

Halcrow TA Team

ADB TA 3715-IND

MP Integrated Water Resource Management Strategy

Appendix 1:

Community Appraisals in Western Region of MP

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GLOSSARY

ACZ	Agro Climatic Zone
ADEO	Agricultural Development Extension Officer
APO	Assistant Project Officer
ASA	Action for Social Advancement
CBNRM	Community Based Natural Resources Management
CBO	Community Based Organisation
CEO	Chief Executive Officer
DPAP	Drought Prone Areas Programme
DRDA	District Rural Development Agency
DPC	District Planning Committee
EAS	Employment Assurance Scheme, now part of Rajiv Gandhi Watershed Mission
FGD	Focus Group Discussion
GP	Gram Panchayat (village-level electorate)
GS	Gram Sabha (village-level government)
HYV	High Yielding Variety
IRDP	Integrated Rural Development Programme
IWRM	Integrated Water Resources Management
JFM	Joint Forest Management
JP	Janpad Panchayat (block-level government)
LI	Lift Irrigation
MLA	Member of Legislative Assembly
MP	Madhya Pradesh
MP	Member of Parliament
NOC	No Objection Certificate
NGO	Non-governmental Organisation
NR	Natural Resources
NRM	Natural Resources Management
O&M	Operation and Maintenance
PHED	Public Health Engineering Department
PIA	Project Implementing Agency/Authority
PIM	Participatory Irrigation Management
PRA	Participatory Rural Appraisal
PRI	Panchayati Raj Institution(s)
RAEO	Rural Agricultural Extension Officer
RD	Rural Development
RGWM	Rajiv Gandhi Watershed Management Mission
RRA	Rapid Rural Appraisal
SDO	Sub Divisional Officer
SHG	Self Help Group
SJSY	Swarna Jayanthi Swarojgar Yojana (SHG scheme run by government)
ToR	Terms of Reference
UG	Users Group
VFC	Village Forest Committee
WDC	Watershed Development Committee
WRD	Water Resources Department
WUA	Water Users Association
WUG	Water Users Group
ZP	Zila Panchayat (district -level government)

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SUMMARY OF MAIN FINDINGS IN WESTERN REGION

- People's understanding of IWRM principles varies across the rural areas of the Western Region, as the socio-economic and natural resource conditions vary. However, due to its comparably low rainfall and traditional reliance on rain-fed agricultural systems, the value placed on water use across the Region is generally high. Water is clearly the backbone to rural livelihoods in the Region.
- However who supplies the water, particularly irrigation (viz. the government or privately), does appear to have affected how people value it. Making water "costly" in the eyes of users is a critical, political issue that needs to be tackled.
- Within the marginal areas, where awareness of issues is generally lower, it was pleasing to see that both men and women have a good basic understanding of the importance and need to integrate the management of water with the management of other natural resources. This appears more so where watershed development works have happened: the holistic treatment of the watershed clearly shows to marginal people the need to integrate NRM in order to assure them some sort of water supply.
- It was also encouraging to see that there is clearly some indigenous demand management strategies followed – precipitated by a reliance on erratic monsoonal rainfall to supply their basic livelihoods. In villages with watershed development works, where previously a lack of awareness and capacity stopped them developing their water management, now the main reason is a lack of funds.
- The issues involved in water management do vary between the marginal areas and higher potential pockets. Villages within the marginal areas dominated by low value agriculture are facing more basic issues of how to harvest rainfall to provide sufficient water to grow mainly subsistence crops. Within higher potential pockets, farmers are dealing with issues of how to manage over abstraction of groundwater. .
- The failure of monsoonal rainfall and often consecutive years of drought is the major NRM issue in the Region, particularly in the marginal areas defined as such due to their drought-proneness. The knock-on effects of drought on the natural resource conditions, and the impact it has on people's livelihoods remains severe. People's vulnerability to drought remains severe, as many livelihoods still revolve around subsistence agriculture.
- In the higher potential agricultural areas of the Region, overexploitation of groundwater due to indiscriminate bore well digging and inefficient surface and groundwater management is cited as a problem. People are turning again to depend on rain-fed (monsoonal) agricultural systems.
- Participation and dialogue between local communities and promoting agencies in NRM programmes has remained dismally low until recently. This is due to a combination of factors including:
 - ✍ a lack of adequate facilitation of community participation and dialogue on the part of the promoting agency, due to such issues of lack of capacity, skills, desire, sensitivity, time, needs realisation, coordination between line departments at the village level;
 - ✍ constraints on the part of the community, such as low literacy, low self opinion, high levels of migration, unhappiness due to previous experience with NRM programmes, social and cultural norms (particularly in the case of women), habituation to government subsidy and hand outs.
- Participation of women and the landless with NRM programmes remains a major cause for concern.
- However participation and dialogue is now being encouraged through newer government NRM initiatives, most notably the Rajiv Gandhi Watershed Management Mission, which calls for community participation from the stage of project planning. There are a number of reasons for this programme's relative success.
- Besides adequate participation and dialogue with the community, other gaps in service delivery of NRM programmes remain. These include a lack of integration of development activities at the village and district level, a lack of extension and follow-up activities, lack of adaptability of programmes to local conditions,

ultimately a lack of planning and action to ensure sustainability of service delivery. The need for the following should be utmost priority:

