wells and tube wells. During the year 2008-09, 135 Percolation tanks were constructed despite of poor monsoon. The results are favourable and this work is highly appreciated by the farming community. Therefore a increased allocation has been proposed for the year 2009-10

Grant Structure for Percolation Tanks:

Sl. No.	Categories	Grant pattern
1.	On Government land	Rs. 5 lakh per percolation tank

The total proposed outlay for this activity for the **year 2009-10** is **Rs. 1000.00 lakhs** for 200 Percolation tanks.

12. Nutrient Management ((Use of Bio Fertilizers, PSB, / Culture /Azactobactor and Zipsum & Zinc sulphate etc.)

Despite manifold rise in fertilizer use, nutrient additions in soil generally fall short of its requirement.

Major Nutrient Management Issues:

- Inadequate and unbalanced use of fertilizers
- Increasing deficiencies of secondary and micronutrients
- Nutrient mining: Potassium mining a major threat
- Low fertilizer use efficiency
- · Low factor productivity

To tackle the issue of nutrient management, a scheme for Rhizobium Culture has been proposed. Rhizobium culture is used in all pulses i.e. arhar, moong, gram and pea. It is also used in groundnut and soybean. Use of culture enhances the yield by increasing the number of nodules in roots for boosting nitrogen fixation. It is also proposed to distribute Zipsum and Zinksulphate under this activity.

Subsidy Structure for Nutrient Management (Rhizobium Culture, Zipsum and Zinc sulphate)

Subsidy for all farmers	**2009-10**	**2010-11**
50 % cost of Rhizobium/Azectobecter/PSB culture or	100.00	400

Rs. 100/- per ha, whichever is less 50% cost of Zipsum/Zinc Sulphate or Rs. 500/- per ha.whichever is less.		

13. Organic Farming (Construction of NADEP and Vermi Compost pit)

Organic agriculture is the age-old practice in India. Organic agriculture has roots of traditional agricultural practices that evolved in countless villages and farming communities. During last few years, organic farming has emerged as an alternative form of agriculture, which not only promises chemical residue free food but also addresses the environmental and sustainability concerns with optimum productivity.

To take this further, scheme on promotion of NADEP practice is being proposed, which is detailed below.

NADEP and Vermi compost

The NADEP is an effective process of delivering large quantities of compost with a minimum of human effort within a specific period of time. The process basically involves placing select layers of different types of compatible materials in a simple, mud-sealed structure designed with brick and mud water. The system permits conversion of approximately 1 kg of animal dung into 40 kg of rich compost, which can then be applied directly to the field. This method is

important way of good way of replenishing the soil to maintain the agricultural fertility. By popularizing the NADEP method, almost all biomass available in the nature, which is going waste and not being utilized for any purpose can be tapped for making good quality compost.

Subsidy Structure for NADEP and Vermi compost

This will result in

- Soil health and fertility improved
- Increase production and productivity
- Crop health improved
-

Subsidy for all farmers	**Proposed Outlay for 2009-10 (in lakhs)**
Rs. 2000/- per plant or 50 % whichever is less for NADEP	100.00
50% of cost or a maximum of Rs.500/- per pit for Vermi compost	

14. Increasing Irrigation Potential : Micro Minor Irrigation Tanks

There is sufficient availability of water provided by nature in the form of rain. However, the major impediment that comes in way of effective utilization of rainwater is its insufficient management. Consequently, most part of it goes as runoff through rivers and nallas. Therefore, construction of water bodies is an integral step in effective utilization of rainwater. Besides, impounding of water on surface will lead to an additional recharge of ground water. Thus construction of water bodies helps in two ways i.e. providing water for irrigation, nistar and cattle as well as recharging of wells in the area. As fields of farmers are the first

receiver of rain, efforts should be made to provide rainwater right from farmer's fields to the drainage lines where it ultimately ends.

Considering the natural path of water, a strategic plan to harvest rainwater is proposed hereby.

Micro-Minor Irrigation Tanks are an effective way to harvest the flowing runoff water in form of streams and river. These structures are constructed on the sites of govt. land , which are suitable to store water and have a good command area nearby. These tanks primarily help in increasing the irrigation potential in the area. The locations of this proposed activity will be finalized after a thorough consideration of cross section of stream, its catchment and submergence area. On an average, one such tank will be capable to make at least one protective irrigation for 25 to 30 ha.

Financial Provision for Micro-Minor irrigation Tank.

Sl. No	Categories	Units Cost
1.	On Govt Land	Rs 25.00 lakhs per irrigation tank on govt. land.

The total proposed outlay for 200 micro minor irrigation tank in this activity for the year 2010-11 is Rs. 5000.00 lakhs.

15. Augmentation of Ground Water Conservation : Percolation Tanks

There is sufficient availability of water provided by nature in the form of rain. However, the major impediment that comes in way of effective utilization of rainwater is its insufficient management. Consequently, most part of it goes as runoff through rivers and nallas. Therefore, construction of water bodies is an integral step in effective utilization of rainwater. Besides, impounding of water on surface will lead to an additional recharge of ground water. Strategy: Considering the natural path of water, a strategic plan to harvest rainwater is proposed

hereby. Under this concept, construction of, percolation tanks and micro-minor irrigation tanks & Nala Capacity Extraction Program are being proposed**.**

Percolation Tanks are the best means to harvest runoff water on non-arable lands. These are the earthen structures constructed on suitable sites of Govt. land having sufficient submergence as well as higher rate of percolation. These tanks are being constructed in state since 2007-08 by department. Each percolation tank recharges the ground water in its vicinity and about 8 to 10 ha of land gets benefitted for soil moisture and increased water tables

In last financial year about 361 percolation tanks were started in the state, but due to lack of funds about 122 percolation tanks remain in-complete. Govt. has decided in the meeting on 12/4/2010, not to construct percolation tanks, therefore no new percolation tanks are being proposed; only provision has been made to complete only 122 incomplete percolation tanks

16. Nala Capacity Extraction Program (NCEP)

Water is precious natural resource, giving life on earth. This water is available in nature free of cost. Every year thousands of millimeters depth of water comes on the ground. But its opportunity time depends on the topography features and land use characteristics. Which depends on time of concentration, which leads to percolation in to subsoil, But unfortunately reduction in vegetative cover have reduced the percolation rate consequently, only a negligible part of rainfall enters into the ground and rest of the rain goes as runoff, through drainage lines.

These Drainage lines and Rivers are main carriers of water, which holds water on earth for maximum time. These drainage lines, if treated and used properly they can serve as a large water body. These drainage lines have available depth and width, if these drainage lines can be checked or blocked at suitable sites, they can be converted into very economical

and good water bodies. Treatment of these drainage lines will stabilize its bank and further soil erosion can be checked, which will save tons of nutritive soil mass. Consequently it will add to the productivity of area.

During 1983 to 1996 state experience all thin phenomenons during the execution of world bank aided project for Rain fed area in Bhopal and Sehore district. in which almost all upper middle and lower reaches (tributaries had been treated with suitable structures] which has resulted in extremely good storage and surface water soil and water conservation, recharging of well and Nistar purpose and in situe moisture conservation. The only precaution which needs to be considered that full length of drainage course has to be treated with specific suitable structure irrespective of unit cost of structure.

With this consideration, a scheme named as **NALA CAPACITY EXTRACTION PROGRAM (NCEP)** is being proposed here with the following objectives.

- To harvest rainwater into natural waterways.
- To provide irrigation with low expenditure per ha..
- To increase productivity of the area.
- To provide water for Nistar and Cattle's drinking in vicinity.
- To recharge ground water in the area.

To harvest maximum capacity and to extract maximum benefits from nala space, stabilization of its banks and measures to increase its potential are needed. This strategy will involve following three major treatments. Entire works will be carried out on Govt land. Before the actual implementation identification of suitable drainage course will be done with the help of Toposheet then actual drainage line survey, its plotting and drawing. Longitudinal and cross section would be prepared. According to situation shown on Longitudinal Section suitable structure will be planned for making detailed estimate.

1. Treatment of Banks by suitable plantation.

2. Harvesting Water in the Nala by blocking at suitable location with the help of suitable check dams. (Gabion/Loose boulder structure/Runoff Management structure/Retaining wall etc.
3. Increasing the capacity of Nala section by making dugouts on upstream of check dams.

Work will be executed as per norms of department. Structures completed will be handed over to Gram Panchayat, Thereafter Gram Panchayat will take care of structures, including their timely maintenance and removal of silt in their upper reach.

17. PROJECT ON CONSTRUCTION OF TUBEWELLS FOR GENERAL

CATAGORY OF FARMERS

Current potential of the Irrigation in the state is only 30% which is very low in comparison to the area available for cropping Irrigation in farms is being done through irrigation canals. At the places where the canal water cannot be taken up for Irrigating the crops it is most essential to dig a Tube well, from the last so may years Tube wells are constructed in farmer's fields through various agencies like M.P. Agro and other private concern. Since 2001 state government decided not to dig the Tube well in general farmer's field and now this is felt that to increase the agriculture production, more numbers of Tube wells must be constructed in general farmer's field.

New scheme is being taken up for the All general category farmers under Rashtriya Krishi Vikash Yojna for the year 2010-11.

Farmers shall be registered for construction of Tube wells at local office after digging the successful Tube well subsidy will be given to farmers as shown below :-

S.No.	Category of farmers	Subsidy pattern
1.	All general Category (Small/Marginal/Large) Farmers	50% of the cost of digging or RS. 15000 whichever is less and 50%of cost on submersible pump installation or RS.9000 whichever is less.

ABSTRACT OF THE PROJECT COST

S.No.	No. of district	No. of Tube wells	Cost per Tube well in RS. Lakh	Total cost in RS. Lakh
1	50	10417	0.24	2500.00

18 Awareness-cum-Surveillance Programme for management of Major Crop pests in Madhya Pradesh

Pest Surveillance and Management aims to envisage strengthening the infrastructure of the squad and organized proper insect pest and disease survey and forecast the incident when it goes above economic thresh-hold level and thereby increasing the production of crops. The sporadic appearance of various pests are common features in many cropping systems in different parts of Madhya Pradesh which causes severe yield losses. The crops like cotton , Soybean,Gram ,are voracious feeded by Lepidopteron Pests especially *Helivoverpa armigera and Spodoptera litura* . Establishment of an intensive pest monitoring mechanism and advisory / awareness system, if put in place, would help in overcoming sporadic pest attack.. Keeping this in view, an “Awareness-cum-Surveillance Programme for management of Major Crop

pests in Madhya Pradesh (2009-10) is proposed.

- To create awareness among the farmers in Integrated Crop Management practices including IPM in different crops and especially in soybean, Rice, cotton ,Gram based cropping system.
- 2. To develop On-Line Monitoring System for major pests in soybean , Rice , cotton and Gram throughout Madhya Pradesh.
- To identify the hot spots with special reference to *Lepidopterian pests*
- To issue advisory in accordance to the pest status based on the pest monitoring.
- To guide the farmers based on the advisories for management of major pests in different crops mainly in soybean, Rice, cotton and Gram crops .

The area of operation of the project would be in the 50 districts. In this programme, the main emphasis would be placed on soybean, Gram as well as cotton crops as these crops are generally more affected by pest infestation.

The programme consists of two parts i.e., pest monitoring-cum-surveillance based advisory system and awareness creation. At the state level the steering committee would be formed with the members from different organizations and responsibilities as given below;

19 - Project on Establishing Custom Hiring Centres in Pulse and Oil Seed Growing Villages in Rainfed Areas-procurement of 50 HP tractors.

Madhya Pradesh is major pulse and oil seed producing State. Pulse and oil seed is taken in 101.32 lakh ha. of land. Productivity of pulse is 734 kg/ha. and productivity of oil seed is 972 kg./ha. The productivity of pulse and oil seed in rain fed areas is less then the average. About 65 % of farmers in the state are small and marginal farmers and due

to no purchasing power of these farmers are still adopting age old methods of farming which is the reason for low productivity particularly in rain fed areas.

Farm mechanization has an important role in modern agriculture, it reduces time, labour and cost. An increase of 10-15 % in crop production can also be achieved by using modern technology equipments.

The project is taken up with following objectives :-

- 10 to 15 % increase in crop production.
- Increase in rain water absorption.

