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Department for International Development India

Madhya Pradesh Rural Livelihood Project

Technical Cooperation Project Support Unit

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TC Assignment: The Role of Agriculture in Economic Growth and Poverty Reduction Final Report ©

in association with

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Abbreviations and Acronyms

AEZ	Agro-ecological zone
CI	Cropping intensity
CPR	Common Property Resources
DDA	Deputy director of agriculture
DDP	Desert Development Programme
DOA	Department of agriculture
DFID	Department for International Development
DoP & RD	Department of Panchayat and Rural Development
DPAP	Drought-Prone Areas Programme
DPIP	District Poverty Initiatives Project
DPSU	District Project Support Unit
FFS	Farmer field school
GCA	Gross cropped area
GDP	Gross domestic product
GoI	Government of India
GoMP	Government of Madhya Pradesh
GS	Gram Sabha
GSDP	Gross state domestic product
GVS	Gram Vikas Samiti (Village Development Committee)
GVT	Gramin Vikas Trust
HDR	Human Development Report
HYV	High-yielding variety
ICRISAT	International Centre for Research in Semi-arid Tropics
ITDP	Integrated Tribal Development Plan
ISRO	Indian Space Research Organisation
IWDP	Integrated Watershed Development Programme
JFM	Joint Forest Management
JFMC	Joint Forest Management Committees
JCTDP	Jharkand-Chhattisgrh Tribal Development Programme
JNKVV	Jawaharlal Nehru Krishi Vishwa Vidyalaya
KVK	Krishi Vigyan Kendra
KwH	Kilowatt hour
LPG	Livelihoods Promotion Group
MOA	Ministry of Agriculture
MORD	Ministry of Rural Development
M&E	Monitoring and evaluation
MP	Madhya Pradesh
MPRLP	Madhya Pradesh Rural Livelihoods Project
MPSREGS	Madhya Pradesh State Rural Employment Guarantee Scheme

NABARD	National Bank for Agriculture and Rural Development
NBSS&LUP	National Bureau for Soil Survey and Land Use Planning
NGO	Non-Government Organisation
NRCS	National Research Centre for Soyabean
NREGA	National Rural Employment Guarantee Act
NSA	Net sown area
NTFP	Non-timber Forest Product
NWDPRA	National Watershed Development Programme for Rural Areas
PC	Project Coordinator
PDS	Public Distribution System
PFT	Project Facilitation Team
PMC	Project Management Committee (district level)
PTD	Participatory Technology Development
PVS	Participatory Variety Selection
REO	Rural extension officer
Rs.	Indian rupees
R&D	Research and development
SAT	Semi-Arid Tropics
SC	Scheduled Castes
SHG	Self Help Group
ST	Scheduled Tribes
SPMU	State Project Management Unit
UP	Uttar Pradesh (State)
WIRFP	West India Rainfed Farming Project
WTO	World Trade Organisation
ZP	Zila Panchayat (District-level self-government)

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Executive Summary

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Executive Summary

Globalisation and the Poor

Globalisation is by-passing the poor, and the gap between the World's rich and those condemned to live in extreme poverty is widening. Many millions of people remain in backward agrarian societies, with no access to technological development. In these areas agriculture languishes, often dependent on the vagaries of rainfall. People are stuck in a trap of low productivity and poverty, struggling to make a livelihood, with survival tenuous and livelihood insecurity a routine feature of life.

Growth and Poverty

Increased agricultural productivity can lead to growth, which in turn can provide an increase in levels of rural employment, cheaper food and greater food security. Higher rural incomes can provide a stimulus to local economies and to greater demand for goods and services, which stimulates both farm- and rural non-farm sector. Growth should ensue, with an increased asset base and a reduction in poverty. However, increasing productivity can bring greater levels of risk and vulnerability, and the protection of fragile livelihoods is as important as their promotion.

Stagnant Growth

Due largely to green revolution technologies, India has become largely self-sufficient in major grains, but it is an expensive producer in global terms and has little prospect of exporting. There has been a lack of political commitment to agriculture in successive Five-Year plans, and only slow movement towards the higher-value crops that is needed. These factors have contributed to stagnation. The absence of a proper infrastructure and necessary support systems, and inadequate allocation of resources and investment, have compounded the challenges of poverty reduction in rural areas.

Location of the Poor in India

Almost half of India's poor and one third of its population are concentrated in India's 'fragile states' – UP, Bihar and MP – with their associated problems of governance. Much of this area also coincides with the rainfed semi-arid agro-ecological region, where the highest concentration of ST/SC are to be found, where the proportion of agricultural labourers is high but their wages low, where out-migration to find other work is a livelihood necessity, and where markets are heavily interlocked. Madhya Pradesh lies squarely within this region.

Productivity in MP

Poor productivity in Madhya Pradesh is concentrated to a large extent in the agro-ecological sub-regions which are upland, forested, remote and tribal. Low agricultural productivity is one of the main causes of persistently high poverty rates in the state. Poverty and distress are increasingly concentrated in neglected rainfed tribal areas. The Madhya Pradesh Rural Livelihoods Project has as its goal to address the needs of the tribal people in these areas, and has selected those districts where the proportion of tribal people is highest and poverty worst.

Agriculture in MPRLP Area

The report argues that productivity in India is low, that MP is worse than the national average, and that some of the areas with least agricultural potential of all are to be found in the districts selected by the project. It would appear that over the centuries – including in recent history - tribals have been inexorably moved off the better lands, into areas which from an agricultural perspective have low productive capacity and little potential for growth. For the majority these unfavourable factors of production mean a high level of livelihood insecurity. Farming does not provide sufficient food for more than a few months of the year, forcing them to migrate to earn supplementary resources to fill this gap.

Constraints to Increased Productivity

There are many constraints to increased agricultural production in the MPRLP area. Among the most important are a lack of investment, with a falling share of public expenditure; a dependence on rainfed agriculture but an unreliable rainfall; soils with very low productive potential, and low cropping intensities; small landholding size; a lack of appropriate technology; a scarcely functional government extension service; and a lack of reliable sources of credit and/or other financial services. The project will not be able to address many of these constraints. However, there are areas where it can test new ideas and have impact, and these need to be identified and prioritised in any further phase.

Risk and Vulnerability Need to be Managed

Poor rural households are highly vulnerable, having to cope with both domestic and production risks. Domestic shocks and stresses impact seriously on people's productive capacity, as assets are sold and money is siphoned off to meet shocks such as ill health or more predicable stresses, such as marriage. Drought, floods, pests, diseases, and the market provide the main sources of production risk. Poor people's risk management strategies often trap them in low risk/low return activities which restricts them from participating in agricultural growth processes and prevents them from building up assets that can reduce their vulnerability. Any policy will need to involve appropriate measures for social protection that will also support asset retention and creation in the productive sectors, including agriculture.

A Tribal Livelihoods Policy that includes Agriculture

The project in its first phase has to a large extent mirrored the policies of government, and this has been the case with agriculture. The project has openly taken on the role of filling the gap that an ailing government extension service has left behind it. It is unlikely that doing the traditional work of the department, and providing continued support using methods that are being questioned at all levels, is going to be anything more than a substantial and unsustainable drain on the project's resources. Development of a strategy for agriculture needs to be a priority, probably as one component of a wider macro-policy for addressing tribal livelihoods in Phase 2. In addition, multiple livelihood strategies should be developed at the micro-level which offer guidance over the range of options and choices available to poor households partially or wholly dependent on agriculture, and which focus both on promoting and protecting livelihoods.

Soil and Water Conservation

Soil and water conservation works need, under most circumstances, to be completed before any other meaningful agricultural activity can take place. The project has been spending nearly 50 percent of total project funds through Gram Sabhas for soil and water conservation. This is not going to assist the development of the multiple livelihoods strategies that the original design called for, in seeking to reduce poverty and particularly the needs of the

landless and very poor. The Project in its second phase should seek other sources of finance for soil and water conservation (such as NREGS), which will free up project funds to be used for other livelihood- and poverty-focussed priorities.

Strategic Focus in Agriculture

The project has adopted an agricultural policy based on a range of topics over the annual agricultural cycle. There is a concern with this approach that work will be spread too thinly, that the effect of limited funds will be diluted, and that impact will be hard to achieve. It seems likely that a policy that focuses on a more limited number of strategic options would merit attention. Examples of this might be in improved participatory variety development, and addressing markets and the supply chain. A focus will need to be maintained on types of improvement which do not increase risks for the most vulnerable, and on cropping systems which provide food and livelihood security.

Livestock Production

Prevailing livestock production systems can be characterised as risk averse, maximising use of locally available resources (including family time), and fulfilling farm and family needs. These are highly internalised systems with family labour as the major input and with external inputs kept to a minimum. Ever-growing demand for livestock products offers opportunities for increasing income from livestock production, as one of a number of other livelihood sources. Livestock is more equitably distributed than is the case with crops, offering increased opportunities for poverty reduction, and offering the poor sustainable ways of buffering their livelihoods against agriculture-related or domestic shocks and stresses, thus providing a measure of social protection. Livestock development also directly benefits women, the prime movers in tribal households with regard to all types of stock.

Targeting and Agriculture

In the first phase of the project the policy has been to use criteria for village selection that include a high percentage of SC/ST, high levels of poverty, low levels of female literacy, and small size of village. This policy tends to screen for the poorest and most marginalised of villages, and it is no coincidence that these are some of the worst endowed in terms of soil and water, and with the least potential for increased productivity and growth. This policy needs some re-examination, as there are clear implications for agricultural policy.

Agro-ecological Diversity

This report, and others in the pre-design series, have highlighted the high level of variability across the current project area in terms of the people, their livelihood sources and customs, and the natural and other assets to which they have varied degrees of access. This heterogeneity needs to be assessed through more detailed examination of the Agro-Ecological Zones plus the wider markets which serve them, which will assist in development of a meaningful agricultural policy specific to the needs of these areas.

A number of recommendations are made for MPRLP Phase 2, and are roughly prioritised here. It is suggested that the first five merit the closest attention:

- Develop a macro-level Tribal Livelihoods Policy, which will have an agricultural component among others.

- Develop micro-level Multiple Livelihood Strategies, which offer guidance on options and choices and which focus both on promoting and protecting livelihoods.

- Develop strategy for risk management, which addresses a combination of domestic shocks/stresses and agricultural production risks.
- Improve markets for the poor, through more effective value chains and direct producer-buyer relationshops.
- Develop a pro-poor livestock policy, which takes into account all constraints, assesses scope for promoting positive livelihood outcomes, and looks at livelihood protection.
- Adopt an Agro-Ecological Zone framework, which characterises the project area, linked with a wider analysis of markets which they feed.
- Prioritise agricultural interventions, that will exploit opportunities available and focus on a small number of specific issues rather than blanket policies.
- Soil and water conservation works should take place prior to any agricultural intervention, but using funding sources other than MPRLP.
- Develop a policy on agricultural research with a focus on adaptive research and participatory variety selection processes.
- Develop Farmer Field Schools as agricultural SHGs, where there is potential for agricultural improvement and growth.