- ✍ Village-level and district level long-term planning, to identify NRM issues, first order and subsequent order development activities
 - ✍ Similarly, coordination of government development efforts at the district level.
 - ✍ Capacity building of government staff and other promoting agencies actually involved in implementing NRM programmes, so that they have the skills and ability to facilitate people's participation.
 - ✍ Awareness raising and sensitisation of communities, through the development of a proper Information and Community strategy
- The concept of decentralization of power and service delivery to people through the Panchayat System appears to be generally welcomed. However there are large variations in the ability of Panchayats to deliver services to the people – this ability appears to relate to the effectiveness of individual characters in the System, viz the Sarpanch or UpSarpanch. There is a tremendous need for clarification of and training on the roles, responsibilities, and functions of the Panchayat System
 - There is a multiplicity of village level institutions induced by different projects and programmes which are increasingly being demanded do to the role of service delivery as is the case with the Panchayat. This has led to a contested domain and there is a strong need for clarification of roles between the CBOs and governing institutions like Panchayat.

Map showing Districts of MP(hard copy only)

River Basin Map of MP (in hard copy only)

1. INTRODUCTION

1.1 A socio-economic (viz. livelihood) profile of the study areas and Western region with a comparison to the state and trends

1.1.1 Introduction

For the purposes of these appraisals, the Western Region of MP includes the ten districts of: Jhabua, Dhar, Ratlam, Barwani, West Nimar (or Khargone), Dewas, Ujjain, Indore, Mandsaur and Neemuch. *Please refer to Section 3 (Selection of the Areas) for the rationale behind the selection of these districts.* A socio-economic profile of the Region was therefore built from data available for those districts. This is intended to be a snapshot, rather than an in-depth comprehensive socio-economic report. The data used is included in a series of tables, which forms Annex A of the report.

Notes regarding the data used:

- a) The main sources of information used are listed in the Bibliography. The majority of data was taken from MP government sources.
- b) Unfortunately most of the 2001 Census results had yet to be published at the time of writing this report. However certain provisional 2001 population data was available and this was used.
- c) At the time of the 1991 Census, there were 45 districts in MP. In May-July 1998, 16 new districts were formed (including Neemuch and Barwani in the Western Region). Chhattisgarh was then created in 2000, comprising of 16 districts formerly of MP. Hence the number of districts in MP fell again to 45. Comparisons have been made in this profile between 1991 and 2001 census in terms of Madhya Pradesh state totals. In most cases, like is being compared to like (ie. the same 45 districts in 1991 and 2001, since the 2001 provisional Census had already recalculated 1991 totals); where like is not compared, this is noted in the Tables forming Annex A.

Summary Statistics of the Western Region

- o A quarter of MP's population live in the Western Region. Of this:
 - ≈ 73% of the total Regional population is classified as rural
 - ≈ Indore is the only district with majority urban population (72%)
 - ≈ 8 out of the 10 districts have a rural population of 70% and above
 - ≈ Jhabua has highest rural population (91%)
 - ≈ One-fifth of MP's Scheduled Tribe (ST) and one-sixth of MP's Scheduled Caste (SC) population is found in the Region
 - ≈ The bulk of the ST population is concentrated in rural-populated districts of Jhabua, Dhar and Barwani
- o The male/female population is fairly evenly split
- o One-third of rural families are classified as being Below the Poverty Line (BPL) – in Jhabua over 50% of rural families are
- o Landlessness is a big issues in rural families BPL, however less so amongst the tribal population
- o Literacy rates in the Region are similar to those for the whole of MP at 61% and is seen to vary (be higher/lower) depending on whether urban/rural.
- o Literacy rates amongst the female ST and SC populations remain very low
- o Employment rates in the Region do not vary much from those for the whole of MP
- o The Region has a predominantly male, predominantly rural workforce
- o Livelihoods are still predominantly agricultural based, with cultivators and Agricultural Labourers accounting for over three-quarters of the total workforce employed over 6 months per year.
- o Significantly more rural women than urban women work

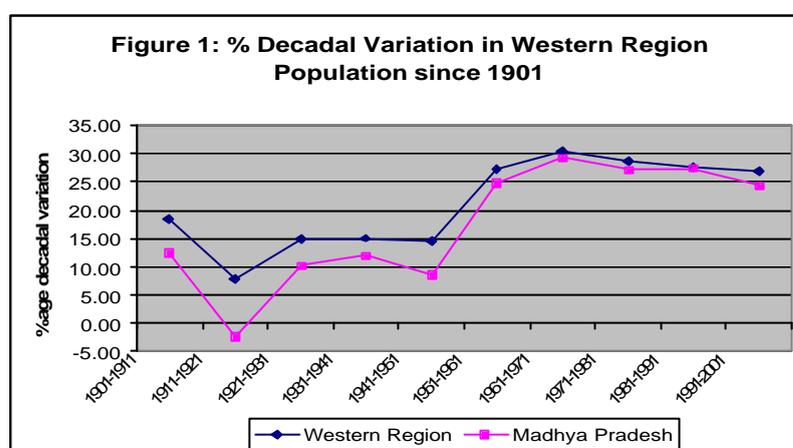
1.1.2 Population/Demography

Population in general

In the Western Region, 14,473,432 (almost 14.5 million) people, or 24% of MP's total population can be found. Indore – the only district with a majority urban population – is the most populated and most densely populated in the state, and accounts for nearly one-fifth of the region's total population. Indore is, of course, a big commercial centre and the economic nerve centre for the whole of MP.