About 65 % of the area in Madhya Pradesh is rain fed, where productivity of pulse and oil seed crop is less then the state average. Farmers in these areas are small and marginal and due to the low purchasing power the use of modern implement is not possible in production program Providing them with tractor and a set of implements will help them complete their agricultural work in time. Working their fields with tractor driven implements will ensure better absorption of rain water which in turn increase the crop production.

Tractor and set of implements will be provided to Primary Agricultural Credit Societies, the watershed committees or any other agency identify by State Govt. Existing in the identified rain fed areas where pulses and oil seed are grown predominantly. An initial revolving fund Rs. 10000/- will be provided to these agencies for operating custom hiring services for pulses and oil seeds growers on no profit-no loss basis.

20 - Project on Establishing Custom Hiring Centres In Pulse And Oil Seed Growing

Villages In Rain fed Areas-procurement of implements.

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services for pulses and oil seeds growers on no profit-no loss basis.

(i) Implementing agency in every cluster of ten pulses and oil seeds villages will be given a set of tractor and four implements.

(ii) A revolving fund of Rs. 10000/- will be given to implementing agency of every cluster to operate custom hiring services at **no profit-no loss** basis.

The Project is proposed to be implemented in identified pulses and oil seeds growing villages in rain fed areas of the state.

21- Project on cattle { Govansh } based integrated farming.

There are 78 lakhs farmer in MadhyaPradesh . Most of them are engaged in traditional farming system taking 2 to 3 agriculture crops in a year. This project will emphasis on agriculture farming conbined with horticulture dairy vegetable sector.

Project will run in all 50 districts of MadhyaPradesh . It will be run to:

- To demonstrate farming in integrated methods of farming system to other farmers.
- increasing farm income. raising living & economics standard of farmer.
- Increasing crop yield.
- reducing cost on agriculture inputs .
- Use of vermi compost Nadep compost to retain Soil health.
- To maintain soil fertility & to add humus to the soil.

The demonstration will be laid on those farmers field who is having 2-3 cattles {cows & bullock}. Farmer should also have biogas plant constructed at his field. All Government farms under DFWAD will also execute this of the project.

- Two farmer from each block and 48 govt. farms shall be selected .total 626 farmers will be selected.
- supply of lantern & bulb to use biogas for light purpose .
- Slurry of Biogas will be used as manure in selected farmers
- field .
- Construction of Nadep pit and utilization of Nadep compost.
- Construction of vermi compost pit and utilization of vermi compost .
- Fruit Plantationis proposed in 1/10 area of 1 hactare under supervision of technical
- expert of Horticulture Department.
- Cultivator will be provided vegetable seeds to grow vegetables in 1/10 th of hect.
- under the guidence of Horticulture Department.
- In 1/10 of a hectare area, Barseem, Chari, lusarn or maize will be grown as fodder
- for cattles available with farmer or Govt. farms.
- Farmer visit on executed projects -the Farmers of other area shall make visit to see demonstration
- Crop demonstration; suitable crop demonstration will be conducted.
- Trainig on Organic Farming for Officers, Employees and Progressive Farmers is essential to Pramote the organinc Farming

PROJECTS UNDER STATE SECTOR

Mentioned below are the projects under taken in theState sector:

1. Strengthening of Seed Producing Government Farms:

There are 48 seed farms in M.P., owned by the State Government, which are basically meant for producing breeder to foundation seeds in large quantities. To maintain the quality of these farms, it is required to provide some inputs on technological up-gradation related to equipments and machines, etc. This will support in effective transfer of technology. The up gradation will be taken up in phased manner, initially 30 Farms and 10 thereafter.

Numbers of tube wells, dug wells, Water tanks, stop dams along with irrigation equipments and infrastructure will be developed to provide better irrigation facilities for the seed production. Inputs related to better farm mechanization will also be provided to develop model farms.

The activities that will be taken up; includes:

Development of Irrigation Source (digging tube wells, Tanks for Deepening, water harvesting tanks, etc.)

Irrigation Equipment (such as Sprinklers, meter pipeline, submersible pump sets, Mono block Electric, Rain gun, Diesel pump etc. will be provided as equipments for irrigation.)

Improved Farm Machinery (such as Threshers, air blaster, Rotavators, Seed cum Fertilizer drills, reaper Cult. & leveler will be provided on different Seed producing farms for mechanization.)

Infrastructure Facility (Like Threshing Floors, Machinery shed, straw Godown, Fencing, Tractor shed etc on these farms.)

2. Setting of Kisan Call Centers, Community Radio, Use of Information Communication Technology in Agriculture, IT lab at SIAET

For Effective Project conceptualization, Planning, Implementation, Monitoring, Evaluation and Management for producing most effective impact of Agricultural Interventions aiming towards 4% growth in the national GDP; DFW & AD Madhya Pradesh has started introducing ICT in agriculture to leverage the power of technology for the benefits of farmers in terms of improved service delivery and increase of production & productivity. A vision of ICT road map for eleventh five year plan is prepared and is enclosed below as annexure I.

ICT Interventions proposed in year 2007-08

Under RKVY department has started ICT activities in year 2007-08 and successfully created Krishi Gyan Kendra at Block level and converged it with the integrated IT utilities created under AGRISNET for providing seamless Information services to farmers.

ICT Intervention proposed in year 2008-09

In continuation to the ICT initiatives, department has further enhanced the ICT services in 2008-09 for placing the departmental services at farmers door step. The IT utilities and services created in 2007-08 needs to be popularized and fed to the farmers. To enable such a process, department has started Kissan Call Centre (KCC), Community Radio Services (CRS) and other Information utilities & services for Agriculture and Allied sectors in year 2008-09. This activity is of on going nature and needs expenditure in each year.

ICT Interventions proposed in year 2009-10

Since technology introduction is the need of the hour for Agriculture sector to go ahead

with the same pace as per the service demand of the farmer. Department has proposed ICT intervention for year 2009 - 10 to further enhance the Information services started in 2008 - 09.(Kissan Call Centre, Community Radio Services and use of ICT in Agriculture & Allied sectors). Till time we have enough enabling to consolidate the State agriculture Knowledge base for the use of research institutions, decision makers, industries, universities and students. .

Annexure-I

The ICT Roadmap of Madhya Pradesh Designed and proposed under RKVY

Rs in Lakhs

S.No.	Year	Fund approved	Activities proposed	Remark
01	2007-08	152.00	Establishment of Krishi Gyan Kendra	utilized
02	2008-09	500.00	Kissan Call Centre, Community Radio Services, ICT in Agriculture, District wise Agriculture and allied sector IT uses	On going till SWAN is not functional in the state, expected to be functional from 2010-11
03	2009-10	417.00	▪ Creation of GIS based Village-wise Agriculture Information System ▪ Establishment of Integrated Agriculture Knowledge Centre ▪ Creation of Intelligent Project planning, Tracking, Monitoring and Reporting System	On going On going On going
04	2010-11	700.00	▪ GPS based physical project activities Tracking system ▪ Creation of Sate-wide Executive Dashboard and Control Systems ▪ Creation of Integrated Back office Control System ▪ Operation of Knowledge Centre ▪ Operation of MIS	Shall soon become possible Shall soon become possible Shall soon become possible Shall soon become possible

05	2011-12	800.00	▪ Strengthening of ICT activities for providing market lead demand based extension ▪ Enabling of forming institutions/agencies system to provide Farmer to farmer extension ▪ Establishment of integrated farming support system ▪ Enabling the usage of digital signature and creation of less-paper working	Shall soon become possible Shall soon become possible Shall soon become possible Shall soon become possible

3. Research Projects of JNKVV, Jabalpur

13 special research projects under this university are proposed as under:

i. Introduction of new crops suitable for cultivation under prevailing situations
ii. Nutritional security through seed
iii. Use of weed free seed
iv. Promotion of minor millets cultivation in M.P.
v. Collection, conservation, characterization and documentation of farmer's varieties for protection
vi. Identification of source for resistance to shattering in soybean with the involvement of marker assistant selection
vii. Identification of new fertility restorer lines for development of super rice hybrids
viii. Diversification of CMS lines for development of early maturing rice hybrids for different agro-ecological situations of M.P.
ix. Identification of potential rice varieties and hybrids suitable for SRI cultivation for different agro climatic regions of M.P.
x. System of wheat Intensification in Madhya Pradesh
xi. Hybrid Wheat Breeding in Madhya Pradesh
xii. Popularization of water use efficient varieties in Madhya Pradesh
xiii. Impact of seed enhancement treatments & manipulations in seed rates for seed quality and higher productivity

4. Research Projects of RVSKVV, Gwalior

Five research projects to be run at Rajmata Vijayaraje Scindia Krishi Vishva

Vidhyalaya , Gwalior have been sought, under RKVY, for a duration of three years; i.e. 2009 -10, 2010 – 11 and 2011 – 12, at a total project value of Rs. 1337.85, as under:-

- Strengthening of the infrastructure facilities for research on integrated development of food crops and mechanization in seed production
- Beekeeping

- ❖ Promotion of hybrid seed production technology
- ❖ One time grant support to colleges for up-gradation of laborites & library and improving the functioning to promote agriculture (To College of Agriculture, Gwalior, RAK College of Agriculture, Sehore, College of Agriculture Khandwa, College of Horticulture, Mandsaur and College of Agriculture, Indore)

(i) Village soil health card; (to evaluate the quality of soil and develop village soil health card, to recommend the fertilizers/manures, soil amendment if any and suggest appropriate cropping pattern on the basis of soil test values within available resources, to assess the long-term effect of management practices on soil health and predict forth-coming problems related to soil productivity and to ensure sustainability in Agricultural production for improving economic conditions of farmers.)

Eleven new research projects are proposed in the year 2010 – 11, valued at Rs. 4816.41 lakh, that includes; promotion of organic farming, bio fertilizer production facility etc.

5. Strengthening of Regional Training Centers

Policy Framework for Agriculture Extension has suggested five major guiding elements viz. Reforming Public Sector extension, Promoting Private Sector to effectively complement and supplement wherever possible to substitute public extension, Augmenting Media and Information Technology support to Extension , Mainstreaming Gender Concerns in Extension and Capacity Building / Skill up-gradation of farmers and extension functionaries.

Along with above policy framework many of the key reforms has been promoted under ATMA such as (i) New Institutional Arrangements (ii) Convergence of the line Departments (iii) Multi Agency Extension Strategies (iv) Broad base extension delivery (v) Group Approach to extension (vi) Gender Concern and Sustainability of extension

services etc.

In the present context of strengthening of regional Agriculture Extension & Training Centers(AETC), being mandate of the State Institute of Agriculture Extension and Training (SIAET), is of utter most importance to fulfill the requirements of Capacity Building / Skill Up-gradation of Extension functionaries and Farmers through institutional trainings .Presently there are 19 AETCs located at different part of the state. These AETCs are approximately 30 to 40 years old and are in dilapidated condition. These AETCs also require to be updated with respect to latest Audio- visual equipments necessary furniture's in the class rooms as well as in hostels.

6. Capacity enhancement of block offices

Department has launched many demand based and market led extension activities for the benefit of farmers and now it became mandatory to enhance the capacity of field staff and lead farmers; including Kisan Mitra & Kisan Didi. This requirement for providing smooth and required extension services to farmers by farmers. It is must to enhance the capacity of block Offices up to desired level. Department has started Kisan Suchana Kendra for capturing and disseminating the agricultural information among farmers.. Now many farmers have started visiting the Kishan Suchna Kendra and demand for training and other arrangements. Thus capacity enhancement of block offices is now becoming unavoidable. Now it is high time to create required facilities at block offices to cater upcoming requirement .

The results of this activity will be:

- Enabling of block Office as a farmer facilitation Centre.
- Knowledge sharing centre for the farmers
- Centre for group activity for local farmers
- Enhanced interaction between staff & farmers.

- Improved interaction & synergy between line staff, lead farmers & Kisan Mitra & Kisan Didi.
- Improved demand driven & market led extension services resulting in enhanced livelihood for the farmers.

7. Renovation and Strengthening of Soil Testing Lab buildings

The geographical area of M.P. is 307.56 lakh ha. out of which 147.00 lakh ha are is under cultivation spread over 73.60 lakh holdings. These holdings area suppose to have soil testing to maintain soil health as well as to increase production and productivities for which it is scientifically proved that soil testing and follow up of recommendation plays a vital roll. In present scenario there are 24 soil testing lab which are in most dilapidated condition and suffering badly for consumable & latest scientific equipment and materials. Normally these labs are used for testing soil sample for contents of micro and macro elements, pH and EC. Testing facilities of micro nutrients are available in 6 labs.