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1 Background and Introduction

1 Background and Introduction

1 In Chapter 1 this report looks at the changing context of agriculture; globally, within an Indian context looking in particular Madhya Pradesh, and more specifically taking a look at agriculture within the project area, and the way that the project has approached the sector. In Chapter 2, we examine the potential for a more productive agriculture to reduce poverty through increased growth, taking a closer look at MP and the project area, and at some of the factors of production. Chapter 3 analyses some of the constraints to that increased productivity, and seeks some solutions where feasible. Risks and vulnerability are addressed in Chapter 4. Chapter 5 seeks to draw out some of the lessons learned from Phase 1 of the project, and also some lessons from other, comparable projects. Finally, recommendations are presented in Chapter 6.

The Global Context

2 The potential of agriculture to generate a surplus, which might then be invested to initiate a process of rural transformation, has long been recognised (Quesne, 1758). Agriculture has grown from the provision of basic food and subsistence to massive growth where trans-national corporate players interact and to a large extent control the world market. The World Trade Organisation (WTO) has been put in place to try and ensure a level playing field for market players, including the agriculture sector. Although many developed nations in general - and the USA in particular – have yet to comply, rising controversy backed by a strong agricultural lobby has forced the WTO to reconsider the interest of poor nations.

3 At the other extreme however, is the hard reality of many millions of people who remain in backward agrarian societies, and who have yet to have proper access to technological development. In these areas agriculture languishes, often dependent on the vagaries of rainfall. People are stuck in a trap of low productivity and poverty, struggling to make a livelihood, with survival tenuous and food insecurity a routine feature of life.

4 The existence of these extreme situations in agriculture is evidence of the uneven growth over time and in different regions that has taken place, which has increasingly restricted the poor's access to livelihood resources and technologies. The results of this have been a low profile for agriculture in many regions, with an increasing pace of marginalisation, growing inequality, regional disparity, and sectoral imbalances between developed and other nations. This continues to be a major concern for development professionals and policy makers who seek to address issues of distributive justice and equity driven development.

5 There are also suggestions that the increasing pace of global integration within developed economies has further compounded the challenges of integrating marginal sections of society, who have been largely been bypassed in this process (Rao and Hanumappa, 1999). This has been recognised by many international institutions, including the United Nations. Addressing a summit of the World Economic Forum in 2002, the Secretary General of United Nations reflected that "…. the reality is that power and wealth in this world are very, very unequally shared and that far too many people are condemned to lives of extreme poverty and degradation …… the general perception among many is that this is the fault of globalisation and that globalisation is driven by global elite, composed of or at least represented by, the people who attend this gathering". There is a general view among many development experts that globalisation has bypassed the poor (Krishnaswamy,

Feb. 5, 2002). The UN Human Development Report indicates that "…. many of the poorest countries are marginalised from the growing global opportunities. The income gap between the poorest and the richest countries are widening" (HDR, 2000:82).

The Indian Context

The Agriculture Sector in India

6 Since Independence, Indian agriculture has contributed significantly towards achieving self sufficiency in food; annual food grains production, for example, had risen from around 50 mt. in the 1950s to over 200 mt. in 2000. However, this growth in the agriculture sector has been uneven across regions and crops, and also across the people concerned with producing it. It is now characterised by low levels of productivity caused by a lack of investment and poor infrastructures. Constraints such as controls on movement and poor marketing of agricultural products have continued to affect the economic viability of agriculture sector, and growth in the sector has slackened over the last decade. An unfavourable price regime and extractive marketing chains have made agriculture into an unrewarding activity. Many have abandoned farming, evidenced by increased migration from rural areas.

7 A stagnant Indian agriculture sector has been further burdened by emerging global challenges. India hovers around self-sufficiency in major food grains, but production is at too high a cost to permit it to export. Although the Draft Approach Paper of the XIth Five Year Plan (due to commence in April 2007) has focused on a robust growth strategy for agriculture to address inherent weaknesses and gaps, it will be a huge challenge for agencies engaged in implementation. One of the key priorities will need to be in diversification, especially in areas of basic staple production with high levels of public subsidy. To release agriculture's productive potential and speed up growth of the economy, the planned development of agriculture will need to be accorded top priority, as it was in the First Five Year Plan. Agriculture has failed to regain its place on the priority list, in terms of development strategies and the allocation of resources; public investment in the sector has remained low, with a declining trend in the 1990s.This has adversely affected research and development, infrastructure, extension services, and the efficiency of support systems.

8 Diversification into commercial crops, despite limited infrastructure, extension and RandD support, has attracted some farmers into commercial ventures, but the sustainability of these high-risk initiatives remains in question. Many farmers have become stuck in a trap of high costs but low returns, with enterprises only marginally viable, and with problems compounded by environmental imbalances resulting from disproportionate use of chemical fertiliser and other inputs. The deepening crises of the overall viability of Indian agriculture in general, and of debt-driven diversified agriculture in particular, has contributed to a high level of vulnerability. Coming on top of this, sudden shocks such as prolonged sickness, deaths in the family, and marriage often push people to extremes, and recently high suicide rates have been recorded among farmers particularly in Punjab, Andhra Pradesh, Maharashtra and Karnataka (Diwakar, 2006).

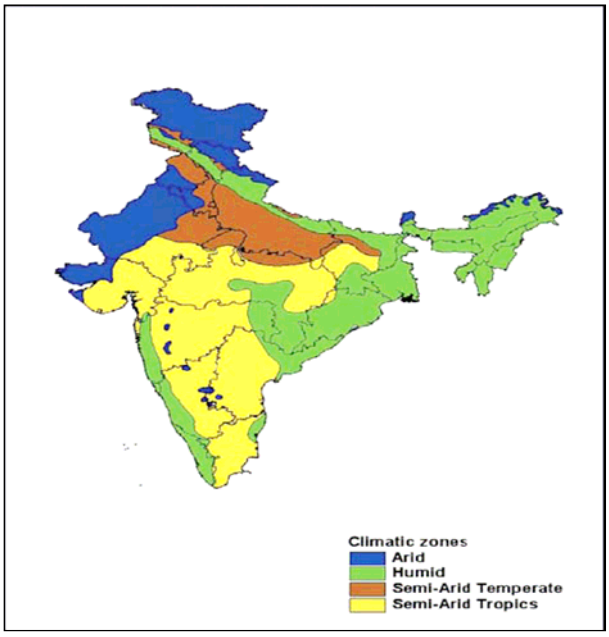
9 Stagnant or declining cropping intensities have been the result of a lack of expansion of the irrigation network, and can also be attributed to a situation of near self-sufficiency. This in turn has significant impact on the labour absorption capacity of agriculture. Employment elasticity in agriculture in the 1990s became almost zero (GoI, 2004). Employability in Indian agriculture in general has declined significantly due to mechanisation and a resultant reduced labour absorption capacity (Bhalla, 1993). Wage-rates which are lower than the prescribed minimum, a differential between male and female workers, and short periods of employment, have made the lives of agricultural labourers worse. Over the years there has been shift of surplus labour from the farm sector to non-farm sectors, but the size of that shift has not been substantial, and the latest Economic Census (2005) suggests that this sector may now be stagnant in MP (Unni and Raveendran, 2006).

10 This lack of positive development in the rural economy at large, and in agriculture in particular has posed a set of serious challenges. A stagnant agriculture, the absence of a proper infrastructure and necessary support systems, and inadequate allocation of resources and investment, have compounded the challenges of poverty reduction in rural India. The successful introduction of green revolution technology in certain parts of the country was at the time seen as a panacea for Indian agriculture, and as an engine for growth. However, this has failed to provide sustained or replicable growth to the many areas of India which are less well endowed with land and water resources, and to the poor people who inhabit more marginal rainfed areas.

Agro-Ecological Zones and Poverty

11 Almost half of India's poor and one third of its population are concentrated in India's 'fragile states' – UP, Bihar and MP. This is also heavily concentrated in the semi-arid areas, which include the semi-arid tropics (SAT), within which much of MP lies. The SAT are defined by ICRISAT using two parameters: length of growing period (75–180 days) and mean monthly temperature (more than 18^{o}C). It covers over 37 percent of the total geographical area of India (see Map 1), and is home to nearly 37 percent of its population. In 1997–98, the SAT areas accounted for 46.2 percent of India's total net cultivated area and 31.9 percent of gross irrigated area. In 1997–98, it contributed 60.5 percent of total coarse grains production, 51.5 percent of total production of pulses, and 62.8 percent of total oilseeds production in the country (ICRISAT, 2005). Taken as a whole, the area is complex, diverse and risk prone. Poverty levels are high and literacy rates are low. With productivity greatly limited by low and variable rainfall, lack of irrigation, and poor soils, this agriculture contrasts sharply with irrigated Green Revolution areas.

Figure 1.1: Agro-Ecological Zones of India



Source: ICRISAT, 2005

12 Some of the characteristics of the semi-arid tropics are described below (taken from ICRISAT, op. cit.):

- The highest incidence of poverty (about 24 percent) of all zones, coinciding with area with low irrigation.
- The highest concentration of Scheduled Tribes and Scheduled Castes; incidence of poverty is highest among ST (39.6 percent) followed by SC (28.56 percent; 16.4 percent overall in zone).
- A high correlation between poverty and the proportion of agricultural labourers except in areas with higher irrigation.
- A negative correlation between poverty and the proportion of non-agricultural labourers, indicating the importance of non-farm activities in reduction of poverty.
- High agricultural wages and low cereal prices are important determinants in reducing the incidence of poverty in the zone.
- Low utilisation of government's anti-poverty programs by rural poor through reduced access.
- The effect of higher wages and improved employment opportunities contribute to poverty reduction more than productivity growth, as the rural poor are net buyers.
- The zone lags behind others in market infrastructure.

13 Madhya Pradesh sits at the northern limit of the SAT, but by far the larger part of the state lies clearly within it. Parts of northern MP, including Sheopur District which is within MPRLP, fall within the Semi-Arid Temperate Zone. Parts of the south-eastern corner, which includes most of the district covered by MPRLP in its Phase 1 efforts in the East, are in the Humid Zone.

The State Context

Agriculture in Madhya Pradesh

14 MP is the second largest state in India, and ranks seventh in population. Agriculture is the mainstay of the State economy, and around 73 percent of the population depend directly or indirectly on agriculture. Agriculture contributes about 44 percent of the state economy, and 78 percent of its working force is directly engaged in agriculture.

15 The state has topography that is criss-crossed from north to south by plains and upland areas. Forest lands cover some 27 percent of the state. Less than half of the remaining land is cultivable (49 percent), and distribution of this is uneven with much variation in topography, rainfall, and soils. The main cultivated areas are found in the Chambal valley, the Malwa Plateau, the Rewa Plateau, the Chhattisgarh Plain, and the fertile Narmada Valley.

16 The most important crops are rice, wheat, sorghum (jowar), maize, pulses (peas, beans, lentils), and groundnuts. Rice is grown principally in the east, where there is more rainfall. In Western MP wheat and maize are the more important staples. The state is the largest soyabean producer in India. Other crops include linseed, sesame, sugarcane, and cotton, as well as small millets which are a traditional staple in upland areas.