The decadal growth rate (1991-2001) of the Western Region remains only slightly higher than the MP average at 26.94%, and overall, the rate has fallen slightly compared with the 1981-1991 figure (same trend as the MP average). Figure 1 below shows the longer-term trend in percentage decadal variation in population since 1901. The Western Region trend is very similar to that for the whole of MP.

Half the districts in the Region have seen an increase and half a decline in the decadal growth rate (1991-2001 compared to 1981-1991). In Jhabua, this decline is considerable: from a growth rate of 42.16%, it has declined to 23.56%. However its decadal growth rate for 1971-81 was 19.07%, so one can conclude that the population in Jhabua is greatly fluctuating. It is not known exactly why this is so and unfortunately the birth, death rate and migration figures from the 2001 census were not available. It might be due to different methods of information collection, some degree of population control (such as sterilisation programmes) or a high level of out-migration at the time the census data was collected.



In Indore the increase in growth rate is also significant: 40.82% compared to 30.26% earlier. Indeed, it is the fastest growing district in the state. This is most likely due to urbanisation and in-migration to its urban centre. Of the 10 Western region districts, 4 have population growth less than the state average (Neemuch, Mandasaur, Ujjain and Jhabua), and Neemuch's population growth is less than the country average.

Population density

In 7 out of the 10 districts, the population density – the number of persons per sq. km – is higher than the state average in 2001: noticeably Indore, which is densely populated with 663, Ujjain (281) and Ratlam (250). (Indore is higher than the country average of 324.) Whilst Indore has a significant urban population as explained above, Ujjain and Ratlam have a majority rural population (61% and 70% respectively). However, there are fairly significant regional urban centres also in these 2 districts. Yet, there is no strong indication that these districts are rapidly urbanising over the last decade: of the increase in population from 1991 to 2001, 65% and 76% was accounted for by growth in rural population in Ujjain and Ratlam respectively. Neemuch is the most sparsely populated district.

Rural v Urban

Almost three-quarters (73%) of the Western Region's population is classified as rural. (Coincidentally, 73% of the whole state's population is also classified as rural). In 8 out of the 10 districts, the rural population accounts for

70% or over of the total district population – in Jhabua it is as high as 91%. In MP as a whole, the Western region accounts for 28% of the total rural and 23% of total urban population (Indore 11% of total urban).

Sex-Ratio

There is a fairly even split of male/female population within each district, however the Region follows the State trend which shows a slightly larger male population present. The average district sex ratio (number of women per 1000 males) for the Western Region in 2001 is higher than the MP average (951 cf. to 920). The ratio in both the Western Region and MP overall has risen slightly since 1991. Interestingly Indore has the lowest sex ratio of the region (911) and Jhabua the highest (990). What might be inferred from this is that, with Indore being highly urbanised, it has provided employment, much of which has been taken up by men who have in-migrated from districts like Jhabua.

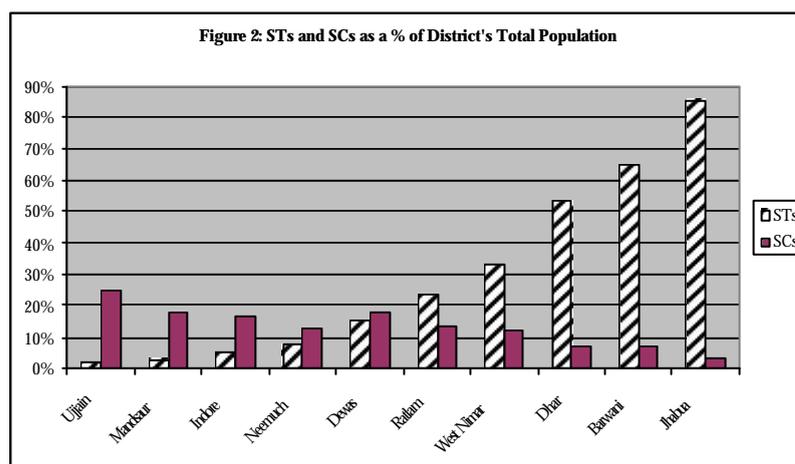
Age structure

18% of the Region's population in 2001 was between the ages of 0-6. This is the same proportion as for the whole of MP. Within the Region, Jhabua – the most rural populated district – has nearly one-quarter of its population aged 0-6: Indore – the most urban population district – has only 14% of its population aged 0-6. Whether this is a significant correlation between rurality and higher child population cannot be properly established here: it could be due to higher birth rates, higher infant and child mortality rates (1991 Census shows that these 3 rates are all well above the state average) ; or to children being needed to provide income for the family and viewed as security.