8. Establishment of new insecticide quality control lab

Central and State Government are making concerted efforts to ensure timely availability of quality pesticide to the farming community. For this purpose, there is a need for effective implementation of the provisions of the Insecticide Act, 1968 and the Rules framed there under and therefore state govt. has setup a new Insecticide Quality control laboratory at Obedullaganj , Raisen with a view to extend the facility of quality testing of pesticide in Madhya Pradesh..

Presently , there is only one Laboratory in the state for monitoring the quality of pesticide with a capacity to analyze about 1500 samples per annum .Keeping in view of manufacturing / formulating units and about 8000 MT of total pesticide consumption in the state ,present set up of one laboratory for monitoring the quality status of pesticide is inadequate. Therefore the setting and establishment of new pesticide testing laboratory is required to enhance the analysis facility of pesticide in state considering the number of licenses issued to manufacturer/ formulators/ distributors/sale points as per the Insecticide Act 1968 and the rules framed there under.

9. Mobilization of Field Staff under RKVY Program

RKVY Program is being implemented in the state and for covering the areas under this Program; the mobilization factor plays a very vital role. The topography of the M.P is undulative, vast and department resources for mobilization are restricted and scanty.

There can be a scope to use the vehicles for mobilization but these are not available everywhere and every time. To give boost to this Program, provision is proposed to hire vehicles as and when required. Accordingly, provision to hire vehicles is being made.

Under this Project a total outlay of **Rs. 100.00 lakhs** for the year **2010-11** has been proposed.

10. Project on Strengthening of State Institute of Agriculture Extension & Training (SIAET)

State Institute of Agriculture Extension & Training (SIAET) , is not only a autonomous training Institute but also a apex body in the Department of Farmer's welfare and Agriculture Development to look after training and extension activities in the state. Though the building infrastructure of the SIAET was almost completed in the year 1998 but it was properly established in the year 2006, when GOMP has sanctioned 49 post in the institute on 11.05.2006. Later on looking to the need of departmental autonomous body to handle the budget released by GOI in "Off Budget" Schemes , this institute has been declared as Autonomous on 22.12.2007. Since than it is functioning as a Apex Training institute under the department of FW&AD.

The mandate of the Institute in brief are as follows;

1. To prepare HRD plan for the officers and extension functionaries of various line department under Agriculture Consortium.
2. To organize state level workshops, Seminars and conferences.
3. To prepare latest literature for extension functionaries and farmers along with preparation of CD's and documentaries.

4. To conduct impact assessment studies and periodical evaluation of various schemes being implemented in the department.
5. To participate on behalf of state department In the National level workshops and seminars etc.
6. To facilitate and work as knowledge center through KCC.
7. To implement state level activities under ATMA and other Off Budget schemes.
8. To act as a Financial Hub for all Off Budget schemes.
9. To coordinate with all leading training institutes in the country, MANAGE and GOI.
10. To run post Graduate Diploma in Agriculture Extension Management (PGDAEM) and Diploma in Agriculture Extension services for input dealers financed by GOI.

Since the theme of constructing this training institute was developed in the year 1992 and accordingly as per the then need the required infrastructure was developed, later on when this institute became autonomous the out come expected from it became much larger than it was thought upon during 1990s. As per the mandate of the institute , it was not only required to cater many more trainings at a time but as this institute also became a financial hub for all GOI supported "off Budget " schemes , more staff was required for the smooth functioning of all such schemes. Simultaneously PGDAEM and DEASI programme have also started from 2008-09 in the institute. To fulfill the emerging demand it was badly required to strengthen the present infrastructure by creating more space for trainees in the hostel, more class rooms, and better congenial & learning atmosphere for trainees, along with a specious and big auditorium so as to accommodate 300 to 400 people for state level conferences.

11. PROJECT ON TRAINING OF AGRICULTURAL OFFICERS

Training helps in Optimizing the utilization of human resources that further helps the employee to achieve the organizational goals. It assist in increasing the job

knowledge and skill of employees at each level. Training also help to expand the horizons of human intellect and an overall personality of the employees.

Specially in agriculture department, the basic activity is to disseminate the new agricultural technology to the farmers. This is done by the departmental field staff posted at different districts and block offices.

Present proposal is especially meant for new staff in agriculture department of M.P. Department is recruiting 78 assistant director of Agriculture , 823 Rural Agriculture Extension Officers, 164 Agriculture Development Officers, & 160 Surveyors . In this proposal, 3 months trainings for ADA's at Agricultural University, State Agriculture Extension and training Institute (SIAET), Berkhedi kala, Bhopal and at Academy of Administration and Management, Bhopal.

For ADO, Surveyors and RAEO, 2 months intensive training program has been worked out. Trainings will cover class room lecturer, field visits, demonstration etc. all with learning by doing & seeing is believing extension approach.

A total of Rs. 194.00 lakh is required for the project and the activity wise details are given as below :

12. Project on Soil Health Card (Deptt. lab, University and Mandi labs):-

For sustainability in agricultural production, all input be used most efficiently in a synergistic manner, with optimum allocation to achieve maximum return and minimal damage to the environment. In this context, after making available good seed to farmers, it is necessary that he must be properly advised to use balanced doses of fertilizers / manures, special soil amendment if any required, and suitable cropping pattern. Farmers of the State have very negligible knowledge of fertility status of their fields, therefore, are not able to achieve the desired level of productivity even after utilizing all other input. Hence to create awareness of soil fertility for better and sustainable yields, it is necessary to study the soil status of fields of each village.

- To evaluate the quality of soil and develop village soil health card.
- To recommend the fertilizers/ manures, soil amendment if any and suggest appropriate cropping pattern on the basis of soil test values within available resources.
- To assess the long-term effect of management practices on soil health and predict forth-coming problems related to soil productivity.
- To ensure sustainability in Agricultural production for improving economic conditions of farmers.

Soil health card will give the information about the quality / health of a soil as a function of its physicochemical properties, available nutrient status and management practices. The card is a tool to help farmers to improve the soil health based on their own experience and knowledge of their soils. The use of soil health card will provide long-term trend of soil health to assess the effect of various soil management practices. This card will be more useful when filled up regularly over a period of time. It will also indicate quantitative assessment of soil health and its productivity.

This scheme will be operated through the Soil testing laboratories run by Department, University and Mandi.

S.no.	Particular	Unit Cost	Physical (No.)	Amount (Rs.in lakh)	Remark (Analysis parameter per Soil Health Card)
1	Soil Health Card	300/- per soil Health Card	1000000	3000.00	Electric conductivity, PH., Organic Matter, NPK With Micro Nutrient
	Total	300/-	1000000	3000.00	

Under this Project a total outlay of Rs. 3000.00 lakh for the year 2010-11 has been proposed

13. Project on Strengthening of Agriculture Extension & Training

Centres ((AETC)

Policy Framework for Agriculture Extension has suggested five major guiding elements viz. Reforming Public Sector extension , Promoting Private Sector to effectively complement, and supplement wherever possible to substitute public extension, Augmenting Media and Information Technology support to Extension, Mainstreaming Gender Concerns in Extension and Capacity Building/ Skill up-gradation of farmers and extension functionaries.

Along with above policy framework many of the key reforms has been promoted under ATMA such as (i) New Institutional Arrangements (ii) Convergence of the line Departments (iii) Multi Agency Extension Strategies (iv) Broad base extension delivery (v) Group Approach to extension (vi) Gender Concern and Sustainability of extension services etc.

In the present context of strengthening of regional Agriculture Extension & Training Centers(AETC), being mandate of the State Institute of Agriculture Extension and Training (SIAET), is of utter most importance to fulfill the requirements of Capacity Building / Skill Up-gradation of Extension functionaries and Farmers through institutional trainings .Presently there are 19 AETCs located at different part of the state. These AETCs are approximately 30 to 40 years old and are in dilapidated condition. These AETCs also require to be updated with respect to latest Audio- visual equipments necessary furniture's in the class rooms as well as in hostels.

14. PROJECT ON CAPACITY ENHANCEMENT OF BLOCK OFFICES PHASE -II

Department has launched many demand based and market led extension activities for the benefit of farmers and now it became mandatory to enhance the capacity of field staff and lead farmers including Kisan Mitra & Kisan Didi. This requirement for providing smooth and required extension services to farmers by farmers. It is must to enhance the capacity of block Offices up to desired level. Department has started Kisan Suchana Kendra for capturing and disseminating the agricultural information among farmers.. Now many farmers has started visiting the Kishan Suchna Kendra and demand for training and other arrangements. Thus capacity enhancement of block offices is now becoming unavoidable. Now it is high time to create required facilities at block offices to cater upcoming requirement .

The facilities required to be created are as below -

- Block office buildings should be renovated.
- Training facility for farmers must be available at block office with at least for 25-20 persons sitting arrangement.
- Sitting arrangement and space to organize the fortnight training of RAEOs and other officials.
- Drinking water and Toilet facilities available.
- One storage room for storage of inputs.
- Demonstration room to aware and educate the farmers.
- Computer/Network for searching information.

This will enable block officials in: :-

1. Enabling of block Office as a farmer facilitation Centre.

2. Knowledge sharing centre for the farmers

3. Centre for group activity for local farmers

4. Enhanced interaction between staff & farmers.

5. Improved interaction & synergy between line staff, lead farmers &

Kisan Mitra & K/isan Didi.

6. Improved demand driven & market led extension services resulting enhanced livelihood for the farmers.

15. Project on setting up of two new fertilizer quality control laboratories in madhya pradesh

Madhya Pradesh is the second largest state of the Indian union, having seventh rank in population. About 74% population of the state lives in rural areas which directly or indirectly depend on agriculture for their living. Agriculture & allied services contribute about 31% share in our state economy. Thus we can say that "agriculture" is the backbone of this state. We have about 30.76 million hectare of land. Which is divided into 50 districts and 313 blocks? Block is the unit of development activities. About 27.9% of the geographical area of the state is covered with forest & about 49% is the cultivated area.

Madhya Pradesh is predominantly kharif-growing state. Out of the total cropped area in the state, Kharif crops occupy about 56% whereas Rabi crops occupies about 44% area. Out of the total cropped area, 39% is occupied by cereal crops, 22% by pulses & 28% by oil seed crops and rest 11% area is occupied by horticultural and fodder crops.

If we see the production of the agricultural crops it had reached up to 22.2 million tons in 1999-2000 and due to some reasons regries of monsoon & frequent natural calamities etc. it has decreased in last five year, and finally in 2006-07 it was 20.98 million tons. The total agriculture production can be divided into major category as cereals 11.09 million tons, pulses 3.35 million tons & oil seeds 5.85 million tons. Under the oil seeds only Soybean contributes about 4.79 million tons.

Madhya Pradesh is the largest producer of pulses & second largest producer of oil seeds in the country in 2003-04, and we are contributing about 7.43% of food grains in national kitty (22.1% of oil seeds, 21.4% of pulses and 8.7% of cereals).

There are a few factors due to which we are far from the national average production. Use of low quality agriculture inputs is one of the most important factors responsible for low productivity.

Fertilizer plays an important role in agriculture production. If the quality of fertilizer is not good, then the production can be reduced by 50%.

In our state, about 25-30 lakh met. Tons of fertilizer is distributed every year. There are 4 fertilizers testing laboratories for analyzing fertilizer samples. There are located at Bhopal, Indore, Jabalpur & Gwalior and about 6000-8000 samples of fertilizer are tested here every year. But four Testing laboratory are not sufficient for such large number of samples.

16 - Project on Strengthening of Insecticide Quality control Laboratory, Jabalpur

Central and State Government are making concerted efforts to ensure timely availability of quality pesticide to the farming community. For this purpose, there is a need for effective implementation of the provisions of the Insecticide Act, 1968 and the Rules framed there under and therefore state govt. has setup a Insecticide Quality control laboratory at Jabalpur.