17 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]).

18 The agricultural situation in Madhya Pradesh is characterised predominantly by mono-crop, rainfed agriculture, combined with poor access to physical and economic infrastructure, a low level of access to technology, a small and unreliable network of irrigation, and an extension service which has all but collapsed. Only around 30 percent net area of agriculture is irrigated, and as a result cropping intensity is very low and the majority of farmers are from marginal and small holdings, with constrained access to inputs and services.

19 This has resulted in low productivity, and returns from agriculture which are scarcely viable. Poor productivity and 'agricultural backwardness' in Madhya Pradesh is concentrated to a large extent in the upland, forested, remote and tribal agro-ecological sub-regions (Shankar, 2005). Soils in this area are extremely poor, and water often in short supply (see Land and Water Resources Report in this series). Poor agricultural productivity is one of the main causes of persistently high poverty rates in the state. Poverty and distress are increasingly concentrated in neglected rainfed tribal areas (Sunderam and Tendulkar, 2003).

20 In terms of livestock production, the total livestock population (2003 census) is 35.6 million of which there are 19 million cattle, 7.8 million buffalos, 8.1 million goats and 5.5 million sheep. While the population of cattle decreased between 1997 and 2003 by 3.7 percent, the buffalo population increased by 13.5 percent and the goat population by 16 percent, indicating clear preferences. The state stands seventh in the country with regard to milk production although it has largest number of large ruminants in the country. Productivity overall in the state can be said to be well below potential.

The Project Context

Farming Systems in the Project Area

21 There are strong cultural differences between the main tribal groups, dominated by the Bhil in the West, the Gonds and Baigas in the East, and the Sahriya in the North. There are also very distinct differences between the farming systems that are observed in the three project areas. It is difficult to say whether the farming systems which are currently practised by tribals are as a result of their own culture, customs and behaviours, or whether they are an articulation of the climatic and environmental circumstances in which they find themselves. In reality, the people and their environment are inextricably mixed together, and the one cannot be addressed or influenced without an effect on the other. It would appear that over the centuries – including in recent history - the tribals have been inexorably moved off the better soils and lands, into the forests and onto poorer, more marginal soils, and into areas which from an agricultural perspective have less productive capacity and little potential for growth.

22 Many tribals would in the not distant past have been entirely dependent on food sources from the forest and its immediate environment. Some of these, particularly in the East, originally practised slash-and-burn types of agriculture, which can still be seen in neighbouring Orissa. With growing pressure on land and the environment, these agricultural systems are becoming less tenable, and tribals have become increasingly dependent on a more sedentary agriculture. Some of the tribes appear to have adapted well to this new way of life, and to have become successful agriculturalists. Others where shifting agriculture is more deeply ingrained have found it harder. At this point in their development there are few who are producing a marketable surplus, with most households engaged in subsistence agriculture. This may provide enough for the household to feed itself for the whole year, depending on the season and other factors. But for the majority, marginal and small landholdings, poor soils and other unfavourable factors of production mean a high level of food insecurity. Their farming initiatives do not provide sufficient food for more than a few months of the year, forcing them to migrate to earn supplementary resources to enable them to fill this gap.

23 The price of food in the hungry months increases, placing further pressure on limited resources. Maize is the preferred staple in the West, followed by wheat; here rice is used for festivals and feasts. In the East, rice is the preferred staple, although kodo/kutki are the traditional staple, fast being replaced by rice. The livelihood strategy adopted to deal with this high level of food insecurity is an increased level of migration.

24 Livestock production systems in tribal agriculture are somewhat different to non-tribal areas. The livestock population is high, and the majority of families keep livestock. Animals are tended by the old and the young during periods when active family members tend to migrate. The MPRLP Baseline Survey clearly indicates the importance of livestock in the livelihood strategies of tribal families. A large number of tribal families (>70 percent) keep bullocks, and the male to female ratio in cattle is 1.3, compared to 1.0 observed in non-tribal areas. This reflects the prevailing farming system, and also a low rate of mechanisation. Another feature is that about half of the families keep more than three types of livestock – probably a risk aversion strategy. Livestock production systems of tribals have not been sufficiently studied. However, based on studies carried out in adjoining states, and some observations of MPRLP project teams over the last year, some key features of livestock production systems in tribal areas are evolving:

25 Low external input and low output systems prevail and maximum use is made of family and farm resources for livestock production.

- Diversified crop-livestock activities are common (up to six types).
- Indigenous/local type of animals and birds are preferred to high potential crossbreds or hybrids (these are perceived as risky).
- Traditional systems of management are common and adoption of scientific recommendations and technologies is very low.
- Extensive grazing with limited supplementary feeding is commonly seen.
- Women play a major role in livestock production (all types).
- Livestock is important for livelihood needs (primarily for family) as well as cultural aspects, indicating multi-purpose objectives in keeping livestock.
- Sale of livestock products is mainly in local markets or through middlemen.
- Dependence on others is minimised.

26 Livestock is more equitably distributed than is the case with crops, offering increased opportunities for poverty reduction, and offering the poor sustainable ways of buffering their livelihoods against domestic shocks and stresses, thus providing a measure of social protection.

27 The prevailing livestock production systems can be characterised as risk averse, using locally available resources (including family time), and fulfilling farm and family needs. These are highly internalised systems with family labour as the major input and external inputs kept to a minimum. Low dependence on all outside agencies should be borne in mind while planning development interventions.

Madhya Pradesh Rural Livelihood Project

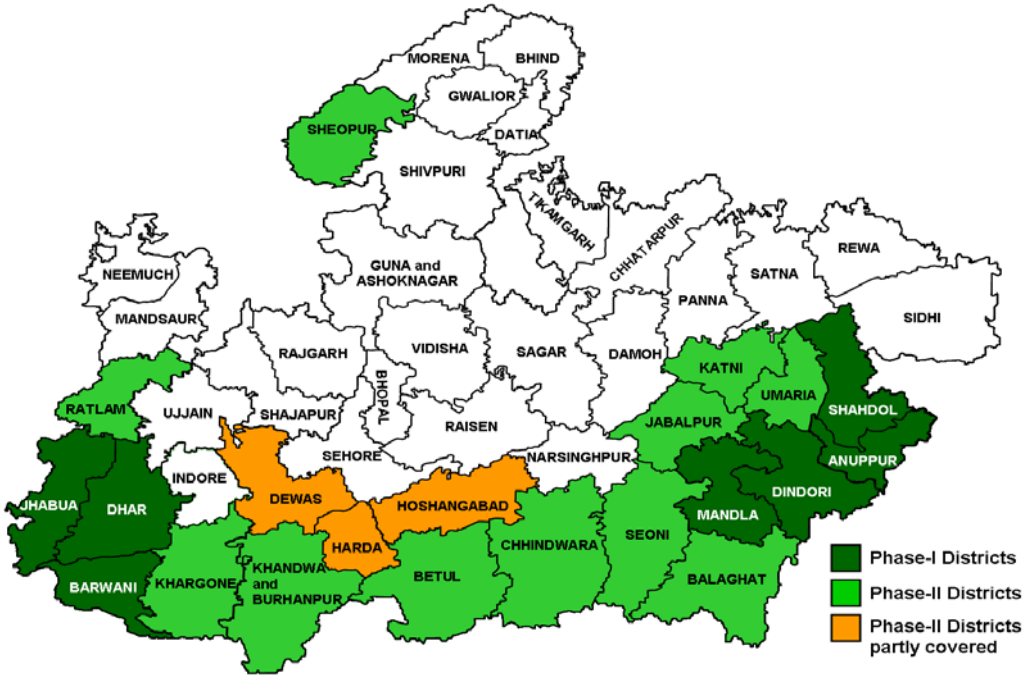
28 The Madhya Pradesh Rural Livelihoods Project (MPRLP) is a Government of Madhya Pradesh (GoMP) initiative, managed by the state-level Madhya Pradesh Society for

Rural Livelihoods Promotion, and supported financially by DFID. GoMP intends to implement the Project ultimately in twenty two of the most disadvantaged districts (see map), during two phases. The first phase (2004-2007) operates in 825 villages across the eight predominantly tribal districts of Jhabua, Dhar, Barwani, Mandla, Dindori, Annupur, Shahdol and Sheopur. The second phase (2007 – 2011) will cover the remaining fourteen districts of Katni, Umaria, Jabalpur, Seoni, Balaghat, Chhindwara, Betul, Khandwa, Khargone, Burhanpura and Ratlam and parts of Dewas, Harda and Hoshangabad. These areas are shown in Fig 3.

29 The goal of the project is that the livelihoods of poor rural people in Madhya Pradesh are sustainably enhanced, and its purpose is that effective programmes and policies that sustainably enhance the livelihoods of poor rural people are implemented in tribal districts of Madhya Pradesh. There are four project outputs for Phase 1, as follows:

- The ability of the *Gram Sabha* (village assembly) and associated *Gram Vikas Samiti* (village development committees) to identify and implement more effective support to poverty reduction using direct funding is improved.
- Livelihood options are implemented by individuals, households or inclusive community groups or institutions.
- The ability of district level institutions to converge resources and respond to innovative and community driven initiatives for poverty reduction is improved.
- Project methodology and structures inform policy-makers and implementers to shape interventions at district and state level.

Figure 1.3 MPRLP Districts in Phases 1 and 2



30 The main Objectively Verifiable Indicators in the Phase 1 logical framework that relate to agriculture are that (i) 75 percent of households report improved access to agricultural services and information, and (ii) 30 percent increase in agriculture productivity is reported over 75 percent of the land where agricultural improvement has taken place.

31 The Project Memorandum requires that MPRLP supports GoMP to respond to poor people's livelihood choices through multiple livelihoods strategies based on natural resources, enterprise development and non-farm livelihoods support, including migrant labour support and access to information. The Project adopted a two-track strategy to address livelihoods in tribally dominated districts of MP. The first track aimed to enhance livelihoods through improved access and productivity of land, water and forest resources of poor people. The second track aimed to promote enterprises leading to value addition of agricultural and forest produce as well as other micro-enterprises, providing employment and income opportunities to the rural poor.

32 The project in its first phase has spent around 10 percent of the resources delivered through the Gram Sabhas on agriculture.

Table 1.1: Percentage Expenditure on Livelihoods Activities, by Gram Sabha

Activity	Percent spend
Water Resource development	47
Non Farm Based IGA	19
Agriculture	*11*
Others	12
Animal Husbandry	6
Druggery reduction	4
Capacity Building	1
Information communication	<1
	100

Source: MPRLP database

33 The main elements of the agriculture component have been:

- Linking watershed committees with *Gram Sabhas* consistent with national level guidelines issued by the Ministry of Rural Development.
- Construction of simple water harvesting structures; watershed development on community and private land involving cost-sharing and benefit sharing.
- Watershed development interventions accompanied by integral agricultural extension, along the following lines:
- collaboration with the Department of Agriculture;
- procurement, distribution and supply of subsidised improved seeds in a seed promotion programme;
- dissemination information about the use of inputs and improved agricultural practices;
- development of village specialists; and
- promotion of composting techniques.