Scheduled Tribes and Scheduled Castes

1991 data showed that just over one-fifth of India's Schedule Tribe (ST) population is found in MP (which at that time included Chhattisgarh), and a considerable chunk of MP's ST population – one-fifth again – is located in the Western Region (as part of the Western Central India tribal belt)¹. The Western Region also houses one-sixth of the Schedule Caste (SC) population. The Bhil tribe and its sub-clans is the major tribe within the Region, with the Gond tribe (the other major tribe in MP) also appearing in the eastern Dewas district. The SC and ST populations do not appear to co-exist within most districts: together Jhabua, Barwani and Dhar districts contain 70% of the Region's ST population but only 12% of the SC population. Conversely, Ujjain and Indore house over 40% of the SC population of the Region, but only 4% of STs. Only in Khargone do SCs and STs co-exist in significant numbers: 9.1% and 12% respectively.

Jhabua, Barwani and Dhar are the main tribal districts, being composed predominantly of STs - 86%, 65% and 54% respectively of each districts' total populations. (Also in West Nimar every third person is a ST). In these 4 districts as in the whole of the Region, almost all (97%) of the ST population is rural based, showing that STs still rely on agricultural-based livelihoods for existence. (In Jhabua, STs account for 83% of the total rural population.) No district has a predominant SC population: Ujjain has the highest SC composition, with one-quarter of its inhabitants being from the Scheduled Castes. As expected, two-thirds of the SC population are urban-based.



¹ All ST and SC data here is from 1991 Census of India

Overall, STs account for 23% and SCs for almost 15% of MP's total population and 29% and 13% of the Western Region's population. Within the Region, 95% of the ST and 71% of the SC populations are rural.

BPL families

The above statistics on STs and SCs are taken from the 1991 Census of India. Other statistics from MP's Commissioner of Rural Development (1995) give further details on rural population (in terms of families)². Within the Region, just over one third of all rural families is classified as being Below Poverty Line (BPL).³ This is less than the MP average of 44%. This accounts for 18% of MP's total rural families BPL. However certain districts have a significantly higher proportion of rural families BPL, notably Jhabua (54%) and Khargone (45%).

Landlessness is an issue amongst these families: in 6 out of 8 districts, the majority of rural BPL families are landless. Overall, half of the rural families BPL in the Region are landless; another third are marginal farmers and the remainder (around 18%) are small farmers. This compares to the state where 60% of BPL rural families are landless, 26% are marginal and 15% small farmers.

Interestingly, within districts themselves, over three-quarters of the rural BPL families within Indore district are landless and nearly three-quarters in Dewas (In Dewas 40% of rural families are BPL). However in Jhabua, which has a significantly higher proportion of rural families BPL, nearly the majority of families are classified as marginal farmers not landless. Common knowledge is that, in tribal society, landlessness is less of an issue due to historical reasons including settling of unproductive marginal lands, less feudalism and a more equitable distribution of wealth (viz. land and other things) within tribal areas. In short, the gap between richer and poorer in tribal society is much less. (Fragmentation of land is more the problem in tribal areas.)

Literacy rates

The literacy rate⁴ for the Western Region remains just below that for MP as a whole, at 61% (2001 census). The region has seen 18% rise in the literacy rate since the 1991 census, and MP as a whole has seen a 19% rise. Jhabua's literacy rate remains the lowest within the State at 37%, with Barwani the State's second lowest at 41%. However, Jhabua has significantly seen its literacy rate almost double since 1991. Not surprisingly, with its large urban population, Indore has the second highest literacy rate in the State at 75%. Therefore, the rate of growth in literacy within Indore is considerably less than the rates of the other Western region districts. Figures 3 and 4 depict the change in literacy rate and literacy rate for total population and females' figures from the 2001 provisional census.

The rate of literacy of males compared with females is similar throughout the Region at a 2/3 male: 1/3 female split. This is similar to the trend for the whole of MP. Overall the urban population within the Region is more literate than the rural: 69% with 43%. Roughly half the rural population in each district is literate, apart from Jhabua, Barwani and to some extent Dhar, where only one-quarter of the predominantly rural ST community is literate.

According to 1991 census figures, only one-third of the Region's Scheduled Caste population is literate (49% of all SC males and only 16% of all SC females); and only 17% of the Scheduled Tribe population. In 1991, literacy rates amongst female STs were especially low: 8% in the Western Region, compared with 11% for the whole of MP. The ST literacy rates are lowest in the districts of Jhabua and Ratlam, and almost double those rates in Ujjain and Indore districts. The urban ST population is - not surprisingly - considerably more literate than the rural population (38% to 15%) reflecting either better access to education facilities, or the need to be able to read and write being more acute in the urban centres.

² This data has not separated the new districts of Neemuch and West Nimar. They are included as part of Mandsaur and Khargone respectively. The data comes from the Agricultural Statistics 2000 produced by Directorate of Agriculture.

³ BPL households are defined as those where a single household of 5.5 persons has an annual income below Rs. 11,000

⁴ To be literate in definition of these data, a person must be able to read and write in any language, but it is not necessary that they have received a formal education. Since 1991 census, the rates apply to the population aged seven years and above.