The Government of India has been promoting the use of bio-pesticides under the integrated pest management Programme. To assure quality product of these biopesticides to farmers, these products have been brought under the purview of the Insecticide Act 1968. Presently, testing facility of Biopesticide is not available and therefore there is a great necessity to develop the biopesticide testing facility in the existing Insecticide Quality control Laboratory. Further there is need to strengthen the present testing facility for chemical pesticide of laboratory.

a) To develop the Bio pesticide products testing facility which have been included under the Insecticide Act, 1968.

b) To seek NABL accreditation.

C) To strength the chemical testing facility

Farmers of all income group would be benefited.

Strengthen of laboratory by renovation of old building structure, establishment of newly sophisticated equipments, maintenance and calibration of existing equipments are included under the project in order to meet out the objectives.

17. Project on Strengthening of 24 Soil Testing Lab operated by government of M.P.

Soils are the most valuable life supporting natural resource as they produce food, fibre and fodder which are the basic to our very existence. For its sustained utilisation, it is imperative to know the nature, characteristics, extent of distribution of different soils, their qualities, productive capacity and suitability for alternative land uses. Further, in order to assess the potential and problems of different soils and to develop rational land use for optimising agricultural production, there is a need to have consistent and comparable information about the soils which can be made available through soil resources information, which was undertaken through the climate, physiographic and geologic studies of the terrain. It was observed that the state has a wide range of macro and micro climates, physiography /landform, geology and natural vegetation which have resulted into a great diversity in soil development, and in turn soil-site properties and land use.

For sustainability in agricultural production, all input should be used most efficiently in a synergistic manner, with optimum allocation to achieve maximum return and minimal damage to the environment. In this context, after making available good seeds to farmers, it is necessary that he must be properly advised to use balanced doses of fertilizers/manures, special soil amendment if any required, and suitable cropping pattern. Farmers of the State have very negligible knowledge of fertility status of their fields, therefore, are not able to achieve the desired level of productivity even after utilizing all other input. Hence to create awareness of soil fertility for better and sustainable yields, it is necessary to have Soil testing Labs and trained staff very near to

Farmers to provide proper recommendation..

- To evaluate the quality of soil to deliver optimal recommendations and solutions to farmers for improved soil health and productivity.
- To make fertilizer recommendation based on soil test values using STCR equation and suggest appropriate cropping pattern with available resources.
- To assess and upgrade the long-term effect of management practices on soil health and predict forth-coming problems related to soil productivity.
- To ensure sustainability in Agricultural production by upgrading skill and knowledge of farmer for improving crop yield and economic returns to the farmers.
- To enhance the soil fertility for the state of Madhya Pradesh under different cropping system.
- Strengthening of 24 departmental Soil Testing Laboratories (STL)
- Installation of new equipment required for optimal testing of the soil samples.
- Replacement of old equipments with new equipments

18. Project on Strengthening of Departmental printing press

Transfer of technology is the most important mandate of Department of Farmer Welfare & Agriculture Development Approximately 30 to 40 years back when print media was not so advance, department has established its own printing press in various part of the state, to provide leaflet, pamphlets, folders and periodicals based on latest Agriculture technology. The Printing Press at Bhopal near Maida mill is one of the oldest but most important Printing press in the department. This printing press is still functioning well despite of this fact that its building is in most dilapidated condition which requires immediate attention towards its renovation.

There-fore it is proposed to take up this press building for renovation during 2010-11 under RKVY. The main proposed renovation works are as follows :

1. Reflooring
2. Replastering as & where required
3. Replacement of doors & windows
4. Re-electrification
5. Water proofing of roof & false ceiling
6. Construction of Toilet & creating water storage facility .

19. Project On Agro Service Center Cum Storage Cum Procurement At Different Places.

MP marketing federation is planning to set up 14 new storage cum agro service centres at blocks Nasrullaganj (Sehore), Ujjain (Ujjain), Khandwa (Khandwa), Chhindwara (Chhindwara), Katni (Katni), Javara (Ratlam), Mandsour (Mandsour), Neemach (Neemach), Khargone (Khargone), Anjad (Badwani), Meghnagar (Jhabua), Dhamnod (Dhar), Sheopurkalan (Sheopurkalan), Ghairatganj (Raisen)

20. Project on Purchase of lab equipments and furniture establishing new Seed testing laboratory, Bhopal and Ujjain

To provide information and Seed Testing facilities for germination, purity, moisture and seed health including seed borne disease in the sample under going to seed production program of field crops of the State. Communicate the results of seed lot well in time to all concerns.

The significance of sustainable agricultural production is hidden in the use of quality seed. Seed is the most basic vital and crucial input for enhancing productivity. However, in post GATT-era and after emergence of WTO seed production and trading has assumed the global concern. Considering the advancements in the science of seed technology and production with increasing involvement of the global players and in

the interest of producers, protection of seed producers rights has been emerged a major concern.

Presently, there are two seed testing laboratories are working with the Seed Certification Agency, situated at Indore and Jabalpur. The annual capacity and actual number of samples tested during last three years in these laboratories is given below:-

Sr. No.	Name of the Existing Seed Testing Laboratory	Annual Capacity	Actual Number of samples tested during the year		
			2007-08	2008-09	2009-10
1	Jabalpur	10,000	17253	28731	31597
2	Indore	10,000	15377	21701	24551

Thus, It is clear from the above table that these laboratories testing more number of samples than the existing capacity. Therefore it is very necessary to establish two more well-equipped laboratory.

21. Project On Revolving Fund Requirements For Strenthening Of Seed Procurment Prospects Under R.K.Y.

M.P. State Seed and Farm Development Corporation, a State Public Sector Undertaking set up in the Year 1980 under the administrative control of Department of Agriculture, Govt. of M.P. to ensure supply of Certified Seeds to farmers of the State at reasonable price. The Corporation was constituted with an authorised capital of Rs. 15 crores and has paid-up capital of Rs. 8.27 crores.

An awkward situation is always facing by the Corporation due to lack of capital both long and short term financial fulfilment for the working of the Corporation. The working capital requirements are very crucial. A very long cycle of rotation of working capital (8 to 10 months) results in blockage of over Rs.55 crore. is stagnated being heavy pending payment of the seed produce to the farmers. Corporation has to pay 80% advance payments at spot while raw-seed delivery by the produces at the Nigam centres The

delay in payment to seed producer act as a major disincentive to the seed producing farmers, whose holding capacity is limited. Thus, liquidity constraint is limiting the operation of the corporation. Therefore, working capital needs should to be met out by way of enhancement of equity capital and revolving fund from the State Government under R.K.V. Y.

7.2 Horticulture Sector

Considering the development issues identified, the policy has been opted and

hence the specific interventions have been recommended for major horticulture crops, as detailed below. These major recommended interventions have been projectized into action plans of the concerned CDAPs. A brief description of the major interventions recommended is given below:

Table 7.5 Division wise District wise Budget requirements in Horticulture sector

DISTRICTWISE PRPOSED BUDGETS AS PER CDAPs PREPARED - HORTICULTURE SECTOR								
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	NAME OF DIVISION	NAME OF DISTRICT	2007 - 08	2008 09	2009 -10	2010 - 11	2011 - 12	TOTAL
1	BHOPAL	BHOPAL	0.00	0.00	35.80	156.60	71.60	264.00
2		SEHORE	0.00	0.00	35.25	130.50	70.50	236.25
3		RAISEN	22.13	2.25	146.13	292.26	292.26	730.65
4		RAJGARH	92.60	98.50	47.35	164.70	94.70	497.85
5		VIDISHA	0.00	0.00	43.24	146.48	86.48	276.20
	Sub Total		**114.73**	**100.75**	**307.77**	**890.54**	**615.54**	**2004.95**
6	NARMADAPURAM	BETUL	0.00	0.00	136.06	156.47	172.12	464.65
7		HOSHANGABAD	0.00	0.00	178.05	88.85	129.38	396.28
8		CHHINDWARA	0.00	0.00	476.97	524.67	548.52	1550.15
9		HARDA	0.00	0.00	388.39	679.35	452.97	1520.70
	Sub Total		**0.00**	**0.00**	**1179.47**	**1449.33**	**1302.98**	**3931.79**
10	INDORE	INDORE	0.00	0.00	336.94	400.45	500.38	1237.77
11		JHABUA	0.00	0.00	184.47	164.40	82.47	431.08
12		ALIRAJPUR	0.00	0.00	196.48	129.90	116.33	442.70

13		**KHARGONE**	0.00	0.00	954.47	1334.92	1357.42	3646.81
14		**BADWANI**	0.00	0.00	331.00	199.18	138.98	669.16
15		**KHANDWA**	0.00	0.00	57.00	87.50	34.00	178.50
16		**BURHANPUR**	0.00	0.00	180.30	185.37	184.63	550.30
17		**DHAR**	0.00	0.00	0.00	0.00	0.00	0.00
	Sub Total		**0.00**	**0.00**	**2240.66**	**2501.72**	**2414.20**	**7156.31**
18		**DEWAS**	0.00	0.00	0.00	0.00	0.00	0.00
19		**RATLAM**	0.00	0.00	2969.80	4275.80	2589.80	9835.40
20		**SHAJAPUR**	0.00	0.00	128.50	147.75	0.00	171.72
21		**MANDSAUR**	0.00	0.00	420.00	540.00	540.00	1500.00
22		**NEEMUCH**	0.00	0.00	2074.48	3310.90	3398.66	8784.04
23	**UJJAIN**	**UJJAIN**	0.00	0.00	230.39	285.99	292.08	808.46
	Sub Total		**0.00**	**0.00**	**5823.17**	**8560.44**	**6820.54**	######
24		**GWALIOR**	0.00	0.00	1975.25	3113.25	2791.75	7880.24
25		**SHIVPURI**	0.00	0.00	2942.78	4718.28	3039.38	######
26		**GUNA**	0.00	0.00	198.50	1743.25	1452.25	3394.00
27		**ASHOK NAGAR**	0.00	0.00	1708.28	2846.28	1722.28	6276.85
28	**GWALIOR**	**DATIA**	0.00	0.00	1294.94	2308.44	665.44	4268.82
	Sub Total		**0.00**	**0.00**	**8119.75**	**14729.50**	**9671.10**	######
29		**BHIND**	0.00	0.00	311.17	550.51	789.34	1651.02
30		**MORENA**	0.00	0.00	512.44	1044.50	1085.00	2641.93
31	**CHAMBAL**	**SHEOPUR**	0.00	0.00	500.70	791.20	759.84	2051.74
	Sub Total		**0.00**	**0.00**	**1324.31**	**2386.21**	**2634.18**	**6344.69**
32		**SAGAR**	0.00	0.00	55.25	225.50	110.50	391.25
33		**DAMOH**	0.00	0.00	47.35	164.70	94.70	306.75
34		**PANNA**	0.00	0.00	80.25	220.50	160.50	461.25
35		**CHHATARPUR**	0.00	0.00	51.65	178.30	103.30	333.25
36	**SAGAR**	**TIKAMGARH**	0.00	0.00	39.80	144.60	79.60	264.00
	Sub Total		**0.00**	**0.00**	**274.30**	**933.60**	**548.60**	**1756.50**
37		**JABALPUR**	0.00	0.00	190.85	209.20	218.71	618.76
38		**KATNI**	0.00	0.00	322.57	423.15	543.40	1289.12
39		**NARSINGHPUR**	0.00	0.00	190.00	209.00	241.00	640.00
40		**SEONI**	0.00	0.00	179.14	197.05	206.01	582.20
41		**MANDLA**	0.00	0.00	140.06	154.07	161.07	455.20
42	**JABALPUR**	**BALAGHAT**	0.00	0.00	101.50	90.65	99.71	291.86
	Sub Total		**0.00**	**0.00**	**1124.12**	**1283.12**	**1469.90**	**3877.14**
43		**REWA**	0.00	0.00	218.52	124.28	170.56	513.36
44		**SIDHI**	0.00	0.00	128.89	64.45	133.39	326.73
45	**REWA &SHAHDOL**	**SINGRAOULI**	0.00	0.00	110.00	68.00	81.00	259.00

46		**SATNA**	0.00	0.00	201.85	114.23	183.33	499.41
47		**UMARIYA**	0.00	0.00	126.69	139.35	145.68	411.72
48		**DINDORI**	0.00	0.00	0.00	0.00	0.00	0.00
49		**SHAHDOL**	0.00	0.00	786.34	573.34	572.34	1932.02
50		**ANUPPUR**	0.00	0.00	351.51	323.71	285.91	961.13
	Sub Total		**0.00**	**0.00**	**1923.80**	**1407.36**	**1572.21**	**4903.37**
	GRAND TOTAL		**114.73**	**100.75**	**28140.51**	**42702.25**	**33869.80**	######

DISTRICT SECTOR

1. Multi story Orchard (For BPL farmers for 1 acre @ Rs 45,000/- per acre with drip and fencing)

Multistoried plantation scheme is designed to provide support to weaker section of society as well as develop good quality fruits, vegetables and flowers .