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2 Agriculture
The Potential for Growth

2 Agriculture The Potential for Growth

The Role of Agriculture in Poverty Reduction

34 The importance of agriculture in reducing poverty is now better understood and well accepted in the development community, following a period during the 1990s when it had become more marginalised in the debate. It is now widely accepted that increased agricultural productivity can lead to agricultural growth, which in turn provides an increase in levels of rural employment, cheaper food and greater food security. Higher rural incomes provide a stimulus to local economies and to greater demand for goods and services, which stimulates both farm- and rural non-farm sector. Growth ensues, with an increased asset base and a reduction in poverty (DFID, 2005).

35 Central to the argument is the importance of access to resources, rather than the supply or potential availability. For rural poor people, their access to productive assets, in particular land and water, is crucial, and these are often limiting factors to any increased productivity. Property rights and land titling are important, in India as in many other places. For guaranteed food security, households need secure access to food, and increasing the supply is unlikely to provide a sustainable solution. Poverty causes hunger, and until the causes of poverty are addressed, solutions are likely to be short-lived.

36 There is also recognition that public funds need to be spent more effectively and strategically. Strategic spending in rural roads, irrigation and agricultural research are all areas where strong returns to investment are recorded. The political reality however is that public spending is most often directed towards areas and technologies that get votes, and subsidising inputs such as fertiliser, power and irrigation (often of the least appropriate kind for poor people) remains high on the list of political priorities.

37 Investment in high-productivity areas through the introduction of HYVs and the technology that went with them, provided short-term benefits and in some areas a substantially increased growth in productivity. This green revolution-related growth contributed to self-sufficiency in major grains in the country. However, these gains were confined to those areas, which were already well-endowed with productive resources, especially land and water, and already there are signs of stagnation. The marginal returns to investment in the remaining, less productive areas, is likely to be lower, and also to be less ecologically sustainable. In these situations public investment in agriculture needs to be refocused and greater attention given to development of the non-farm economy and higher value-added agricultural products and processes. This holds true for the large part of MP, and most certainly for all of the marginal lands inhabited by tribals, which constitute the project area.

Agricultural Growth in India and Madhya Pradesh

38 In India, agriculture dominates change through causal links with factor and product markets, and due to the sheer size of the agricultural economy and the importance of its major products (cereals) in the diets of the poor, gains in agricultural productivity have significant potential impact on poverty. It should be possible to reduce poverty as well as expand domestic industry by raising labour productivity in agriculture, and spreading its gains among low income groups (Radhakrishna, 2002). Recent analyses suggest that about 10 per

cent increase in household income results in around a 5 percent decline in malnutrition (Haddad et al, 2003), and a decline in poverty of 20 percent, although this may be subject to regional variation (Anderman, 2005).

39 Improvements in food security at household level are largely driven by change in household income. Much literature exists that suggests that good agricultural development can raise household income, which in turn promotes growth and reduces poverty, both directly and indirectly (Ahluwalia, 1978; Prasad, 1985; Lele and Agarwal, 1989; Lipton and Longhurst, 1989; Hazel and Ramasamy, 1991; Gallup, et.al, 1997; Dev, 1998; Mellor, 2001; Thirtle et.al., 2001; Radhakrishna, 2002; Smith and Haddad, 2002; Haggblade et.al., 2002; Haddad, et.al., 2003; Farrington, et.al, 2005; DFID 2005).

40 Poor performance of agriculture and a gradually declining share of agriculture in GDP are key features of the national economy. Although the growth of agriculture in India continues undoubtedly to have a major influence on overall growth, it could be much greater. The share of agriculture in the national economy has declined from 59.2 percent in 1950-51 to about 23 percent in 2004-05 (Economic Survey, GOI, 2006; GoMP, 2003-04), although other estimates suggest an even lower contribution at 20.5 percent of GDP during 2004-05 (RBI, 2004-05: p.11). Nonetheless, 58.5 percent of the total national labour force and 73.4 percent of the rural labour force is directly engaged in agriculture. This situation is mirrored in Madhya Pradesh, where the share of agriculture in NSDP has declined from 57.9 percent in 1960-61 to 25.8 percent in 2000-01, and around 72 per cent of the workforce is directly engaged in agriculture.

41 Table 2.1 shows that estimated growth rates for both Indian and MP GDP grew slightly between the eighties and nineties, but that growth in the agriculture sector declined. The data also indicates that MP's performance is well below average (Ghosh, 2005). Another estimate of compound annual rate of growth of agriculture for MP over a longer period (1960-61 to 1999-2000) suggests that until 1980 the growth rate of agriculture in MP remained at 1 per cent, which was nearly half of the national average (Shankar, 2005), the basis of the poor performance of the state economy.

Table 2.1: Contribution of India and MP to Gross Domestic Product and Agriculture Sector, by decade

	GDP		Agriculture	
Decade	All India	MP	All India	MP
1980s	5.5	4.6	3.4	2.6
1990s	6.1	4.8	3.1	1.9

Source: Ghosh, 2005, GoMP, various

42 An exception to these rather dismal growth figures was observed during the 1980s, when the agricultural sector grew at a significantly higher rate for a short period (around 4.6 percent). This was the period when green revolution technology made major inroads into rainfed agriculture in the state, marked by the introduction of soyabean, which changed cropping patterns, replacing jowar-based systems. However this rate of growth proved unsustainable, sliding back temporarily to 2 per cent, although recovering to some extent later.

Productivity in India and Madhya Pradesh Agriculture

43 Among the cereal grains, the major crops grown in MP are rice, wheat, maize, sorghum. A range of pulses are grown (chickpea, mung, tur, and urad): and soyabean, groundnut and mustard are the main oilseeds. In a few districts cash crops are grown - cotton and sugarcane mainly. Many vegetable crops are grown especially potato, onion, and garlic;

fruits include papaya, oranges, mangos and grapes. Medicinal and narcotic crops are also grown. Dependent as it is on rainfed agriculture and the monsoon, MP is a state where the kharif crop is more important. Kharif crops occupy about 56 percent, rabi crops 44 percent, of total cropped area. The importance of crops in terms of percentage of gross cropped area (GCA) is shown in Table 2.2.

Table 2.2: Main Crops in MP as Percentage of Gross Cropped Area

Crops	percent of GCA
Paddy	8
Wheat	23
Jowar	3
Maize	4
Small- millets	4
Total cereals	**42**
Arhar	2
Urad and moong	2
Gram	13
Others	4
Total pulses	**21**
Soybean	22
Groundnut	1
Mustard	3
Sesamum	0.5
Niger	0.5
Linseed	1
Others	<1
Total oilseeds	**21**
Cotton	2
Sugarcane	<1
Total cash crops	**3**
Veg, fruit, fodder, medicinal	6

Source: GoMP website

44 Overall yields of major crops in India fall well below their potential, and in the semi-arid tropics that cover most of MP, productivity is well below other zones. Crop output per hectare in this zone is Rs.16,417/ha, compared with an Indian average of Rs.20,350, and Rs.28,284 in the Semi-arid temperate zone (ICRISAT, op. cit).

45 In comparison with other states, MP does not fare well in terms of productivity of main crops. Table 2.3 shows yields of major crops in comparison to the Indian average. Yields of the main staples rice and wheat are respectively around half and two-thirds of the national average. Traditional crops sorghum and millet fare better, with yields above the national average. Compound growth rates of agricultural production and productivity in MP show that most crops, including the main staples rice and wheat, registered declining growth rates in 1990s (GoMP, 2003-04).

Table 2.3: Yields of Major Crops in MP and All India, 2003/4 (Provisional figures). Kg/ha

CROP	All India (AI)	MP	MP as percent AI
Rice	2051	1058	51
Wheat	2707	1867	69
Maize	1983	2072	104
Sorghum	772	1342	174
Millets	1134	1397	123
Gram	792	931	117
Groundnut	1384	1154	83
Soyabean	1200	1130	94
Rape/Mustard	1152	1008	87
Cotton	307	189	62
Sugar-Cane	5911	4215	71

Source: DOA MP website; Directorate of Economics and Statistics, MOA, GOI

46 The ever-growing demand for livestock products offers opportunities for increasing income from livestock production as one of a number of other livelihood sources. Production costs of livestock products in India and particularly in tribal areas are low and prices should thus be competitive. Livestock is more equitably distributed than is the case with crops, offering increased opportunities for poverty reduction. In addition, increasing the livestock asset base offers a reliable way of providing the landless poor with a buffer against shocks and stresses. Production risks in these situations may be less with smaller livestock types. Livestock development also directly benefits women, who are the prime movers in tribal households with regard to all types of stock. Another opportunity that might be exploited is an increasing demand for organic food, although this requires substantiation through a thorough market survey. Tribal families use minimal or no chemicals in either crop or livestock husbandry, mainly as a result of an access and information gap.

Agricultural Productivity in the MPRLP Districts

47 The performance of MP in comparison to other states is well below average, particularly with main staples. Data from MP districts where the project has already been operating, i.e. in its three areas of focus across eight districts in the North, West and South, is shown in Table 2.4.

Table 2.4: Land use Characteristics by MPRLP Phase 1 Districts

District	Cropping Intensity	Net Irrig Area	Gross Irrig Area	Net sown area/fmr
	%	%	%	ha
North				
Sheopur	127	63.95	54.55	1.19
West				
Jhabua	108	6.7	6.23	0.67
Dhar	134	21.15	15.63	1.2
Barwani	110	21.89	19.84	0.78
East				
Shahdol	116	5.51	4.74	1.28
Mandla	126	7.34	5.84	1.07
Dindori	130	0.98	0.75	1
MP	**128**	**31.87**	**25.72**	**1.34**

Source: GoMP Marketing Board, 2006

48 The data shows the high level of variability across project districts. Some features worthy of note are: the low CIs (with the exception of Sheopur, Dhar and Mandla, reflecting influence of high production areas in Sheopur, Malwa and Narmada regions respectively); the very low percentage of irrigated area in eastern districts, and Jhabua; the high level of irrigation in the northern district of Sheopur (which does not extend to the more marginal project area); and the very small areas sown, a reflection on land holding size.

49 Table 2.5 shows yields of main crops, again within the main districts selected by MPRLP in its first phase.

Table 2.5: Yields of Main Crops by MPRLP Phase 1 Districts; Kg/ha

District	Rice	Wheat	Sorghum	Gram	Soya	S/cane	G/nut
North							
Sheopur	2487	2408	900	1297	1368	5110	958
West							
Jhabua	213	1709	581	496	490	2777	857
Dhar	427	1192	550	692	873	1852	824
Badwani	443	2010	921	567	482	3137	780
East							
Shahdol	968	734	831	485	488	2552	830
Mandla	793	897	942	703	766	2078	833
Dindori	825	655	1010	563	767	1954	1125
MP	**1058**	**1867**	**1342**	**931**	**1130**	**4215**	**1154**

Source: GoMP Marketing Board, 2006

50 With a few notable exceptions (see Sheopur), yields are extremely low throughout; below the national average, and below the state average. These figures reflect the poor soil and water endowments that characterise the area, and a lack of investment and infrastructure in marginal areas.