Figure 3 – Map 1 showing change in literacy rate 1991-2001 (hard copy only)

Figure 4 – Map 2, showing Literacy rate for persons and females 2001 (hard copy only)

1.1.3 Employment

People in employment

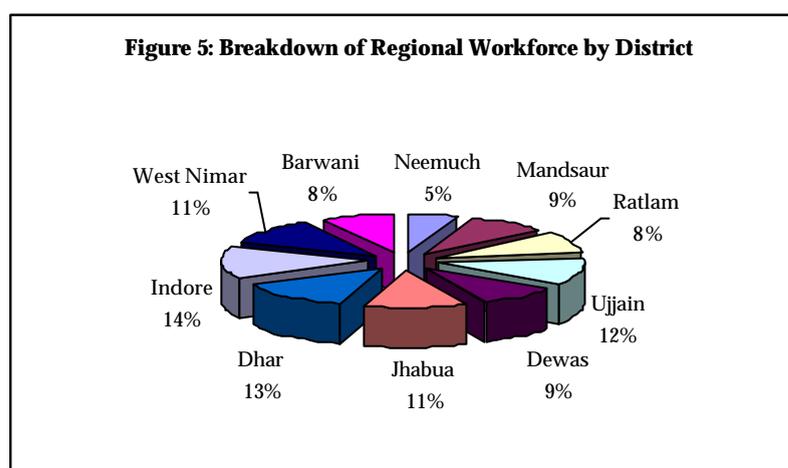
The Census of India categories workers into main, marginal and non-workers. Main workers are those who have spent six months or more working during the previous one year; marginal those who have worked less than six months, and non-workers are those who have not worked at all during the year (preceding the enumeration). Main workers are further categorised into cultivators, agricultural labourers, household industry workers and other workers. Definitions of the latter are given in Annex B.

Please note that there is some discrepancy between the 2001 figures given here for employment and those given for earlier population even though they are both from the provisional 2001 Census of India. For example, the total population of MP given under the population data is 60,385,118 whilst the employment data gives it as 60,252,739. There are slight discrepancies within the Region. A note within the Census of India 2001 website says that this is because "the basic compilation sources are different".

Since incomplete data was available for employment from 2001 Census, a combination of 1991 and 2001 is used, however it is clearly indicated.

Overall, the employment statistics for the Western Region, in terms of number of workers (main and marginal), percentage of total males and females working, percentage of total rural and urban population working do not differ significantly from those for the whole of MP. The Region has a slightly larger workforce than the whole State, and within that a slightly larger of workers classified as main workers (ie. working more than six months per year).

Although the overall worker participation rate is 45% (ie. percentage of total population working), it is 2% higher than the overall MP rate. (No separate statistics were given as to what proportion of the total population is not eligible for work.) Nearly two-thirds of the Regional workforce is male and one-third female and one in two men are working whilst only one in three women are. The working rate amongst the rural population is around 20% higher than the rate amongst

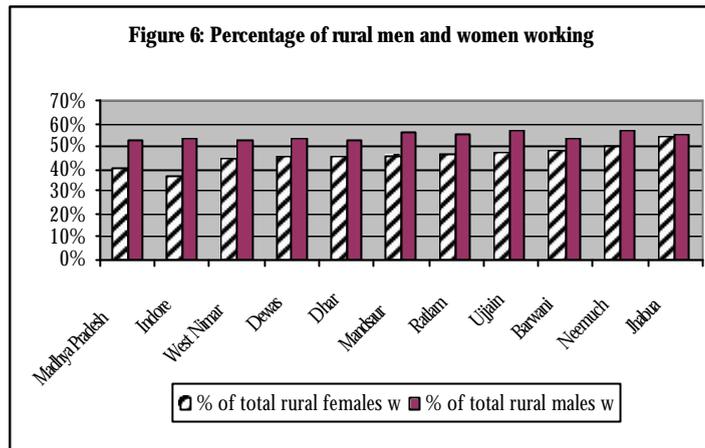


the urban population, with just over half the rural population employed. Interestingly Jhabua is the district that has the highest proportion of its population working (53%) and Indore the lowest (36%). However further analysis shows that this is because a significant proportion of Jhabua's child population is working: in 1991, 15.2% of the district's total child population were classified as main workers (ie. working six-months or more per year) and 25.5% were main and marginal workers. This is the highest in the state. The other predominantly rural populated districts of Dhar, West Nimar and also Ratlam also rank in the top 6 districts of the State with the highest child working population in 1991. We can see that this correlates in Jhabua to the highest illiteracy rates and lowest school retention rate in the State in 1994-95⁵.

Being a rural populous Region, rural workers make up almost 80% of the total workforce. This figure is skewed by Indore, which has only a 38% of its workforce rural. Without Indore, the figure becomes 85% and is high as 95% in Jhabua and 90% in Barwani.

⁵ Latter statistics are from HDRO (Dept of School Education, MP, 1996).

It appears that the workers participation rate for rural women is significantly higher than that of urban women (47% compared to 12%): this is accounted for by women's participation in cultivation and agricultural labourer activities, and could also be due to there being less opportunities for formal employment for them within urban areas. (It is similar to the State trends). For men, the rate rural vis-à-vis urban is comparable, with the rural rate being 5% higher. There are generally more opportunities to get involved in urban employment activities.



Main v Marginal worker

Within the Region, 2001 figures show that just over three quarters of all workers work more than 6 months per year (classified as main). What is perhaps not surprising is that 70% of all main workers are male, and 70% of all marginal workers (those working for less than 6 months per year) are female. Only in Indore region is there are more even split between male and female marginal workers: 44% and 56% respectively. This may be due to more casual labour being available in the many factories within the District.