The beneficiaries of the scheme will be BPL family members having proper irrigation facilities and have modest to suitable awareness in vegetable growing.

- Mango (grafted), Papaya, Guava, Jack fruit, Custard apple, etc. will be planted.
- Assistance of 50% or maximum Rs. 45000/- will be provided to per beneficiary family, priority will be given to women.
- Fencing will also be done to protect the plant from grazing animals and other nuisance.
- Orchards will be facilitated by drip irrigation system.

All 50 districts are proposed for this scheme.

2. Onion Storage

Lack of onion storage facility push farmers to sell their farm produce at minimum rate in peak season. Consequently, they cannot increase their earnings.

Even though, if they want to store the crops produced, they do not have the facilities to protect onion from moisture and wet conditions at large.

The scheme is designed to provide facilities to the onion growers to store their produce in storage house which will be installed at district head quarter nursery in each district having a capacity of 50 M.T. each. Assistance will be provided 50% or maximum Rs. 1.60 lakh to farmers for the construction of onion storage.

Increase in earning of Onion grower farmers. Protect farmers' crop at district level from wet and moisture environment.

3. Vermi-composting

Vermi-compost is a nutrient-rich, natural fertilizer and soil conditioner. The process of producing vermi-compost is called *vermi-composting.* Vermi-compost improve the soil health, its physical structure, enrich soil and micro-organisms, adding plant hormones, improve soil porosity, capillarity activity and water holding capacity of soil, also enhance germination plant growth and crop yield. This helps in uptake of elements like N.P.K., Mg, etc. Soil moisture remains for long time. Ultimately various compost help in better crop production. This will also help to build desirable soil fertility.

In this scheme, 4-5 vermi-compositing unit of a size 50' X 3' X1.125 will be installed in selected districts. The unit cost will be Rs. 30,000/-. Subsidy provided will be 50% or Rs. 15000/- whichever is lower.

1290 Vermi-Compost Units will be developed.

4. Distribution of Plastic Crates on subsidy @ Rs 125/- for selected districts

Usually transportation loss is very high with the horticulture produce. This

scheme is aimed to minimize losses during handling of the horticulture produce while being transported to different places.

Assistance of 50% or maximum Rs 125/- per crate will be given to farmer in 50 districts as part payment of the actual cost of the crate and rest of the part will be borne by farmer.

5. Betel-vine cultivation with improved technology.

Betel vine requires literati soils. Proper shade and irrigation etc is required for successful cultivation of this crop as the crop tolerates a minimum temperature of 10ºC and a maximum of 40ºC.

In 19- districts of the state, about 830 ha area in under cultivation of betel-vine. This crop needs proper management of water, nutrients, weeds, pest and disease and proper plant protection. But unfortunately, the production of this crop is decreasing regularly due to lack of facilities and technology. Cultivation of betel-vine is done by especial group of farmers / people in Madhya Pradesh and their socio-cultural and economic identity is related with this crop.

It is intended to provide assistance of 50% maximum Rs. 30000/- to each grower for procurement of bamboos, shade-net erection, spray pump, motor-pump for irrigation, drip system etc. Rest of the amount of unit cost will be shared by the beneficiary.

6. Distribution of fruits plant and vegetables seed distribution around the well, tube well.

This activity is intended to use waste water available around well & tube wells for production of fruits & vegetables. This will help in increasing the earnings through surplus sale.

1000 families in a group, from each district will be selected. Assistance of Rs. 250/- in form of fruit plants & vegetables seeds will be provided to each.

7. Hybrid seed distribution in summer season.

This scheme is intended to replace low yielding varieties of watermelon, muskmelon & cucurbits by providing improved high yielding varieties to poor growers along with fungicide/ hormone. Assistance will be provided 50% or maximum Rs. 400/- to each beneficiary.

This scheme is intended to replace low yielding varieties of watermelon, muskmelon & cucurbits by providing improved high yielding varieties to poor growers along with fungicide/ hormone. Assistance will be provided 50% or maximum Rs. 400/- to each beneficiary.

8. Infrastructure development in Seed production Farms

It is of utmost significance that there should be constant infrastructure development in the farms belonging to the Directorate of Horticulture & Farm Forestry, Madhya Pradesh for seed production, so that improved services can be provided and fulfill the state demand in different schemes can be effectively fulfilled.

The infrastructure development will be done in the farms, where seed production of potato and vegetables will be done. Observatory, improved implements, testing machine, grading & packing machine will be provided.

9. Improvement of farms and nurseries

The Directorate of Horticulture & Farm Forestry, Madhya Pradesh is operating 307 nurseries in the state. There is a constant demand being created in different schemes as well as scope for open sale of fruit plants.

A scheme is being proposed for the development of nurseries. As per this scheme, a fixed number of nurseries will be selected for development. It is intended to produce about 2.28 lakhs fruit plants per nursery to fulfill the demand created in different schemes and for open sale.

10. Pack House

Generally 25-30 percent fruits and vegetables are lost during its handling. This results in huge loss of revenue, which otherwise could have been earned had this loss could have been curtailed.

To reduce these losses, it is intended to establish pack houses in each district in those areas where fruits all vegetables are grown in large area.

An amount of Rs. 2.50 lakhs per pack house is being proposed for Govt Nursery & as per NHM norms for farmer 50 % or maximum Rs 1.25 lakhs Grand is proposed.

11. Banana Development

There is a vast possibility of development of Banana in the state. For this purpose one post of a rank of Deputy Director, is sanctioned in the department. However, due to lack of funds expansion of banana could not be achieved.

Under this scheme, plants raised from tissue culture technology will be provided. The area limit is 0.250 to 0.500 ha.

Here 50% subsidy or maximum Rs. 62000/- Assistance will be provided to each beneficiary.

(@75% for SC/ST/BPL) and (@50% for general farmers)

12. Rejuvenation of Orchards

In M.P, there are number of orchards in the age group of 20-30 years, whose horticultural production has gone down over the years. However, they still have the potential for increased productivity if they are properly taken care of.

With an aim to address this issue, this scheme on rejuvenation of old orchards is being proposed. Here old orchards of mango (25-30 years), citrus groups and guavas in the age group of (15-20 years) will be included. As per guidelines of National Horticulture Mission, these orchards with low density tree population will have to be maintained at the desired level. Canopy management of old and senile trees through severe level of pruning will be done. Nutritional management ill also be improved for better productivity upto profitable level. Therefore, assistance will be given in this component to farmers. Rs. 15, 000/- per hectare and minimum limit will be 0.250 ha. to 2 ha. 18 District are proposed for this scheme.

13 Study Tour of farmers

Study Tour of farmers: Seeing is believing is best leaning medium. Farmer tour for exposure visit or study tour's are proposed outside the state. Farmer's will visit centre of excellence and advance technology application situated in rout of tour. During visit farmer's will share the experiences and interact the benefits of advancement and how they adopt in their own field. Research and training

institute will be also focuses of exposure visit. Each year certain number of districts are proposed for this activity.

14 Farmers Training Centre

Strong training infrastructure is current need in every district head quarter. So many training activities are carried out round the year from different sources. Many schemes provide only training expenses. Proper training infrastructure is not available at the district level. Due lack of suitable training programmes not prove effective.

It is proposed that training infrastructure with training hall, hostel along with other essential facilities a training centre should be established at every farmer's of the district or out side the district take the required training successfully.

Some training centres in selected districts are proposed every year.

15. Project On Strengthening Of Bio-Fertilizer Plant And Adoption Of New Technology For Production Of Liquid Biofertilizers (By Agro Industries Development Corporation)

Madhya Pradesh Government is pioneer in Organic farming and launching a separate policy to support organic farming in the state very soon. Strengthening of Bio- Fertilizer Plant and Adoption of New Technology for Production of Liquid Bio- Fertilizers will support the policy by enhancing the availability of these bio-fertilizers in the state. Reducing the use of chemical fertilizers will help the farmers in reducing the input cost along will reduction of huge amount of subsidy bill on chemical fertilizers. In addition to these savings, use of bio-fertilizers may also help in protecting the natural resources like soil and water by improving soil structure and reducing water pollution.

The existing plant which was established and whose production of biofertilizers

were commenced from the year 1986 the most of laboratory equipments and plant machineries depreciation value has lessen down to zero and few are out of order and cannot be repaired and that such equipments are far off from modern technologies. Secondly that looking towards the awareness of organic farming amongst the farmers of the state our plant needs expansion.

Strengthening of Bio- Fertilizer Plant and Adoption of New Technology for Production of Liquid Bio- Fertilizers

It is therefore proposed to consider this project for Strengthening of Bio-Fertilizer Plant and Adoption of New Technology for Production of Liquid Bio- Fertilizers under Rashtriya Krishi Vikas Yojana (RKVY). The strengthening of existing plant is proposed with a view of procuring equipments and plant machineries with recent technologies which would replace the obsolete machines. This will increase the capacity and qualitative production of the plant. Introduction of new technology will also support the plant to produce the liquid bio-fertilizer in the state. Additional storage facilities, for raw and finished product, with advanced and modern technology have been proposed to facilitate the delivery mechanism of the products in the state.

This project will be for a value of Rs. 450 lakhs..

16. Cold Storage

Cold storage is a vital component in helping the farmers preserve their produce and sell them in off season, hereby getting a better price.As per Norms of NHM construction cost Rs. 6,000/- per M.T. An amount of Rs. 120 Lakhs or 40% subsidy is required for construction of 5,000/- M.T. capacity of cold storage.

Two cold storage are proposed for the year 2010-11 and grant is required Rs.

240.00 Lakhs.

6.5 Animal Husbandry Sector

Depending on the development issues identified, the policy has been opted and

hence the specific interventions have been recommended for the development of Animal Husbandry Sector, as detailed below. These major recommended interventions have been projectized in the action plans of the CDAPs. A brief description on the major interventions recommended is given below:

Table 7.4 Division wise District wise Budget requirements in Animal Husbandry sector

DISTRICTWISE PRPOSED BUDGETS AS PER CDAPs PREPARED -								
ANIMAL HUSBANDRY SECTOR								
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	NAME OF DIVISION	NAME OF DISTRICT	2007 - 08	2008 09	2009 -10	2010 - 11	2011 - 12	TOTAL
1		BHOPAL	0.00	0.00	56.40	195.30	112.80	364.50
2		SEHORE	0.00	0.00	46.75	214.75	93.50	355.00
3		RAISEN	0.00	0.00	678.20	1356.40	1356.40	3391.00
4		RAJGARH	7.04	12.15	64.25	286.25	128.50	498.19
5		VIDISHA	0.00	0.00	137.85	292.70	275.70	706.25
	BHOPAL	**Sub Total**	**7.04**	**12.15**	**983.45**	**2345.40**	**1966.90**	**5314.94**
6		BETUL	0.00	0.00	99.90	114.89	126.37	341.16
7		HOSHANGABAD	0.00	0.00	341.37	430.37	540.37	1312.11
8		CHHINDWARA	0.00	0.00	1033.50	1136.85	1188.53	3358.88
9		HARDA	0.00	0.00	414.24	235.18	227.41	876.83
	NARMADAPURAM	**Sub Total**	**0.00**	**0.00**	**1889.01**	**1917.29**	**2082.68**	**5888.97**
10		INDORE	0.00	0.00	15.40	16.79	17.16	49.35
11		JHABUA	0.00	0.00	231.30	121.20	87.68	440.18
12		ALIRAJPUR	0.00	0.00	195.02	300.70	285.15	780.87
13		KHARGONE	0.00	0.00	1083.42	558.79	379.24	2021.45
14	**INDORE**	BADWANI	0.00	0.00	112.00	67.48	45.57	225.05