51 A slightly different approach to looking at productivity in the MPRLP area is by AEZ, and in Table 7 this is shown for all the districts which proposed for Phase 2. This is described below in terms of the level of agricultural productivity, calculated by taking the value of the agricultural production of major crops in the area.

Table 2.6: Agricultural Productivity by AEZ and District (Rs/ha)

AEZ	AEZ Name	Districts	Rs/ha	Rank
4.4	Gird	*Sheopur*	6728	1
5.2	Malwa	*Dhar*, Ratlam, Dewas	6227	2
5.3	Nimar	*Jhabua*, *Barwani*, Khargone, Khandwa, Burhanpur,	4702	4
10.1	Vindhyachal	Harda, Hoshangabad	5867	3
10.2	Satpura	Betul, Chhindwara	3623	6
10.3	Baghelkhand	Umaria, *Shahdol, Anuppur*	3918	5
10.4	Wainganga	Seoni, Balagat, *Mandla*, *Dindori*, Jabalpur, Katni	3565	7

Source: Shankar (2005)

52 It can be seen that there are sharp distinctions in productivity within these AEZs, with less well-endowed areas producing only around half that of more productive districts.

53 In this section we have showed that productivity in India is low, that MP is worse than the national average, and that some of the worst figures of all are to be found in the districts selected by the project. Even these figures can be deceptive, since project villages are selected on the basis of their impoverishment, their lack of education and their relatively small size. All these selection criteria tend to bias selection towards the most marginal and poor villages, which almost by definition are those with the poorest natural endowments. This would suggest that the levels of productivity there are among the lowest to be found within the district, the state and the nation.

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3 Constraints on Increased Productivity

3 Constraints on Increased Productivity

54 In this section we look at some of the main constraints facing agriculture in MP, with particular reference to the MPRLP area, and look at some possible solutions, where these are feasible.

Main Constraints in MPRLP Area

- Lack of investment; in India, and also in MP, the share of public expenditure in agriculture and rural development has been declining steadily over many years.
- Risk; a very high proportion of project villages are dependant on rainfed agriculture, and with high level of agricultural production risks that are associated with the vagaries of the monsoon.
- Soils; most project villages are located on soils with very low productive potential; low cropping intensities prevail as a result of this, with an insecure kharif and marginal rabi crop dependent on residual/conserved moisture. There is a high proportion of cultivable waste and fallow land, where soil type would dictate that forestry would be a better landuse.
- Farm size; the average landholding size is very small, barely sufficient in most cases for subsistence, and wholly inadequate for development of larger-scale agricultural enterprises.
- Technology; there is a lack of appropriate technology for marginal farming systems, particularly in participatory development of a range of improved varieties.
- Extension; the government extension service is no longer effective, and no other strategy or operational model is yet defined to take its place.
- Formal credit; a lack of reliable sources of credit and other financial services mean that households are forced into exploitative local informal arrangements.

Investment in Agriculture

55 Investment is a key function of growth, and private investment will not be encouraged without sustained public investment. That is certainly the case also in agriculture. However, there has been a continued decline in investment in agriculture and rural development over the last decade in India, and this pattern of under-investment is more accentuated in more backward states such as MP.

56 In terms of the national economy, the percentage allocation of resources to agriculture has been declining steadily in the government's Five Year Plans: from 6.1 percent in the Sixth, 5.8 percent in the Seventh, 5.2 percent in the Eighth, 4.0 percent in the Ninth, down to 3.9 percent in the Tenth Five Year Plan. Even expenditure on wider Rural Development, which was 9.5 percent in the Sixth Five Year Plan, was down to 7.5 percent in the Tenth. Public spending on irrigation and flood control has also been steadily declining, from 10 percent in the Sixth Plan down to 6.8 percent in the Tenth (GoI, 2004). Taking public

investment as a percentage of India's GDP, there has been a steady decline from 1.9 percent during 1990-91 to 1.1 percent in 2004-05. Thus the share of public investment has been steadily reduced, and the share of private investment has also been declining (GoI, 2006:170).

57 This pattern of spending is reflected also in MP, where public investment in agriculture and allied sectors as a percentage of total public expenditure has declined from over 8 percent in the early nineties to just above 5 percent at the turn of the century a decade later, shown in Table 3.1.

Table 3.1: Public Investment in Agriculture of Madhya Pradesh

	Percentage Expenditure in MP Agriculture, with respect to:		
Year	Total expenditure	GSDP agriculture	Total GSDP
1993-94	8.23	1.14	0.49
2002-03	5.28	1.15	0.34
2005-06*	5.34	-	-

Source: Directorate of Planning for expenditure and Directorate of Economics and Statistics for GSDP estimates, Government of MP.

* Provisional estimate

58 This declining share of public expenditure explains at least in part why agriculture is lagging behind in development in India at large and MP more specifically. Subsidies on irrigation, power and fertilisers take the lion's share of the spending, and this focus on vote-catching input supply has crowded out investment in areas where agricultural growth might be encouraged, such as in improved rural infrastructure and agricultural research (Farrington et al, 2005). However, compared to developed nations the percentage share of subsidies for agriculture is still much lower.

59 Within the AEZs and farming systems of MP, there are many highly productive areas, with substantial potential for increased production and growth, and where investment in productive resources would without doubt pay off in the short-term terms of increased agricultural productivity, growth and employment. These are arguably those areas where public investment is most justified, and where high returns would be realised. Conversely, those areas where such immediate gains are unlikely are less obvious choices for investment, and these include most of the project area.

60 Where investment in agriculture is to be made, one of the main focal areas should be on small-scale, labour intensive initiatives, where the prospect of generating increased employment opportunities can be realised. This higher level of employment may lead to greater levels of local spending and the real possibility of growth and poverty reduction. Examples of this are investment in rural feeder roads, and participatory agricultural research.

Soil and Water Constraints

61 One of the reports in this series (see Land and Water Resources Report) deals with these constraints in detail. A combination of erratic rainfall and poor soils lead its authors to paint a dismal picture regarding the potential role of agriculture in generating growth and reducing poverty. Extracts from the Executive Summary are quoted below:

"The average farmer in the project area is a subsistent farmer who is a long way from growing sufficient crops to keep the family in food for a full twelve months. On an average they are able to grow sufficient to feed their families for six months. In a dry year, this can drop to sufficient food for two or three months. …… The major conclusion of this paper is that the land endowment and soil quality that is available to the villagers in the project will

severely limit any attempt to increase yields and cropping intensities. The villagers are not going to farm themselves out of poverty. If there is any major change to be brought about to improve the livelihoods in the tribal villagers within the project it will not come about through agriculture."

62 However, they do recommend consolidation of existing resources, and propose some potential solutions: "Notwithstanding the limit to agricultural development outlined in the report above, there is one intervention that can improve the output from the land; this is the provision of low cost irrigation interventions. Where a perennial stream is flowing, this might be as simple as the provision of a diesel pump. Where there is no stream, dug wells plus a pump can substitute. Such interventions can enable an additional crop to be grown and support of such interventions is recommended."

63 That report also recommends that "Interventions within the broad area of soil and water conservation and improvement should be encouraged by the project in order to maintain the existing soil fertility without any expectation of large yield increases resulting from such treatment."

Landholding Size

64 Land holding size in the project area is very low, barely sufficient for subsistence in a good year, inadequate with poor rains. Table 3.2 shows this for the project area.

Table 3.2: Net Sown Area per Cultivator by MPRLP Phase 1 districts

District	Net sown area/fmr
	ha
North	
Sheopur	1.2
West	
Jhabua	0.7
Dhar	1.2
Barwani	0.8
East	
Shahdol	1.3
Mandla	1.1
Dindori	1.0
MP	**1.3**

Source: GoMP Marketing Board, 2006

65 As a source of supplementary food, farming plays a vital role in sustaining livelihoods. However, farms of this size cannot offer increases in production that could provide anything more than a fraction of a livelihood, and given the nature of the soils in the project area, only a small one at that.

Technological Constraints

66 A crucial determinant of productivity is the level of technology available, reflected in irrigation levels and source, quality of seeds, use of nutrients, level of mechanisation, implements and tools, etc.

Table 3.3 shows an overall picture of low levels of technology in MP, indicating very low levels of uptake and adoption. The spread of irrigation has increased very little over the last decade in MP, and the source of irrigation has moved from canals and traditional sources

such as tanks and dugwells, to boreholes, arguably a trend in the wrong direction. District data suggest that in MP overall, 5 districts have less than 10 percent irrigated land, 5 have between 10-20 percent, 23 between 20–40 percent and the remaining 13 districts have between 40–70 percent. Of the eight districts of MPRLP in its first phase, five fall in the lowest category (Dindori, Shahdol, Annupur, Jhabua and Mandla) and two in the next (Barwani and Dhar). Only Sheopur, with 64 percent irrigated land lies in the higher range, but it must be noted that project villages are not selected in this productive area, and this statistic may be misleading.

67 Seed replacement rates, although showing a slight increase over a decade, are still very low. Although there has been some increase in levels of HYVs and fertiliser rates, these are largely in irrigated and non-project areas. Surprisingly, levels of mechanisation appear to be falling, a statistic which is more difficult to explain.

Table 3.3: Level of Technology Change in Agriculture in MP over Time

Sn	Technology	1993-94	2002-2003
1	Percentage Irrigated Area (gross)	23.20	25.50
	Canal	22.89	16.93
	Tanks	2.52	2.14
	Tube-Wells	13.45	24.51
	Wells	47.51	41.91
	Other Sources	13.63	14.51
2	Quality seed replacement rate Kg/Ha	2.59	3.14
3	Percentage Net Sown Area under HYV	30.76	37.21
4	Fertilizer Consumption Kg/Ha	44.20	67.26
5	NSA, by Machinery and Implements		
	Electric Pumps	19.38	12.96
	Diesel Pumps	87.83	67.05
	Tractors	151.63	67.05
	Ploughs - wooden	4.13	4.54
	Ploughs – iron	34.13	27.74
	Sugarcane crushers - power	3.07	6.22
	Sugarcane crushers - bullock	2.59	10.89

Source: Government of Madhya Pradesh Compendium of Agricultural Statistics, 2003-2004, MP State Agriculture Marketing Board, Department of Agriculture, Govt. of M.P.

68 The main reasons for slow uptake of technology seem likely to be rooted in a lack of appropriate technology that relates to predominant farming systems of the state, to an increase in levels of risk involved in adoption, plus a virtual absence of effective extension. It seems unlikely that MPRLP should undertake to rectify this situation in any comprehensive way, but focussing in particular on access to improved seeds, and also possibly on access to to improved seeds, and also possibly on access to appropriate mechanisation, might pay dividends in terms of increased productivity.