Types of employment

Being a predominantly rural-based population means that cultivation and agricultural labour are the biggest employers in the Region, together accounting for 73% of the "main" workforce (cultivation alone accounts for just over half the main workers). The predominantly rural ST districts of Jabua and Dhar have the highest number of main workers employed in cultivation and agricultural labour, and Indore – with its large urban centre - significantly the least, with trade and commerce, household manufacturing and other services being important employers there. However of the 10 districts, only Ujjain and Indore do not have at least three-quarters of the workforce employed as cultivators or agricultural labourers. Interestingly, the predominantly tribal districts of Jabua, Barwani and Dhar - which are also more marginal – have the highest number of cultivators (73%, 57% and 52% of total workers respectively). In districts like Dewas and West Nimar, which have pockets of higher productivity agriculture and less tribals, there is a higher percentage of agricultural labourers. This relates back to the point made above, about landless being less of a problem in the tribal areas.

Cultivation and agricultural labour remains as important an employer as it was at the time of the 1991, when it accounted for 73% of total workforce in the Region. Jabua, which had the highest percentage of cultivators in 1991, has seen this decrease by 10% in 2001, with the other workers category increasing. See case study on agriculture below.

Variations in types of farming throughout the Region

Not surprisingly, agriculture predominates as a land use within the region, with nearly 90% as gross cropped area (ie. cultivable land) and 60% of the geographical area in the Region being classified as net sown area⁶. Ujjain has the highest and Barwani the lowest gross cropped area. Over the last decade (since 1992 – 99) the net sown area in the Region has surprisingly remained fairly static. However other analysis highlights that the total area under crops grew steadily in western MP during the period 1970-94 during the time that the Green Revolution made inroads into rainfed dryland agriculture⁷.

⁶ Commissioner of Land Records

⁷ Government of Madhya Pradesh, Directorate of Institutional Finance (1998)

Summary statistics for the region show that there is a fairly even split between food crop and non-food crop production (52% and 48% respectively). Food crops are those grown for household consumptive purposes, and non-food for commercial purposes. This is in variance from the overall state figures which show that two-thirds of the area is under food crops. However within the Western region, the type of agriculture taking place and related issues noticeably vary, and can be efficiently analysed by considering the different agro-climatic zones which the region falls into.

It is true that with a highly rural population, agro-climatic zones influence to a large extent the present livelihood pattern of its inhabitants.⁸ The three agro-climatic zones (ACZ) of relevance are: Malwa Plateau, Nimar Plains and Jhabua Hills. (There is a total of 11 ACZs in MP)⁹.

Malwa Plateau ACZ covers 10 districts in total, 8 of which are in the Western Region: Neemuch, Mandsaur, Ratlam, Ujjain, Indore, Dewas, Dhar and Jhabua (and Rajgarh and Shajapur). Barwani and Khargone are not included. The zone is one of the most agriculturally advanced in MP, with the highest cropping intensity in the state. However it must be noted that there are some variations within the zone, particularly in reference to Jhabua, which is detailed below. Progressive medium to larger farmers can generally be found, with the cropping pattern showing a significant presence of cash crops and horticultural crops. These include wheat, maize, soyabean, gram and cotton and coriander, garlic and *Ashwagandha* (medicinal plant). One reason for the zone's productivity is the black cotton soil (of varying thickness) found in the valleys, which are most suited for cultivation. This is such that the average productivity of land is higher than the state average. It is also down to the existence of more productive irrigation infrastructure¹⁰, with a high groundwater exploitation being reported for most of the zone¹¹. In the zone, almost 50% the net sown area is irrigated, although Jhabua has only a quarter. Dependency on groundwater resources is very high.

Double cropping (growing two crops per year) is also a significant practice within the zone, particularly in Ujjain and Indore, with all districts save Jhabua and Dhar having over 50% of their net sown area double cropped. This compares with the districts outside the zone: Barwani 19% and Khargone 18%.

Nimar Plains ACZ includes the southern districts of Khargone, Barwani and part of Dhar. The Narmada river flows across its northern border and many villages, cultivable land and forest areas have fallen in the submergence zone of Narmada valley project. The net sown area is 45% of the geographical area, however apart from Dhar, the zone has a low intensity of double cropping and the net irrigated area accounts for only 27% of the net sown area. Groundwater is the most important source of irrigation in the zone. The zone is known for cotton, jowar, banana and many other fruits, vegetables and spices. More than 60% of bananas produced in the state is cultivated in Burhanpur region of Khargone district. It is also one of the traditional and important cotton growing and trading clusters in India. Wheat and sugarcane – crops with higher water requirements - are also grown. Most of the crop production area - 84% for Khargone and Barwani together, is covered during the Kharif (monsoon) season.

Jhabua hills ACZ comprises part of Jhabua and Dhar and is smallest ACZ in MP and is characterized by an undulating topography (300 – 700 metres, the latter in southern Jhabua) and traditionally dense and rich forests, which are now (highly) degraded. Agriculture remains largely subsistence orientated, with over three-quarters of the cropped area of tribal-dominated Jhabua under food crops, mainly maize and jowar. Three quarters of this area is grown during the Kharif (monsoon) season. The predominance of subsistence farming is linked to the socio-economic conditions in the district, as noted in the summary above. The net sown area is 53% and irrigation is only 21.26%, which is lower than state average. In Jhabua only one-fifth of the sown area is irrigated. The zone has been the focus of many watershed conservation initiatives by both government and NGOs. However due to past 3 years of drought, nearly every poor household of this region has members migrating in search of labour, mainly to Gujarat.