15		KHANDWA	0.00	0.00	249.95	106.51	74.48	430.94
16		BURHANPUR	0.00	0.00	51.55	160.05	64.95	276.55
17		DHAR	0.00	0.00	0.00	0.00	0.00	0.00
		Sub Total	**0.00**	**0.00**	**1938.64**	**1331.52**	**954.23**	**4224.39**
18		DEWAS	0.00	0.00	0.00	0.00	0.00	0.00
19		RATLAM	0.00	0.00	811.35	515.27	515.52	1842.15
20		SHAJAPUR	0.00	0.00	111.93	128.64	0.00	160.13
21		MANDSAUR	0.00	0.00	847.23	791.83	792.13	2431.18
22		NEEMUCH	0.00	0.00	993.14	870.14	870.14	2733.42
23		UJJAIN	0.00	0.00	174.96	162.91	171.31	509.18
	UJJAIN	**Sub Total**	**0.00**	**0.00**	**2938.61**	**2468.79**	**2349.10**	**7676.06**
24		GWALIOR	0.00	0.00	1286.39	1199.20	1230.74	3716.33
25		SHIVPURI	0.00	0.00	2643.17	2322.63	2222.10	7187.90
26		GUNA	0.00	0.00	1377.31	1172.31	1071.73	3621.34
27		ASHOK NAGAR	0.00	0.00	1046.81	882.81	882.81	2812.42
28		DATIA	0.00	0.00	862.79	805.55	813.13	2481.47
	GWALIOR	**Sub Total**	**0.00**	**0.00**	**7216.47**	**6382.50**	**6220.51**	**19819.46**
29		BHIND	0.00	0.00	233.75	278.75	321.25	833.75
30		MORENA	0.00	0.00	325.14	891.26	649.26	1865.70
31		SHEOPUR	0.00	0.00	239.29	641.90	438.68	1319.87
	CHAMBAL	**Sub Total**	**0.00**	**0.00**	**798.18**	**1811.91**	**1409.19**	**4019.32**
32		SAGAR	0.00	0.00	153.65	573.05	307.30	1034.00
33		DAMOH	0.00	0.00	64.25	286.25	128.50	479.00
34		PANNA	0.00	0.00	55.40	257.05	110.80	423.25
35		CHHATARPUR	0.00	0.00	70.00	313.50	140.00	523.50
36		TIKAMGARH	0.00	0.00	153.65	573.05	307.30	1034.00
	SAGAR	**Sub Total**	**0.00**	**0.00**	**496.95**	**2002.90**	**993.90**	**3493.75**
37		JABALPUR	0.00	0.00	117.00	128.70	134.55	380.25
38		KATNI	0.00	0.00	193.60	213.20	223.20	630.00
39		NARSINGHPUR	0.00	0.00	314.00	346.00	397.00	1057.00
40		SEONI	0.00	0.00	193.40	212.74	222.41	628.55
41		MANDLA	0.00	0.00	124.90	137.39	143.64	405.93
42		BALAGHAT	0.00	0.00	143.00	162.61	187.00	492.61
	JABALPUR	**Sub Total**	**0.00**	**0.00**	**1085.90**	**1200.64**	**1307.80**	**3594.34**
43		REWA	0.00	0.00	460.70	410.20	410.20	1281.10
44		SIDHI	0.00	0.00	335.30	335.30	335.30	1005.90
45		SINGRAOULI	0.00	0.00	195.00	151.00	165.00	511.00
46		SATNA	0.00	0.00	454.47	405.68	407.29	1267.44
47	**REWA &SHAHDOL**	UMARIYA	0.00	0.00	199.40	219.34	229.31	648.05

48		DINDORI	0.00	0.00	0.00	0.00	0.00	0.00
49		SHAHDOL	0.00	0.00	173.52	173.02	112.02	458.56
50		ANUPPUR	0.00	0.00	659.60	712.60	622.60	1994.80
		Sub Total	**0.00**	**0.00**	**2477.99**	**2407.14**	**2281.72**	**7166.85**
	GRAND TOTAL		**7.04**	**12.15**	**19825.21**	**21868.08**	**19566.01**	**61198.07**

DISTRICT SECTOR

1. Strengthening of Districts and Block level Veterinary Hospital

In last toe decades the advancement in the field of biomedical engg has been adopted in veterinary field and various sophisticated diagnostic and clinical instrument and technologies, such as radiography, ultrasound, laser therapy,electro&echo cardiography,polymers chain reaction, cell culture,flouroscent microscopy have become a routine not only in the western world but also in some of the states of India.However,due to lack of these instruments students of veterniarycollege are not keeping pace with their contemporaries.

Strengthening of various faculty laboratories like veterinary anatomy, veterinary physiology, veterinary pharmacology, veterinary microbiology, veterinary physiology, veterinary paracetology,veterinary pathology, veterinary public health, veterinary surgery & radiology, animal genetics & breeding etc.

Purchase of various laboratory equipment for various faculty of veterinary college.

This project will be implement by Dean of respective veterinary college.

For each laboratory of various faculty is need of Rs.5 lakhs .Hence, in year 2009-10 total Rs.100 lakhs will be required for both the colleges in first phase the total requirement is Rs.30 lakhs.

The overall outcome of all this impact will improve the quality of teaching which will in future make improvement in the health and production of livestock sector.

2. Fodder development programme

As per Cattle census of 2003 Madhya Pradesh state requirement of fodder is 2131 lac metric tones (approx.) Green Fodder and 600 lac metric tones Dry Fodder. Presently M.P. state is producing 391.0 lac metric tones of Green Fodder and 600 lac metric tones of Dry Fodder. This shows that there is a deficit of 80% green fodder while dry fodder is sufficient. This lack of green fodder is the reason behind the low milk production in M.P. as compared to other states. Hence it is necessary to propose the fodder Development Programme on land of each district of M.P.

- The biomass will produced will help to minimize the gap between availability and the requirement of the fodder.
- The forage that will be obtained from these lands will be utilized as reserves by establishing fodder bank depots.
- The biomass production from the grassland will be cheaper and contribute in increasing the animal production.

The scheme will enable improvement of degraded grassland and allow the vegetation cover of problematic soil like saline, acidic & heavy soil. Under this Programme the specific grasses of legumes will be identified for particular type of soil so that a vegetation cover may be provided which will not only give additional quantity of fodder but will protect the land from soil erosion. In addition to the fertility status of land will also be improved by introducing suitable legume grassland requiring regeneration through the process of natural recovery by closure/exclusion of biotic interference will also be eligible for funding the scheme.

- Land development.
- Purchase of Fodder seed, and manure.

In this project all the farmers of all category in the M.P., who is holding more than 0.25 Acre Land i e; which is not utilized for any purpose are eligible for this scheme. In each District 1000beneficiaries having Half acre land will be selected for this scheme i e; 50×1000 =50000 beneficiaries will be benefited.

Animal Husbandry Department with the help of Deputy Director of Veterinary Services of districts will implement this project.

3. Establishment of Milk Chilling Center at Damoh

At present there is no dairy cooperative societies in Damoh district for collection of milk from Pashupalak. The survey is going on and there is possibility of organise the dairy cooperative societies to collect the milk from farmer. For this milk there is necessity of milk chilling center to store and prevent the detoriation of milk.

Establishment of milk chilling center, building and necessary equipment for milk chilling.

Component :

1. Building for milk chilling center including store.
2. Equipment for milk chilling center

a. Milk chilling Unit.
b. Weighing machine
c. Milk cans

d. Milk Storage Tanks
e. Other equipment for milk chilling

4. Establishment of Milk Testing lab at Gwalior

Due to seasonal variation it is normal phenomena during summer, the milk production reduce upto 40% of the milk production in flush season. Still the 80% of milk production is in the hand of unorganised dairy sector. This unorganised dairy sector fulfilled the demand of milk and milk product by opting several method of adulteration such as adding urea, mineral oil, animal fat, colour paint, water and caustic soda which is dangerous for mankind.

To protect and ensure safety of human health care, there is urgent need to create infrastructure facilities for testing of milk and milk product which is afford for sale for consumption to human being.

There is a need of milk testing laboratory and equipment for this laboratory.

Component :

1. Building.
2. Centrally air conditioned plant.
3. Milk & milk product testing lab equipment chemical and microbiology instrument.

STATE SECTOR

1. Introduction of new training programme and Strengthening of State level training centre

There are three training centers in the state as follows-

1. State AI Training Centre, Bhopal
2. AI Training Centre, Mandla

3. AVFO Training Centre, Shivpuri

First two training centers are exclusively for artificial insemination trainings, while for practical training participants are sent to field veterinary institutions due to lack of facilities for practical training in these training institutions.

Capacity building is one of the major issue to be taken up in the department. Despite advances in the technology and concept of the development, orientation and sensitization programmes have not been taken up in the department, especially that of the machinery on the cutting edge. On the other hand, multiplicity in responsibilities in the field of animal husbandry calls for different specialized trainings.

Trained manpower available for better quality and cost effective service delivery.

Effective implementation of departmental schemes.

Existing training centers do not have the broad spectrum coverage of training needs and require strengthening in order to expand the coverage. State level AI Training centre will be taken up as a centre of excellence and other centers will be strengthen in a specific stream. This will be done through out-sourcing identification of training needs, designing training modules and involving resource persons. This training centre will be useful foe in-house capacity building.

Components of the project

- Strengthening infrastructure
- Designing Trainings and training modules
- Equipments and Furniture
- Strengthening Library
- Consultancy Fee
- Van for exposure visits

Strengthening existing State Level AI Training Centre situated in Bhopal for overall trainings in different fields of specialization. Coverage will be the whole state.

Department of Animal Husbandry will be implementing this project.

2. Establishment of Integrated organic Goat Breeding Farm, Kiratpur, Hoshangabad.

Madhya Pradesh is one of state which attained highest growth in goat population from 1997-2003. The growth is M. P. state was 25.84%. whereas in India the growth the same period was 1.33%. Goat are mostly reared by schedule cast, schedule tribal and Backward population of M.P. Nine district out of 48 district, contributes about 40% of goat population of the state most of them are tribal district. M.P. state is developing as goat state, because (a) Short Generation Interval, (b) Prolific Breeder, (c) Easy Marketing, (d) Gainful employment of about 184, 309 and 437 labour man days in small unit (1-8) medium (9-16) and large units. Contribution of children & woman is upto 88-91% in all groups., & (e) ATM for poor people in village.

- The body weight of non-descript breed goat at the age of 1 year is 18-20 Kg. and the body weight of other Indian breed, Jamunapari 36 Kg., Barbari 25 Kg., Sirohi 34 Kg., whereas in Boer Goat 80 Kg.
- Male produced at the farm will be given to goat farmer for breed improvement.
- Goat in Madhya Pradesh contributes Rs. 500 Crores to State GDP. By introducing breed improvement programme and the contribution to state GDP will be increased & the profit to farmer will also be increased by 25-30 percent.
- Farmers will be trained in Goat management.

- Cattle Breeding farm Kiratpur District Hosangabad has 200 Acres of uncultiaval land, where pesticides & chemwcals has not been used for the feed & fodder will be grown in 100 acres of land, which is at present is uncultivable, which will be made cultivable. For treatment Ayurvedic medicine will be used.

Five Breeds of Goat – Jamunapari, Barbari, Jakrana, Sirohi & Boer will be maintained at Cattle Breeding Farm, Kiratpur, District Hosangabad.

In Madhya Pradesh 8 Lakh family are rearing goat. They all will get benefit of the scheme. The goat of farmer will be improved & they will get more prices due to higher body weight. The organized farmer will be able to sale the goat milk, thus increasing their income.

3. Establishment of automated monitoring system

Department is implementing various schemes, programmes & routene activities. Their is lack of effective monitoring of the above said programmes. The reason for this is lack of timely reporting, inaccuracy of data & incomplete data.

For timely reporting & accuracy of reports establishment of automated monitoring system is required. For this software will be prepared in which data will be entered directly & reports will be generated as per the requirement of the department. Following activity will be undertaken for this -

- Development of data collecting formats.
- Development of Web enabled monitoring system.

Component of Project:

- Development of data collecting formats.
- Web enabled software for monitoring system.

Implementation Agency:

For establishment of automated monitoring system formats for collection of data will be prepared by the department. Based on these formats web enabled software for generating reports will be developed by MP State Electronic Development Corporation (MPSEDC). Complete project will be implemented by the department.