Agricultural Research and Extension in Madhya Pradesh

69 The Directorate of Agriculture is the apex body responsible for research and extension services in agriculture. A Director of Agriculture is supported by 5 Additional Directors, 20 Joint Directors, 78 Deputy Directors, 605 Assistant Directors, 1,200 Senior Agriculture Development Officers, 1,800 Agriculture Development Officers and 5,778 Rural Extension Officers. The REOs are responsible for delivering extension services to 52,000 villages, and are supposed to cover on average 9 villages and about 1,800 households, assuming on an average 200 households in each village.

70 In practice there is a different story. In Jhabua for example, only 64 of the 164 sanctioned official posts are currently filled, and the DDA when met by the authors had little

hope of much change. A 30 percent staff cut within the department has recently been put into practice, and in addition to that posts in more remote districts like Jhabua do not attract staff, and are regarded as hardship postings. Morale is low, the working environment is poor and there are no incentives for better performers. The average REO, instead of looking after 9 villages in reality has around 22, or over 4000 households – clearly a wholly impractical target, particularly with travel allowances often unpaid. In practice, the extension service has all but broken down, and is no longer even attempting to meet its obligations. In the project area, to all intents and purposes there is no agricultural extension at all, apart from where MPRLP staff are filling that gap.

71 There are 19 centres for agricultural extension and training in MP, and 10 of these have demonstration and research farms; government has 43 farms altogether in MP. There are also other training centres for soil conservation, REOs, farmers and plant protection; some relocation is taking place. The Department of Agriculture recognises that government sponsored farms are not providing the kind of support that is required nor doing the job that was intended, and a major strategic rethink is currently taking place.

72 Government sponsored research and development is the responsibility of the Krishi Vigyan Kendras (KVK). Currently there are 41 KVKs in the state covering 48 districts, and the intention is to establish one in every district. The majority of these are supported by the Indian Council of Agricultural Research, but a few are privately managed. The KVKs are responsible for adaptive and farming systems research at district level, and in its second phase MPRLP would do well to link up with them to explore possibilities for interaction.

73 In addition, there are a number of academic institutions in the state which have agricultural faculties. One of these, Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV), is based in Jabalpur in the east of the project area. Its mission is “to conduct education, research and extension activities for enhancing productivity, profitability and sustainability of agricultural production systems and quality of rural livelihoods” in MP. Previous DFID-funded projects have worked with JNKVV, particularly in development of participatory variety development technology, and MPRLP might well learn from this work.

74 In addition, there are Colleges of Agriculture in Gwalior, Indore, Jabalpur, Khandwa, Mandsaur, Rewa, and Sehore. The College in Indore in particular may be of interest to MPRLP. It is located in the west of the project area, and is also responsible for research in soyabean (National Research Center for Soyabean, NRCS).

Access to Formal Credit

Despite the establishment by a number of banks of a wide network of rural branches, and the implementation of many schemes and programmes designed to expand credit for agriculture and rural development, a large number of poor households still suffer from a lack of bank credit (Dev, 2002). This is reflected in some district statistics shown in Table 3.4.

Table 3.4: Agricultural credit in MPRLP Phase 1 Districts

District	Ag credit per fmr	Credit:deposit ratio
	Rs	percent
North		
Sheopur	1053.4	64.5
West		
Jhabua	1104.8	34.5
Dhar	1274.1	53.2
Barwani	1293.0	58.2

District	Ag credit per fmr	Credit:deposit ratio
	Rs	percent
East		
Shahdol	160.8	18.7
Mandla	194.8	29.0
Dindori	50.9	27.9
MP	**1261.4**	**46.6**

Source: GoMP Marketing Board, 2006

75 The overall level of credit uptake is very low (the highest in MP is in Hoshangabad District, at just under Rs.5, 000), but northern and western project districts are not too far from the state norm. However, outstanding in these statistics is the extremely low uptake of formal credit in Eastern Districts. This to a large extent reflects a problem of access, and a scarcity of credit outlets in these remoter areas. Low credit-deposit ratios are also low, particularly in the east again. This suggests that money is not being reinvested in this area.

76 The role of credit in providing a means of improving livelihoods is, however, being questioned, and any second phase of the project will need to take this into consideration. A growing number of suicides as a result of indebtedness (see Sunday Times of India, October 8, 2006, p.8) suggest that the poor may be better served by livelihood protecting measures such as asset-related and personal insurance, and less by credit. These measures prevent sudden outflow of capital out of agriculture, and the need for potentially crippling mortgages.

Access to Government Programmes

77 The Department of Agriculture in MP has launched many programmes and schemes to address farmers' issues and increase agricultural production. Initiatives, which are currently operative, are given below:

- National Watershed Development Programme for Rural Areas (NWDPRA).
- Agriculture Development Schemes.
- Khet Talab Yojana (Field Pond Schemse)
- Integrated Soyabean Pulses and Maize Scheme (ISOPAM).
- Saghan Kapas Vikas Programme (SKVM).
- Integrated Grain Development Programme.
- General Sugarcane Development Scheme.
- Macro Management Continuous Sugarcane Development Scheme.
- Integrated Nutrient Management and Balance and Integrated Use of Fertiliser.
- Surajdhara Yojana.
- Annpurna Yojana.
- National Biogas Project.
- Tube Well Drilling (Minor Irrigation).
- National Crop Insurance Scheme.
- River Valley and Flood Prone River Scheme.
- National Waterlogged Area Development Project.
- Centrally Sponsored Agriculture Extension and Reforms Programme.
- National Agriculture Extension Project Programme.
- Soil Test Programme, and
- Right to Information.

78 NWDPRA is sponsored by GOI, and is the MOA's flagship watershed programme in India, corresponding in focus to the Department of Rural Development's DPAP, IWDP and DDP watershed programmes. It was started in MP during the Eighth Five- Year Plan in 1990-91, in 385 blocks with less than 30 percent assured irrigated area, and is continued during Ninth Five-Year Plan with 280 new watersheds selected. In MP, the Rajiv Ghandi Watershed Mission is responsible for all watershed programmes (see B011, Report on Land and Water Resources, for full details on watershed work in MP). Interaction with watershed programmes is something that has taken place to a limited extent so far with MPRLP in its first phase.

79 Despite this huge array of programmes, however, it would appear that the majority are not reaching poor farmers in the tribal villages of the MPRLP Phase 1 area, and not a single person met during the short survey undertaken as part of this study were aware of any of these programmes. Increasing awareness, and seeking areas for convergence, needs to be an integral component in any second phase.

Physical Infrastructure

80 In comparison with other Indian states, Madhya Pradesh is comparatively well served with main arterial transport and communications facilities. The main railroads that pass through the state were originally laid down to connect the ports of Madras, Bombay, and Calcutta with their hinterlands. Important railway junctions include Bhopal, Ratlam, Khandwa, Bilaspur, and Katni. Also connecting the state with other parts of India are airports at Bhopal, Gwalior, Indore, Raipur, Jabalpur, Rewa, Bilaspur, and Khajuraho, as well as several national highways.

81 However, there is a different story with regard to rural roads. Rural feeder roads are defined by government as those which connect villages, serving rural areas where agriculture is the predominant occupation, and providing them with outlets to urban market centres. These roads play a significant role in opening up so called backward areas and accelerating socio-economic development. The systematic development of these has received attention variously in successive five year plans, and the Eighth Plan envisaged linking of all villages with a population of 1000 and above with all-weather roads. However, in reality very little has happened, and rural connectivity remains a major constraint to development. Table 3.5 indicates that the project districts are not badly served, in comparison to MP as a whole, with the exception of Sheopur in the North. However, in absolute terms and in comparison with other states, these figures are very low.

Table 3.5: Rural roads in MPRLP Phase 1 Districts

District	Road length / 100km^2	Per capita Rural Consumption of Electricity in KWH
North		
Sheopur	10.8	63
West		
Jhabua	33.9	88
Dhar	25.5	265
Barwani	23.4	86
East		
Shahdol	23.5	62
Mandla	31.6	53
Dindori	16.9	35
MP	**22.1**	**138**

Source: GoMP, 2006

82 Electrification levels reflected in terms of registered per capita rural consumption of electricity in kilowatt hours are low throughout the project area with the exception of Dhar. This figure however reflects the high degree of electrification in the well-irrigated and very productive Malwa area, not of the project villages.

83 A centrally sponsored scheme, “Roads in Special Problem Areas” was started in 1985-6, and its intent then was to limit its activities to areas where dacoit activity was highest, in the States of UP, MP and Rajasthan. Government of India and State Governments were supposed to share the cost of the works 50:50. In February 1992, the progress of the works sanctioned under the scheme was reviewed, and it was recognised that progress was very slow, with state governments seemingly uninterested. Part of the reason given for this was that the dacoit problem had abated significantly, and the main objective of the scheme (opening up backward areas) seems to have been forgotten. The scheme has been all but abandoned by now.

84 MPRLP has included a number of criteria in selecting its villages, which identify some of the most backward and remote areas for project implementation. These villages are some of the worst affected by lack of roads and other connectivity – the worst in MP and arguably some of the worst in India. During the short survey conducted as part of this study, a number of villages were visited which were inaccessible even after a small rain. Another had been completely cut off for more than 6 months owing to a collapsed bridge, with the livelihoods of many in that village threatened as a result. The development of a fully-functional, all-weather network of roads in rural areas is a very necessary – if not sufficient – goal that would ensure that poor people are able to move around and in so doing pursue their multiple livelihood strategies, with the minimum of difficulty. This should be one of the main targets of future community spending, such as through the NREGS.

Access to Markets

Although both formal and informal markets are gradually becoming monetised, in some of the project districts - particularly in the east - barter systems still prevail. Informal land and labour markets are interlocked with money lending and other transactions involved in agriculture and other sources of livelihood. Farrington et al (2005) suggest that labour markets are far more interlocked and segmented than economic theory can fully explain.

85 In MPRLP villages, poor farmers exchange labour among themselves in the peak season, to enable them to meet immediate demands and complete agricultural operations in a timely way. The labour market is casual, and often attached. There is a highly depressed wage rate, between 3 to 5 kg of grains, or Rs. 20-35 a day, with the lower range usually associated with female wage labourers. Payment for ploughing is slightly higher at Rs. 40/day, but is still well below the statutory minimum wage.

86 Sources of non agricultural wage employment in most villages are very limited, with the exception of a few days of road construction in some instances. Self employment, such as shops supplying local needs, cycle repairing, and hiring out of various equipment, are on the increase as supplementary sources of livelihood. Landless agricultural labourers depend often on collecting and selling firewood (at around Rs. 30/bundle). *Gwala* is employment looking after village cows, and pays around 5 to 7 litres of milk per cow a year, but opportunities are very few.

87 Although NREG work pays Rs.60 a day when work is assigned individually, group contracts were found to be in operation where the share of wages gets reduced. Those being employed had job cards, but were unable to find jobs for more than a week or so, and were not getting unemployment allowances. Mobility and migration of labour to adjacent districts and sometimes to other states to supplement income is common.