⁸ BASIX-MPLEAP (2002)

⁹ BASIX-MPLEAP (2002)

¹⁰ BASIX-MPLEAP (2002)

¹¹ Taru Leading Edge (1999)

Table 1 overleaf presents in summary a livelihood profile of each district in the Western Region, in terms of employment. This was drawn up as part of the MP Human Development Report 1998 and uses figures from the 1991 and 1981 Census. Apart from confirming the importance of cultivation and agricultural labour within the Region, it highlights that within all the districts, construction is a rapidly growing occupation. Whilst no details on where this construction is taking place, one can deduce that much of this employment is obtained through migration to urban centres, thus highlighting the growing importance of migration within the region. Dhar and Dewas districts have experienced a high growth in workers in the non-household manufacturing industries: Dhar saw a massive decadal growth rate of 230% in non-household manufacturing between 81-91, as the manufacture of food products within the district took off.

Migration

Unfortunately no comprehensive statistics on migration in the Western Region were found to be available for this report. ASA is well aware of the situation within the tribal-dominated Jhabua and Dhar districts and a case study is given here.

Case study of migration amongst Bhil tribals

As Mosse et al (2002) state: "...the forces leading to migration are as much to do with the social relations of dependency and indebtedness which subsistence failure entails, as with ecological decline". Because of this, labour migration is now a well established part of the tribal population's livelihood strategy and a significant coping mechanism. Indeed, it is a primary source of cash income. It is however highly seasonal and cyclical. It usually takes place during the dry winter months, beginning from September – November after the monsoon harvest but earlier in years of poor rains. Households most dependent on migration leave before Diwali (Hindu festival in Oct/Nov). Migrants return Feb/March in time for Holi festival and marriage season. The extent of migration in terms of the number of months and the number of family members will depend upon a number of factors including the success of the monsoon, the size of land plot, number of family members and credit/debt situation. Although the seasonal pattern of migration follows the agricultural cycle, it also follows cycles in labour demand, eg. much of construction work, brick making and stone quarrying comes to a halt during monsoon season (therefore 2 cycles are fairly well matched).¹

Migration is therefore undertaken as:

- *Primary source of cash income (86% of cash income)*
- *Defensive coping strategy to cover existing debts and manage seasonal vulnerability (need to borrow cash is highly seasonal). An internal ASA study shows a typical annual credit requirement of Rs12-15,000, which is largely found to be sourced through moneylenders, who are known to have interest rates of up to 120-150%.*

Mosse et al study (which researched the contiguous Bhil tribal belt of Jhabua, Banswara in Rajasthan and Dahod in Gujarat) found that: 65% of households and 48% of adults above the age of 14 were involved in seasonal migration in 1995-96. On average, 2-3 household members migrated for 5-5.5 months each year. A conservative estimate of earnings suggests gross annual earnings from migration of about Rs8000 per family (assuming Rs 45/day and expenses of Rs15/day for 24 days a month). The study showed very few signs of migrating families putting down roots in the work area, to settle or obtain permanent jobs.

Main migration routes are to the big urban centres in Western MP, mainly Indore, as well as Dahod, Surat, Vadodara and Ahmedabad in Gujarat. Employment gained in the centres is mostly manual labour for men and women, viz. construction site work, road and railway work, brick making and quarrying, stone breaking, salt making, casual work in factories, paper picking, being watchmen.

Wider impact of migration

1.1.4 A note on Gender

There are no state-wide district level indicators available to assess women's political participation or empowerment, therefore as the Human Development Report (HDRO) has done, indirect measures are used. These are based on women representatives in the 3 elections to the State Assembly (Vidhan Sabha) in 1985, 1990 and 1993. Women's

success is measured by giving one-third weight to women candidates securing more than 5% of seats in VS in every district and one-third weight to all women candidates. This gives an estimate of the relative position of women in political participation by an index figure of participation in legislative assembly.

What is interesting is that Jhabua, closely followed by Dhar, have by far the highest index of women participation in legislative assembly and Indore the lowest.

Even though this has been used as an indication of women's political empowerment in the MP Human Development Report (1998), this is most likely to be a fluke rather than signs of empowerment within Jhabua. Our own knowledge of women's participation the area, and previous analysis of literacy rates, etc show that the level of empowerment and participation remains almost pathetically low in Jhabua and Dhar. There is much effort being expended to try and improve women's situation, however empowerment will be a long and slow process.