4. Strengthening of Feed Analysis laboratory at Bhopal

The total productivity of the animal depends upon the quality of the feed which they have been fed by the farmer. Most of the farmers purchase the feed from market which may be of inferior quality. This type of inferior quality feed can be checked.

5. Strengthening of laboratories, vety. Collages (Mhow & Jabalpur)

In last toe decades the advancement in the field of biomedical engg has been adopted in veterinary field and various sophisticated diagnostic and clinical instrument and technologies, such as radiography,ultrasound,laser therapy, electro & echo cardiography, polymers chain reaction, cell culture,flouroscent microscopy have become a routine not only in the western world but also in some of the states of India.However,due to lack of these instruments students of veterniarycollege are not keeping pace with their contemporaries.

Strengthening of various faculty laboratories like veterinary anatomy, veterinary physiology, veterinary pharmacology, veterinary microbiology, veterinary physiology, veterinary paracetology,veterinary pathology, veterinary public health, veterinary surgery & radiology, animal genetics & breeding etc.

6.6. Fisheries Sector

Depending on the development issues identified, the policy has been opted and

hence the specific interventions have been recommended for the development of Fisheries Sector, as detailed below. Further, these major recommended interventions have been projectized in the action plans of the CDAPs. A brief descreption on the major interventions recommended are given below:

Table 7.6 Division wise District wise Budget requirements in Fishries sector

DISTRICTWISE PRPOSED BUDGETS AS PER CDAPs PREPARED - FISHERIES SECTOR								
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	**NAME OF DIVISION**	**NAME OF DISTRICT**	**2007 - 08**	**2008 09**	**2009 - 10**	**2010 - 11**	**2011 - 12**	**TOTAL**
1		BHOPAL	0.00	1.50	2.40	72.80	4.80	81.50
2		SEHORE	0.00	0.00	3.50	21.00	7.00	31.50
3		RAISEN	0.00	0.10	43.80	87.60	87.60	219.10
4		RAJGARH	0.00	0.00	4.70	17.90	9.40	32.00
5		VIDISHA	0.00	0.00	4.20	16.65	8.40	29.25
	BHOPAL	**Sub Total**	**0.00**	**1.60**	**58.60**	**215.95**	**117.20**	**393.35**
6		BETUL	0.00	0.00	52.04	59.85	65.83	177.72
7		HOSHANGABAD	0.00	0.00	44.18	44.10	39.18	127.46
8		CHHINDWARA	0.00	0.00	164.40	180.84	189.06	534.30
9		HARDA	0.00	0.00	73.51	58.62	43.78	175.91
	NARMADAPURAM	**Sub Total**	**0.00**	**0.00**	**334.13**	**343.41**	**337.85**	**1015.39**
10		INDORE	0.00	0.00	7.22	10.82	25.22	43.26
11		JHABUA	0.00	0.00	0.90	1.20	2.60	4.70
12		ALIRAJPUR	0.00	0.00	2.50	2.30	0.80	5.60
13		KHARGONE	0.00	0.00	96.30	66.15	30.80	193.25
14		BADWANI	0.00	0.00	13.30	8.08	5.39	26.77
15		KHANDWA	0.00	0.00	120.40	3.20	1.60	125.20
16		BURHANPUR	0.00	0.00	9.70	5.65	5.15	20.50
17	**INDORE**	DHAR	0.00	0.00	0.00	0.00	0.00	0.00

		Sub Total	**0.00**	**0.00**	**250.32**	**97.40**	**71.56**	**419.28**
18		DEWAS	0.00	0.00	0.00	0.00	0.00	0.00
19		RATLAM	0.00	0.00	9.37	109.91	11.49	130.76
20		SHAJAPUR	0.00	0.00	104.30	119.78	0.00	152.02
21		MANDSAUR	0.00	0.00	9.10	9.10	9.10	27.29
22		NEEMUCH	0.00	0.00	118.22	24.55	30.46	173.23
23		UJJAIN	0.00	0.00	1.58	14.08	615.08	630.74
	UJJAIN	**Sub Total**	**0.00**	**0.00**	**242.57**	**277.42**	**666.13**	**1114.04**
24		GWALIOR	0.00	0.00	17.30	17.30	17.30	51.91
25		SHIVPURI	0.00	0.00	40.73	40.73	40.73	122.19
26		GUNA	0.00	0.00	4.84	4.84	4.84	14.53
27		ASHOK NAGAR	0.00	0.00	1.82	1.82	1.82	5.45
28		DATIA	0.00	0.00	7.48	15.05	14.84	37.37
	GWALIOR	**Sub Total**	**0.00**	**0.00**	**72.16**	**79.74**	**79.53**	**231.45**
29		BHIND	0.00	0.00	3.00	9.00	10.50	22.50
30		MORENA	0.00	0.00	73.21	143.62	77.78	294.61
31		SHEOPUR	0.00	0.00	72.21	132.61	56.90	261.72
	CHAMBAL	**Sub Total**	**0.00**	**0.00**	**148.42**	**285.23**	**145.18**	**578.83**
32		SAGAR	0.00	0.00	12.00	39.50	24.00	75.50
33		DAMOH	0.00	0.00	4.70	17.90	9.40	32.00
34		PANNA	0.00	0.00	3.50	21.00	7.00	31.50
35		CHHATARPUR	0.00	0.00	5.30	62.10	10.60	78.00
36		TIKAMGARH	0.00	0.00	4.10	64.20	8.20	76.50
	SAGAR	**Sub Total**	**0.00**	**0.00**	**29.60**	**204.70**	**59.20**	**293.50**
37		JABALPUR	0.00	0.00	179.50	197.45	206.42	583.37
38		KATNI	0.00	0.00	46.94	38.00	40.00	124.94
39		NARSINGHPUR	0.00	0.00	108.00	118.00	136.00	362.00
40		SEONI	0.00	0.00	9.45	10.39	10.86	30.70
41		MANDLA	0.00	0.00	79.34	91.24	100.37	270.95
42		BALAGHAT	0.00	0.00	92.10	71.19	78.31	241.60
	JABALPUR	**Sub Total**	**0.00**	**0.00**	**515.33**	**526.27**	**571.96**	**1613.56**
43		REWA	0.00	0.00	57.49	41.66	42.67	141.82
44		SIDHI	0.00	0.00	5.60	31.10	31.10	67.80
45		SINGRAOULI	0.00	0.00	81.00	48.00	55.00	184.00
46		SATNA	0.00	0.00	43.37	43.31	43.69	130.37
47		UMARIYA	0.00	0.00	99.75	109.72	114.71	324.18
48		DINDORI	0.00	0.00	0.00	0.00	0.00	0.00
49		SHAHDOL	0.00	0.00	566.20	466.20	456.20	1488.60
50	**REWA &SHAHDOL**	ANUPPUR	0.00	0.00	247.89	294.45	288.45	830.79

		Sub Total	**0.00**	**0.00**	**1101.30**	**1034.44**	**1031.82**	**3167.56**
	GRAND TOTAL		**0.00**	**1.60**	**2752.43**	**3064.56**	**3080.42**	**8826.95**

DISTRICT SECTOR

A. Fish Seed Production :

Fish seed is the main input in fish culture. The fish production & productivity is largely depend on quality fish seed stocking. The present available water area is 3.43 lakh hectare and out of this3.35 lah ha. Water area has been brought under fish culture. Till the end of 11th Five Year Plan, an additional 0.77 lakh hectare would be available for fish culture (3.74 lakh hectare total availability of water area till the 11th Five Year Plan). The estimated requirement o the fish seed in the State is 6100 lakh fry against the present fish seed production level of the state is 5235 lakh standard fry, It is obvious that the availability of quality fish seed in adequate quantity is the essential for fish culture. To bridge the gap between requirement and production, to the large extent the construction of new hatcheries, development of rearing space, strengthening of existing fish farm, renovation of rearing space is proposed to utilize fish production infrastructure upto optimum level.

To get self sufficiency in fish seed production, there is proposal for strengthening of existing resources, construction of hatcheries & new rearing area, renovation of existing farms in Govt. sector. To promote fish seed production in the Private sector, there is proposal to develop four ha.rearing spaces in each of the district in the private sector.

To mitigate the regular power cut in the rural areas there is proposal to install Solar LED Based Lighting System, Installation of Solar Energy System in selected fish seed production units

To meet out the demand of Fish Seed, it is proposed to have; Strengthening of Existing Fish Farmsand construction of additional rearing area of the Department as well as Federation. Additionally it is alo proposed to have development in the Private

sector. Another additional activity ot be taken up is Installation of Solar Based Light System in Fish Farms.

B. Training

The Fisheries of M.P.State is promise to contribute a vital share in rural economy employment generation upliftment of socially & economically ST/SC & backward class people , those are earning their livelihood from fisheries activities and provide fish to the food basket.

The fish farmers are mostly illiterate and belongs backward class , due to lack of technical know-how of fish culture practices , they are not getting optimum fish production from the tanks. Previously fish culture training had been given under the Centrally sponsored scheme . The scheme stopped since 2009-10 . Hence the training of fish culture proposed under the RKVY scheme ,for augmentation of fish production and productivity, to the beneficiaries of FFDA

The water bodies (village ponds and tanks) are leased out to local fishermen for 10 years lease, the benefishers will be training in fish culture activities in the district. There is a condition in Bank financing for concerning beneficiaries, they should be a trained in fish culture, so that the 2500 fish farmers everey year will be trained of different district under the scheme in the year 2009 - 10, 2010-11 and 2011 - 12 . The expenditure will be Rs. 1100/- per fishermen for 10 days training programme. Total expenditure will be 27.50 lakh as per NABARD norms. these trainings of FFDA beneficiaries will be conducted in the concerning district, who has taken village pond / tanks for long term years lease. The training will be conducted at the fish seed farm / reservoirs .

C. Development of Reservoirs

Reservoirs are large water bodies , in which mainly the capture cum culture techniques is applied. The total available water area 3.43 lakh ha. is available for fish culture. out of which 2.87 lakh ha. water area in the reservoirs i.e. 82% so that the state fisheries mainly reservoirs. Only the adequate quantity of quality seed can enhance the production and productivity of the reservoirs . So that the fish seed stocking is limiting

factor for the reservoirs development. The present productivity reservoirs is 52 kg/ha/ryr. can be enhance up to the 100/kg/ha/yr.

Fisheries Policy of the state the power of water bodies, management and development given to 3 Tier Panchayati Raj bodies , detail are given below

Sl. No.	**Category of Water Bodies (in hectare)**	**Management Authority**
1	0 - 10	Gram Sabha
2	> 10 – 100	Janpad Panchyat
3	> 100 – 2000	Zila Panchyat
4	Above 2000	M.P. Fisheries Federation

As the fisheries policy, reservoirs are the leased out to primary cooperative societies on priority basis for 10 year lease. The proposal submitted @ 1000 fingerlings / hac (70 to 100 mm size) the total areas will covered 42945 has out of which 1425 reservoirs of Janpad Panchyat 39267 & 160 reservoirs of Zila Panchyat 43,678 ha and 9 reservoirs of M.P. Fisheries Federation 1,72,618 ha. The total fish seed requdired 1043 lakh fingerlings . The requirement of fish seed fingerlings of Department and Federation will be 828 lakh & 215 lakh respectively .

As per the norms approved National Fisheries Development Board, , the cost of fingelings will be Rs. 1/ each , so that ,the total cost of fish seed fingerlings is Rs. 1043 lakh .and as per the proposed scheme maximum 50% given as subsidy under the scheme. The full amount of seed procurement to the M.P. Fish Federation .

S.No.	Discription	No.of water area(hac.)	Stocking in lakh	Cost of the fish seed in lakh	Subsidy of 50% in lakh
1	Department				
	Janpad.	39267	392	392	186
	Zila Panchyat	43678	436	436	218
	Total	85945	828	828	414
2	M.P.Federation	172216	215	215	215
	Total of 1+2	2,55,563	1043	1043	629

Fish seed will be stocked in the Janpad Panchyat, Zila Panchyat & Federation reservoirs .The seed will procured from Govt.& private fish seed farms. Fish Seed stocking in Reservoirs of M.P.Fisheries Federation.