88 Money lending attracts a rate of interest varying from 60 to 120 percent, and repayment with principal on a crop to crop basis is often at 150 percent. Poor households with low land productivity and depressed wage rates are constantly in debt, borrowing for production and consumption items. PDS is available in some villages, but not all, and distribution mechanisms are inequitable. Ways of minimising risk and vulnerability such as through crop and cattle insurance have yet to reach poor households. Access to and awareness of development schemes in general is almost absent in rural areas.

89 To summarise, input, output, and labour markets, also public services, are yet to become effective in provision of fundamental opportunities for employment, earnings and services for poor people, and to enable them to get rid of poverty. On the contrary, market conditions have been - and still are - exploitative and anti–poor.

Livestock Production Constraints

90 The main constraints are low productivity, poor access to services, shortage of good quality feeds and fodder, lack of extension and research support and virtual absence of an organised market. In addition, there is an absence of any coherent livestock development policy for ‘pro-poor livestock development’. The state does not have a comprehensive livestock development policy and the existing breeding policy leaves much to be desired in terms of its relevance to the resource poor. Few states have made efforts to develop a livestock policy and even these have not adopted pro-poor approach.

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4 Managing Risk and Vulnerability

4 Managing Risk and Vulnerability

What are the Main Risks?

91 Risk is an intrinsic fact in the life of the poor. Domestic shocks and stresses impact seriously on people's productive capacity, as assets are sold (or investments not made) and money siphoned off to meet shocks such as ill health or more predicable stresses, such as marriage. Major sources of production risk are weather (in the MPRLP area drought and floods are the most likely risk source), pests and diseases, and the market. Poor rural households such as many of those in the project area are particularly vulnerable to risk. Their risk management strategies often trap them in low risk/low return activities which act as disincentives to entrepreneurship, specialisation, investment and market engagement. It restricts them from participating in agricultural growth processes and prevents them from building up the assets that can reduce their vulnerability. These problems are compounded by restricted access to services, public investments and markets. In many cases, local patrons control participation of poor people in labour, product, finance and input markets. These 'interlocked' markets limit the economic choices of poor people.

Which are the Most Vulnerable Groups?

92 Arguably, the criteria applied in village selection suggest that the large majority of people in the project area are vulnerable, and that their livelihoods are prey to many kinds of risks. There is without doubt a very thin line between survival and destitution, and the slightest trigger has the capacity to drive the poorest in one direction or the other. An example often quoted is the use of HYVs and the technology that goes with them as being frequently inappropriate in these kinds of high-vulnerability situations, where farmers can ill afford to take on the additional risk burden associated with this technology.

93 Farrington et al (2005) identify the most vulnerable groups in rainfed areas, such as those that characterise the western part of the MPRLP area, as:

- Illiterate, unskilled and lower caste labourers, with insufficient capital to out migrate.
- Small and marginal farmers with large debts whose crops have failed.
- Small and marginal farmers who have borrowed for drilling tubewells but failed to find water.

94 In villages where forest cover is greater, such as in the Eastern and Northern districts of the project area, they identify two other highly vulnerable groups:

- Tribals dependent on NTFPs in degraded forest and where trade is regulated.
- Low caste landless tribals who depend on grazing their animals in forests.

How to Manage Risk

95 The role of MPRLP should be to try and help poor people to cope with both domestic and production risks. This will need to involve appropriate measures for social protection (see Social Protection Report in this series), that will also support asset retention and creation in

productive sectors such as agriculture. Examples of this are subsidised food transfers and cash transfers. Appropriate risk management involving innovative but practical measures will require an initial appraisal of risks through diagnosis, followed by implementation of relevant risk mitigation policies and instruments. A growing number of organisations are placing increased emphasis on risk management, and have emerging policies on these. The best strategies are likely to be those that jointly address domestic and production-related shocks and stresses.

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5 Lessons Learned

5 Lessons Learned

Lessons Learned from Phase 1

Agricultural Strategy

96 The project's interventions in its first phase have to a large extent mirrored those of government. This has certainly been the case with agriculture, and the project has quite openly taken on the role of filling the substantial gap that an ailing and dwindling government extension service has left behind it. The DDA in Jhabua, for example, acknowledged with gratitude that MPRLP was doing the work that his staff were unable to accomplish, owing to an official 30 percent cut in staff numbers. The DOA has its own share of problems, which it has to solve. Part of the work of Phase 2 may be to help it to find innovative ways to provide services to the rural poor. However, it is unlikely that doing the traditional work of the department, and providing continued support through methods that are being questioned at the highest level in the state, is going to be anything more than an unsustainable and very substantial drain on the project's resources.

Soil and Water Conservation Works

97 The original project logframe required that the project dovetail its activities closely with previously conducted soil and conservation (and JFM) works. In practice this turned out to be very hard to implement, owing to inadequate coverage of this kind of work within MORD DPAP blocks. However, the principle was good, in as much as it is better if this kind of work can be completed before other meaningful agricultural activity can take place. As a result of that necessary pre-requisite, and of the clear demand for such kind of work from Gram Sabhas, Project funds have been extensively used for this purpose (see Table 1.1). However, it is unlikely that spending nearly 50 percent of total project funds for soil and water conservation is going to offer much in terms of development of the multiple livelihoods strategies that the design called for in seeking to reduce poverty. The Project in its second phase must look to other sources of finance for soil and water conservation (such as NREGS), to allow project funds to be used for other livelihood-focussed priorities.

Strategic Focus in Agriculture

98 The project has adopted an agricultural policy that is based on the annual agricultural cycle, and which aims to cover key areas and themes which derive from that, including land and land preparation, inputs, irrigation, production, harvesting, storage, value addition, marketing and investment on land and other agriculture production. It is thus developing a wide-ranging strategy covering a number of agricultural topics. There is a possible concern that with this broad focus the project will spread itself too thinly, that the effect of limited funds will be diluted, and that impact will be hard to achieve. Some 10 percent of project spend has been devoted to agriculture to date, which may be a reasonable level, although this study has not looked carefully on the nature of agriculture-related interventions within Phase 1. However, it seems likely that a policy that focuses on a more limited number of strategic options would pay dividends. Examples of this might be in improved participatory variety development, and addressing markets and the supply chain.

Target Villages and Agriculture

99 In the first phase of MPRLP the policy has been to use criteria for village selection that include: a high percentage of SC/ST, high levels of poverty, low levels of female literacy, and small size of village. This policy, to all intents and purposes, screens for the poorest and most marginalised of villages in the project area. It is no coincidence that these criteria also preselect villages which are the least endowed in terms of soil and water. By definition these are some of the areas with the worst soils, least reliable rainfall and water supply, and with the least potential for any sustained agricultural development and potential for increased productivity and growth. This may be fine, but is an issue that must be carefully analysed in design of a second phase. If these criteria are to be maintained, and the project is to continue to work in the lowest common denominator areas, any investment in agriculture needs to be carefully justified. Resources that may be spent in agriculture need to be spent in areas and villages where there is a realistic chance that growth and increased productivity can provide a springboard out of poverty, or on assets such as small livestock which can provide increased production combined with a buffer against risk.

Agro-Ecological Diversity

100 This report, and others in the pre-design series, have highlighted the high level of variability across the current project area – i.e. in the three clusters in the north, west and east – in terms of the people, their livelihood sources and customs, and the natural and other assets to which they have varied degrees of access. This heterogeneity needs to be addressed seriously through more detailed examination before any meaningful policy can be developed to address the specific needs of these areas.

101 The project area is characterised by a high degree of diversity in terms of the rainfall level and distribution, the climate, its soils, altitude and slope; also cultural and social characteristics of the diverse peoples who inhabit it. This diversity is captured at least in part by its agricultural and ecological characteristics, and NBSS&LUP have described zones which cover the whole of India, and which divide MP up into seven zones, described in Land and Water Resources (Report B011 of this series). Districts selected for Phase 1 of the project covered five of these AEZs, and all seven are covered in the 22 districts proposed for the second phase.

102 Within these AEZs, farming systems are highly variable. In the West, soils are variable but often poor in upland project villages. There is a shortage of water, particularly for a *rabi* crop. A high degree of deforestation has taken place. Farming systems are more highly developed, but still rarely provide more than subsistence. Intercropping is a dominant feature, frequently using crops and varieties, which maximise use of resources over time and space, and in so doing making more efficient use of land. Main *kharif* crops are soyabean, maize and cotton, and with wheat and pulses in *rabi*. In the East, forest and water resources are more plentiful, but soils are very thin and poor, especially in upland villages. Farming systems are extensive - low risk and low input. Sole cropped of paddy, using a range of varieties, is the most prevalent farming system, although traditional minor millets (kodo-kutki) are still widely grown. A *rabi* crop of gram is often grown.

PFT Capacity

103 During the field visits for this study, a number of PFTs were met and interviewed. On more than one occasion, the PFT Coordinator was a seconded member from the Department of Agriculture. This was found to flavour strongly the kind of work that was being conducted through the Gram Sabha, to the extent that in one instance the entire PFT was almost exclusively engaged in agriculture extension activities. It seems unlikely that the kind of skills that traditional extension staff bring to the table are going to be the most appropriate for

assisting the team to deliver a wide range of support and encouragement in development of multiple livelihood strategies.

Some Lessons from Similar Projects

Jharkand-Chhattisgarh Tribal Development Project (JCTDP)

- The project works through the Gram Sabha as MPRLP; in their mid-term review this is seen as being a successful model.
- Focus on sustainable agriculture, including organic; recognised that any agricultural strategy needs to be specific to tribals, their culture and farming systems, and based on a strong understanding of these.
- Recognise need to undertake soil and water conservation works prior to any other agricultural intervention; use a 'land and water management fund' to accomplish up-front soil and water conservation work, and try to run this alongside community development.
- Land and water activities raise employment, lower migration.

MP District Poverty Initiatives Project (DPIP)

- Special attention has been given to formation of SHGs, to their nature and composition; SHGs are being formed into federations/registered companies where a common identity is sought. Strong focus on marketing, making markets work for the poor, looking at value chains.
- Recognition that the contribution of agriculture is limited, and that the focus needs to be on secondary (manufacturing) and tertiary (services, incl private sector outsourcing) sectors.
- Agriculture sector support contracted out to an NGO (ASA).
- Focus on seed replacement rates, development of new varieties through Participatory Variety Selection (PVS), seed chains.
- Looking at agricultural mechanisation, sharing/contracting mechanisms for raising levels of technology.
- Migration seen as a positive element contributing to people's livelihoods, and is supported.
- Focus on certification of skills, training, adding value to household's earning capacity.
- Land-based investments (soil and water conservation measures) an important initial investment; also up-front incentive with support for infrastructure.
- Focus on rural people's rights to information.

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6 Recommendations for Phase 2

6 Recommendations for Phase 2

104 A number of recommendations for Phase 2 are incorporated here, and these have been broadly prioritised.

Develop a Macro-Level Tribal Livelihoods Policy that Includes Agriculture

105 It is recommended that a Tribal Livelihoods Policy, with an agricultural component, is developed as soon as possible which is specific to the project area and the people who live in it. The agricultural component will need to dovetail closely with livelihood strategies being developed in other sectors, learn from lessons of other similar projects, and to be carefully integrated into the larger picture. It will need to prioritise and engage in areas only where improvements are assured, and where prospects for growth are real. Where there is little opportunity for growth, it will be appropriate to weight agriculture accordingly, balance it against other more promising livelihood options, and be content with minimal agricultural intervention if appropriate. Any proposed improvements need to be tightly focussed on providing short and medium-term increases in production through appropriate technologies, but bearing in mind the need for longer-term sustainability, and mindful of wider environmental concerns.