There are 10 reservoirs under the jurisdiction of M.P.Fisheries Federation to stock the fish seed in the reservoirs @ 500 fingerlings/ha . As per approval of National Fisheries Development Board, the cost is Rs. 1/- per fingerling expenditure. The total expenditure will be Rs. 215.00 lakh demanded in the year 2010-11.

D. Subsidy of Pump Set

As per the announcement made by the Ho'nble Chief Minister of Madhya Predesh in Kisan Mahapanchyat, 50% subsidy, maximum upto Rs 10,000/- will be given for the purchase of Diesel and electrical pump set of State farmers .On the same line the Department of Fisheries, wishes to provide same subsidy for fish farmers who are

engaged in fish culture in rural pond under ongoing Fish Farmers Development Agency scheme.

In this connection in an initials stage for all the districts of M.P. Fish Farmers Development Agency Rs.5.00 lakhs have been proposed in the year 2009-10 for the purchase of Diesel and electric pump set of fish farmers of the State.

SNo.	Name of Scheme	Unit	Unit cost	Physical Target	Financial Target (Rs.in lac)
1	2	3	4	5	6
1	**Subsidy for Pump**	No.	0.10 lac/pump	50	5.00

E. Development of Reservoirs:

As per the Madhya Pradesh State Policy, reservoirs up to 1000 hectare have been transferred to Panchayati Raj Bodies for the development of reservoirs. It is approved to stock large sized fingerlings, to increase the fish productivity of the reservoirs.

The scheme on development of reservoirs is being proposed and aimed to provide infrastructure facilities such as mechanized boats, watchman hut cum weighing centre, boats, nets and cycle with insulated box to fishermen for proper storage, transport and marketing of fish from reservoir

I. Boat, Net and Cycle with Insulated Box

About 698 fishing boat, 6980 Kg. fishing net, 212 No. of insulated box with cycle have been provided to fishermen, to promote the efficiency and value addition of the reservoir. These activities, to enhance the present fish productivity 52 Kg/ha/year to 100 Kg/ha/year and also improved the socio-economic condition of

fishermen.

II. Mechanized Boats: -

Reservoirs are larger bodies, where mainly the captures cum culture techniques are applied. It is necessary to provide mechanized boats to fulfill the targets of fish production. These boats will also be used for monitoring or checking of illegal fishing, and conservation of fish during the close season. For improving the management of reservoir, an efficient technical staff and control of reservoir are the key.

III Watchman hut cum weighing centre

The scheme on development of reservoirs is being proposed and aimed to provide infrastructure facilities such as weighing centre, storage cum landing sheds for proper storage, transport and marketing of fish from reservoirs.

STATE SECTOR

1. Renovation of Pondi Fish Farm -

Fish seed production is the main input for Fisheries Development. Pond fish farm is an assets to the Department of Fisheries. About 20% of the fish seed production, comes through this farm. In order to enhance the fish seed production of farm, it needs and immediate earth work & maintenance of farm. In this connection fencing, renovation and electrification work of Pondi farm are proposed under RKVY Project. For this sum of Rs. 47.00 lakhs is an absolute demand under this scheme for year 2008-09.

2. Software Development -

Department of Fisheries M.P. has entered in IT era. Each district of the M.P. will be well equipped with IT networking in coming future. Every district will have accessibility with the Directorate of the Fisheries through IT net working. This proposed to invest Rs. 20.00 lakh under this scheme in the year 2008-09. For IT Networking at State & District Level.

3. Survey of Fish Faun

Fish fauna of India is very rich, consisting of 2550 species inhabiting various type of aquatic environment of the country. More than 400 species are commercially important as food fishes, which are group under cultured, culturable and wild species.

An authentic fish faunastic study is an utmost need of the present Fisheries Department of the State for this present fish fauna of the state, endangered, threatened and vulnerable fish species are to be studies for future course of the development of existing five river basins of M.P.

This is proposed to invest Rs. 37.00 lakhs under this scheme in the year 2008-09 and Rs. 72.54 Lakhs in the year 2009-10.

4. Subsidy for short term loan interest

Present loan interest from any nationalized bank is 125 per annum. In accordance with allowance made by Hon'ble Chief Minister of M.P. State in Kisan Mahapanchayat, the farmers of the state will get loan at 5% P.A. The difference in the subsidy for short term loan interest will be 7%. The sum of difference amount of interest will be of Rs. 25.00 lakhs which is to be distributed to the fish farmers of the state in the year 2008-09.

5. Establishment of hatchery for Magur and ornamental fish

The proposal on the establishment of hatchery for Magur,Prawn, Ornamental fishes,Mahasheer and strengthening of training facilities for capacity building of Department of Fisheries.

6. Establishment of Information,Training-cum-Research Centre -

The state is endowed with rich and varied expantion of water resources, including Rivers,Village pond,tanks and Rservoirs. The fisheries activities in these water bodies are playing an important role in rural economy. Fish culture is bound to increase the present and future requirement of food,health and livelihood security,which can be addressed only by insuring their sustainable use. The Department of Fisheries proposes to develop infrastructure for technology transfer, solve the local problem, facing by fishermen through research unit , to increase interest in fish and fishery to educate personnel and provide information regarding Bio-Diversity to students of College and Universities. The proposal submitted to establishment of Information,Training-cum-Research Centre

To develop the Human Resources Development a training centre is to be established . All the above mention centre i.e. Information,Training-cum-Research Centre proposed to establishment in one place with the financial assistance of RKVY.

This is proposed to invest Rs. 100 and 550 lakhs under this scheme in the year 2009-10

7. Upgradation Of State Training Institute

State training institute established in the year 1961-62 at Nowgong Distt. Chhatarpur perform the Asstt. Fisheries Officer & fisheries Inspector's 10 months training, also organized short term oriented or refreshal course programme for

department field officer and fishermen. The head of te Training Institute i.e. Principal is Dy. Director of fisheries & senior Asstt. Director of Fisheries are posted as lecture in the training institute. To provide hi-tech training and effective fish culture programme, existing training institute need some upgradation.

8. Upgradation Of Research Unit

The State research unit situated at Patra Fish Seed Farm Bhopal The main purpose of research unit is to investigate how to increase the fish productivity, how to control the fish disease and effect of aquatic weed on production of fish. Productivity of the ponds is effected by physio-chemical condition of water and soil. Research unit examine the pond water and soil & biomass, and suggest the treatment and feed of fish for fishculture. Research unit also suggest the measure parameter, how to increase the productivity of water bodies and prevent the fish disease. The State research unit required some hi-tech digital divises for physical and chemical analysis of water., soil biomass, nature of fish diseases etc.

6.8 Sericulture Sector

Of the 50 districts considered, only some districts have requested for undertaking development activities in Sericulture. The details are furnished in Table below. The budget outlays, activity-wise and district-wise are furnished in table below. CDAPs concerned contains all details.

Table 7.7 Division wise District wise Budget requirements in Sericulture sector

DISTRICTWISE PRPOSED BUDGETS AS PER CDAPs PREPARED -								
SERICULTURE SECTOR								
			All figures are in rupees lakh					
			FINANCIAL YEAR					
S. No.	NAME OF DIVISION	NAME OF DISTRICT	2007 - 08	2008 09	2009 - 10	2010 - 11	2011 - 12	TOTAL

1		BHOPAL	0.00	0.00	0.00	0.00	0.00	0.00
2		SEHORE	0.00	0.00	15.85	61.70	31.70	109.25
3		RAISEN	0.00	0.00	52.70	105.40	105.40	263.50
4		RAJGARH	0.00	0.00	0.00	0.00	0.00	0.00
5		VIDISHA	0.00	0.00	15.85	61.70	31.70	109.25
	BHOPAL	**Sub Total**	**0.00**	**0.00**	**84.40**	**228.80**	**168.80**	**482.00**
6		BETUL	0.00	0.00	485.75	558.61	614.47	1658.83
7		HOSHANGABAD	0.00	0.00	643.00	698.00	768.00	2109.00
8		CHHINDWARA	0.00	0.00	52.00	57.20	59.80	169.00
9		HARDA	0.00	0.00	70.54	46.58	50.93	168.04
	NARMADAPURAM	**Sub Total**	**0.00**	**0.00**	**1251.29**	**1360.39**	**1493.20**	**4104.87**
10		INDORE	0.00	0.00	1.91	5.26	5.00	12.17
11		JHABUA	0.00	0.00	0.00	0.00	0.00	0.00
12		ALIRAJPUR	0.00	0.00	0.00	0.00	0.00	0.00
13		KHARGONE	0.00	0.00	0.00	0.00	0.00	0.00
14		BADWANI	0.00	0.00	0.00	0.00	0.00	0.00
15		KHANDWA	0.00	0.00	0.00	0.00	0.00	0.00
16		BURHANPUR	0.00	0.00	0.00	0.00	0.00	0.00
17		DHAR	0.00	0.00	0.00	0.00	0.00	0.00
	INDORE	**Sub Total**	**0.00**	**0.00**	**1.91**	**5.26**	**5.00**	**12.17**
18		DEWAS	0.00	0.00	0.00	0.00	0.00	0.00
19		RATLAM	0.00	0.00	0.00	0.00	0.00	0.00
20		SHAJAPUR	0.00	0.00	200.00	230.00	0.00	287.50
21		MANDSAUR	0.00	0.00	0.00	0.00	0.00	0.00
22		NEEMUCH	0.00	0.00	0.00	0.00	0.00	0.00
23		UJJAIN	0.00	0.00	251.41	74.44	3.74	329.59
	UJJAIN	**Sub Total**	**0.00**	**0.00**	**451.41**	**304.44**	**3.74**	**617.09**
24		GWALIOR	0.00	0.00	0.00	0.00	0.00	0.00
25		SHIVPURI	0.00	0.00	0.00	0.00	0.00	0.00
26		GUNA	0.00	0.00	0.00	0.00	0.00	0.00
27		ASHOK NAGAR	0.00	0.00	0.00	0.00	0.00	0.00
28		DATIA	0.00	0.00	0.00	0.00	0.00	0.00
	GWALIOR	**Sub Total**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
29		BHIND	0.00	0.00	0.00	0.00	0.00	0.00
30		MORENA	0.00	0.00	0.00	0.00	0.00	0.00
31		SHEOPUR	0.00	0.00	0.00	0.00	0.00	0.00
	CHAMBAL	**Sub Total**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
32		SAGAR	0.00	0.00	0.00	0.00	0.00	0.00
33		DAMOH	0.00	0.00	0.00	0.00	0.00	0.00
34	**SAGAR**	PANNA	0.00	0.00	15.85	61.70	31.70	109.25

35		CHHATARPUR	0.00	0.00	0.00	0.00	0.00	0.00
36		TIKAMGARH	0.00	0.00	0.00	0.00	0.00	0.00
		Sub Total	**0.00**	**0.00**	**15.85**	**61.70**	**31.70**	**109.25**
37		JABALPUR	0.00	0.00	282.75	311.02	325.16	918.93
38		KATNI	0.00	0.00	263.00	291.00	307.00	861.00
39		NARSINGHPUR	0.00	0.00	746.00	820.00	943.00	2509.00
40		SEONI	0.00	0.00	50.00	55.00	57.50	162.50
41		MANDLA	0.00	0.00	485.75	558.61	614.47	1658.84
42		BALAGHAT	0.00	0.00	435.75	349.33	382.97	1168.05
	JABALPUR	**Sub Total**	**0.00**	**0.00**	**2263.25**	**2384.96**	**2630.10**	**7278.32**
43		REWA	0.00	0.00	61.00	104.00	123.40	288.40
44		SIDHI	0.00	0.00	61.00	104.00	123.40	288.40
45		SINGRAOULI	0.00	0.00	5.00	7.00	9.00	21.00
46		SATNA	0.00	0.00	0.00	0.00	0.00	0.00
47		UMARIYA	0.00	0.00	50.00	55.00	57.50	162.50
48		DINDORI	0.00	0.00	0.00	0.00	0.00	0.00
49		SHAHDOL	0.00	0.00	86.17	85.17	139.17	310.51
50		ANUPPUR	0.00	0.00	0.00	0.00	0.00	0.00
	REWA &SHAHDOL	**Sub Total**	**0.00**	**0.00**	**263.17**	**355.17**	**452.47**	**1070.81**
	GRAND TOTAL		**0.00**	**0.00**	**4331.28**	**4700.72**	**4785.01**	**13674.51**