106 It should incorporate the following characteristics:

- address livelihood protection as much as livelihood promotion;
- a focus on growth that assures poverty reduction;
- a specific orientation to tribal needs;
- be based on integral planning processes around a framework that is area- and people-specific;
- be wholly participatory and people-centred;
- a strong focus on development of capacity; and
- An environment that fosters and encourages diversity of choice.

Develop Micro-Level Multiple Livelihood Strategies

107 It is highly recommended that multiple livelihood strategies are developed which offer guidance over the range of options and choices available to poor households partially or wholly dependent on agriculture, and which focus on promoting and protecting livelihoods. The Project Memorandum for Phase 1 states that " [the project] will support GoMP to respond to poor people's livelihood choices in 600 villages …. through multiple livelihood strategies based on natural resources, enterprise development and non-farm livelihoods support including migrant labour support and access to information". These strategies have yet to be developed, and there is an undiminished need for these – rather that need has become an urgent one. These may be loosely structured to maximise choice, but nonetheless provide a

framework for planning. To develop these, it will be necessary to conduct some kind of livelihood mapping within these regions, which will describe livelihood characteristics in the area. It seems likely that, for the agriculture-based components at least, operating within an AEZ framework is likely to simplify that process. It may be that the MIS database offers a tool and an opportunity to develop 'overlays' of livelihood information in the various sectors that will facilitate the analysis and interpretation of the data, and permit strategy development.

Develop a Strategy for Risk Management

108 It is recommended that the project develops and adopts a clear strategy with regard to risk management. Poor rural households are highly vulnerable, having to cope with both domestic and production risks. Domestic shocks and stresses impact seriously on people's productive capacity, as assets are sold and money is siphoned off to meet shocks such as ill health or more predicable stresses, such as marriage. Drought, floods, pests, diseases, and the market provide the main sources of production risk. Poor people's risk management strategies often trap them in low risk/low return activities which restricts them from participating in agricultural growth processes and prevents them from building up assets that can reduce their vulnerability. The role of MPRLP should be to try and help poor households to cope with both domestic and production risks. The policy will need to involve appropriate measures for social protection that will also support asset retention and creation in the productive sectors, including agriculture.

Improving Markets for the Poor; Federating Farmer Organisations

109 It is recommended that ways of making value chains more effective and encouraging direct producer-buyer relationships through farming federation mechanisms is examined and a strategy developed prior to Phase 2. Other models which are showing promise, such as the one evolving in DPIP, should be analysed carefully and experiences shared where possible, and a model which is adapted for MPRLP developed. FFSs will effectively form the basic framework of interest groups (SHGs). These might be federated into clusters of 20-30 farmer groups at the next level, and again at block level as a third tier, with registration of the two higher levels into direct producer's companies.

Pro-Poor Livestock Policy

110 It is recommended that the project should develop a pro-poor livestock development strategy. Prevailing livestock production systems can be characterised as risk averse, maximising use of locally available resources (including family time), and fulfilling farm and family needs. These are highly internalised systems with family labour as the major input and with external inputs kept to a minimum. Ever-growing demand for livestock products offers opportunities for increasing income from livestock production, as one of a number of other livelihood sources. Livestock is more equitably distributed than is the case with crops, offering increased opportunities for poverty reduction, and offering the poor sustainable ways of buffering their livelihoods against agriculture-related or domestic shocks and stresses, thus providing a measure of social protection. Livestock development also directly benefits women, the prime movers in tribal households with regard to all types of stock.

111 MPRLP should take proactive role in developing comprehensive livestock development policy – specific to tribal systems - that takes into account all the constraints and assesses the scope for promoting positive livelihood outcomes, based on its observations and experience to date. This policy should cover all aspects of production, including most appropriate type of animal for different systems, post production activities including marketing, developing fodder resources, improved utilisation of waste products.

Adopt an Agro-Ecological Zone Framework

112 It is recommended that in its second phase the project uses an AEZ approach[1/] to describe the diversity which characterises the project area. This report, and others in the pre-design series, have highlighted the high level of variability across the current project area – i.e. in the three clusters in the North, West and East – in terms of the people, their livelihood sources and customs, and the natural and other assets to which they have varied degrees of access. This homogeneity needs to be addressed seriously through more detailed examination before any meaningful policy can be developed to address the specific needs of these areas. These zones will need to be surveyed individually with a view to describing the tribal people, their farming systems and the other livelihood options that exist within them, including the markets that serve them.

Prioritise Agricultural Interventions

113 It is recommended that the main focus of the agricultural strategy should be on area-specific interventions that will exploit the opportunities available within specific AEZs and livelihood systems. However, there are likely also to be some interventions that cross the board, and are relevant to all of the project area. Some of these have already been identified by the project in its first phase, and much good work has been done. Seed technology is at the top of this list, and the need to address problems of seed quality and low replacement rates is clearly a priority area. Seed storage may be another. A third is to take a close look at marketing and value chains, and finding ways of making markets work better for the poor. It is further recommended that the project focus on a small number of specific issues relating to agriculture, rather than blanket policies. There is a need to develop clear policies and interventions to address these, and to aim to do them thoroughly and effectively. Development of any technologies will need to include a high degree of farmer participation. They should prioritise the kind of practices that will maximise employment for local labour, and maximise the choices available to farmers.

Soil and Water Conservation Works

114 It is recommended that soil and water conservation work normally takes place prior to any agricultural intervention, but that MPRLP funds are not used for this purpose. Commencing work in the agriculture sector usually after soil and conservation measures have taken place has a strong logic; improved moisture conservation should lead to improved cropping practices, increased production, reduced risk, better food security, and a reduced need for migration. However, watershed works are labour intensive, time-consuming and expensive. Utilising MPRLP funds on this kind of activity is likely to prove a major drain on its resources, siphoning off funds, which were intended to be used for development and implementation of multiple livelihood strategies. It is suggested that the design team needs to take a close look at the potential for NREGS to fill this funding gap.

Agricultural Research

115 It is recommended that MPRLP, as part of its agricultural strategy, develops a policy on agricultural research. The focus should be on adaptive research, and crop and variety improvement should be top of the list of priorities. Maximum use of previous learning from geographically and thematically similar projects should be used to reduce the time required for variety development. The use of HYVs should not be ruled out, but should be restricted to

1/ The National Bureau of Soil Survey and Land Use Planning (NBSS&LUP) in Nagpur has produced an AEZ map, and described these zones. These have been further adapted by Shankar (2005) to correspond to administrative boundaries for practical planning purposes (the correlation is close). A combination of these models is suggested here.

areas where soils are sufficiently viable to guarantee increased productivity, and where people are adequately buffered against the inherently increased risks that these entail. HYV should, in the appropriate circumstances, be part of a basket of choices available to farmers. Improvements in agronomic practices should not be a priority, as these tend to be picked up quickly by farmers themselves after variety-led interventions have already produced change in cropping patterns.

116 The adaptive research programme should be developed around low input, risk-averse rainfed variety development, using crops and varieties that meet the requirements of existing intercropping and other systems, and definitely involving participatory variety selection processes such as Participatory Technology Development (PTD) and/or Participatory Variety Selection (PVS). Much may be learnt here from previous DFID projects such as WIRFP, where these techniques were pioneered. MPDPIP is also using these methodologies. Many of the institutions and resource persons who have been closely involved in these processes are still accessible, and MPRLP should take every opportunity to avail itself of this.

Farmer Field Schools

117 It is recommended that in areas where there is potential for agricultural improvement and growth, farmer field schools continue to be introduced, building on the good work already started in Phase 1. The nature of these FFS should be open-ended and wholly participatory, recognising that the model of government-led FFS of an inherently top-down nature is unlikely to deliver any impact. There are a number of examples of FFS in operation in other projects also working in tribal areas (see lessons learned, JCTDP among others), and early initiatives to exchange learning through exposure visits should become a high priority. The role and costs of FFS will need examination, as there are conflicting views regarding the levels of resources needed to run effective schools. The Department of Agriculture is keen to develop a new network of open-ended FFS, and it may be that some level of convergence might be achieved here, and cost-sharing may be an option to explore.

Project Duration

118 It is recommended that the design team look very carefully at the planned duration of Phase 2, with a view to extension. Current plans are for an additional four years for Phase 2. Within this time, the project is expected to develop, enhance and fine-tune the model that it is evolving, develop multiple livelihood strategies to assist it to deliver its goals, to implement those strategies – which will involve substantive institutional and cultural change processes. In addition, it will need to develop exit strategies, and finally to withdraw. In the view of the consultants, this is wholly unrealistic, and the design team is asked to examine closely the prospects of any impact within this time horizon. It is suggested that a close look is taken at WORLP and OTELP in Orissa, similar projects which both adopted a more realistic and longer term approach, with a 10 year outlook.

Targeting and Agriculture

119 It is recommended that current village selection criteria are re-examined. Current criteria are creating a bias wherein project villages have little or no potential for agricultural development, which may or may not be justified, but has implications for agricultural policy. If this policy is to continue, the need to further reduce the importance of agriculture in Phase 2 is implied.

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A1 Persons Met

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A1 Persons Met

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Mr Pravesh Sharma	Secretary for Agriculture and Cooperation, Govt of MP.
Dr MM Pandey	Director, Central Institute of Agricultural Engineering, Bhopal
Dr Subba Rao	Director, Indian Institute of Soil Science, Bhopal
Dr Sumpa Shastri	Agricultural Adviser to GOMP
Dr AK Srivastava	Dy Agric Marketing Adviser
Ms Usha Goyel	State Director, WFP
Mr Amit Anand	State Co-ordinator, WFP
Dr Ram Prasad	Ex-CCF, MP
Ms Cynthia de Windt	State Representative, UNICEF
Mr SH Safdari	ACEO, ZP, Jhabua
Mr PK Kuril	DDA, Jhabua
Field trip	Members of GS and other villagers in Shampura village, Dhar
	Members of GS and other villagers in Kotra village, Jhabua
	Members of GS and other villagers in Dhulet village, Jhabua
	Members of GS and other villagers in Barbahi village, Mandlar
	Members of GS and other villagers in Jolup village, Mandla
	Members of GS and other villagers in Karivar village, Mandla
Ms Rachel Lambert	DFID Livelihoods Adviser, MP
Mr Taposh Roy	DFID State Representative, MP.
Mr Dominic d'Angelo	Senior Deputy Programme Manager, DFID India
Dr Onkar Mittal	Consultant
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Mr. Jitendra Agrawal	Project co-ordinator
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Dr Amitabh Bhatnagar	Coordinator, state livelihoods forum.
Members of MPRLP District and PFT staff	In Dhar, Jhabua, and Mandla districts

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A2 References

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