Table 1: Summary of employment profile in Western Region per district

District	Major Occupation	Other Occupation	Significant Non Agricultural Occupation in 1981	Significant Non Agricultural Occupation in 1991	Occupations with Significant decadal growth rates	Status of Manufacturing	Observations
Mandsaur (ie. Mandsaur and Neemuch)	Cultivation (59%) and Agricultural Labour (19.5%)	Other Services (6.1%). Trade and Commerce (5.7%)	Livestock Production, Manufacture of Food Products, Land Transport, Public Administration and Defence Services, Education	Retail trade in Food and food articles, Land Transport, Public Administration and Defence Services, Construction, Educational services, Personal Services, Unclassified Services	Construction (68%), Mining (61%) and Agricultural Labour (47%)	Low growth as seen from growth in non household manufacturing (35%) and other services (39%)	Increase in construction labour among urban males. 7.4% (28,870) of children are employed as main workers
Ratlam	Cultivation (55%) and Agricultural Labour (18%)	Other Services (7.4%), Trade and Commerce (6.7%)	Manufacture of Food Products, Land Transport, Public Admin and Defence Services	Land Transport, Retail trade in Food and food articles, Construction, Public Admin and Defence Services, Educational services, Personal Services	Construction (154%) and Commerce (52%)	Low growth as seen growth in non household manufacturing (37%) and other services (28%)	Increase in female main workers by 68%. Much of this increase is in the form of 95% increase in rural female cultivators. Increase in Agriculture Allied sector by 32%. 8.3% (20,838) of children are employed as main workers.
Ujjain	Cultivation (40.8%) and Agricultural Labour (23.8%)	Other Services (10.8%). Non household manufacturing (9.3%). Trade and Commerce (7.2%)	Livestock Production, Manufacture of Cotton Textiles, Wood and Food products, Land Transport, Public Administration and Defence Services, Education	Public Administration and Defence Services, Manufacture of Cotton Textiles, Unclassified Services, Retail trade in Food and food articles, Land Transport, Educational Services, Construction	Construction (129%) and Other Services (54%)	Low growth as seen from growth in non household manufacturing (6%) and other services (54%)	Increase in construction labour by 129%. This increase mainly among urban males. Decline in household manufacturing by 30%. Decline in Agriculture Allied sector by 32%.
Dewas	Cultivation (43.5%) and Agricultural Labour (31.8%)	Other Services (7.6%). Non household manufacturing (7.1%)	Livestock Production	Public Admin and Defence Services, Retail trade in Food and food articles, Unclassified services, Educational services, Personal services, Land Transport	Non household manufacturing (57%). Construction (53%), Trade and Commerce (44%), Transport Storage and Communication (78%) and Other Services (74%)	High growth as seen from growth in non household manufacturing (57%) and Other Services (74%)	Decline in Agriculture Allied sector by 60% is the highest in the state.

Jhabua	Cultivation (84%)	Agricultural Labour (5.9%)	Education and Research Services	Education services, Public Administration and Defence Services, Retail trade in Food and food articles, Construction	Construction (92%), Non household manufacturing (49%), Trade and Commerce (55%)	Low growth as seen from growth in non household manufacturing (49%) and Other Services (39%)	Increase in marginal workers by 8.2%. Much of this increase is in the form of increase in female marginal workers. Decline in Agriculture Allied sector by 34%. 15.2% of children are employed as main workers.
Dhar	Cultivation (59%) and Agricultural Labour (24%)	Other Services (5.3%)	Manufacture of Food Products	Retail trade in Food and Food articles, Unclassified services, Educational services, Public Admin and Defence Services, Land Transport, Construction	Non household manufacturing (230%), Construction (184%), Trade and Commerce (52%), Transport, Storage and Communication (77%) and Other Services (52%)	High growth as seen from growth of non household manufacturing (230%) and Other Services (52%)	Increase in construction labour by 184%. Decline in household manufacturing by 35%. 8.7% (32,730) of children are employed as main workers.
Indore	Other Services (20%) and Cultivation (18.5%)	Non household manufacturing (17.5%), Agricultural Labour (15%), Trade and Commerce (54%)	Manufacture of Food Products, Textile Products, Wood Products, Metal Products, Repair, Construction, Household Utilities, Others, Restaurants and Hotels, Land Transport, Public Administration and Defence Services, Education and Research Services, Personal Services, Unclassified Services	Public Administration and Defence Services, Land Transport, Unclassified Services, Retail trade in Food and food articles, Manufacture of Cotton Textiles, Personal services, Retail trade in others.	Construction (101%), Trade and Commerce (54%), Other services (58%)		Decline in household manufacturing by 28%. Increase in construction labour by 101%
Khargone (ie. West Nimar and Barwani)	Cultivation (55%) and Agricultural Labour (28.8%)	Other Services (5.3%)	Manufacture of Food Products, Education and Research services,	Retail trade in Food and food articles, Public Administration and Defence Services, Educational services, Land Transport, Personal Services, Construction	Construction (83%), Transport, Storage and Communication (79%)	Low growth as seen from growth in non household manufacturing (39%) and Other Services (43%)	Decline in household manufacturing by 23%. 9.8% (54,490) of total child population are employed as main workers.

Source: MP Human Development Report 1998 (done from Directorate of Census, MP, Primary Census Abstract, 1981 and 1991)

1.2 A profile of the issues and uses of natural resources in the area and trends

This profile categorises the issues regarding the use of and trends in natural resources in the Western Region under the following sub-headings: issues related to Land (and Forest), Water, Social situation, Economic situation and Government delivery system. The strong linkages between these issues is clear: together they interact to impact upon people's livelihoods within the Region. Under the sub-headings, further grouping splits the issues into those affecting i) whole region, and those which are most relevant in, ii) the marginal areas and iii) higher potential pockets respectively. (Refer to Section 3 for definition of these).

The profile has been collated from primary sources of data, namely the NGO Consultation Workshop and consultations within the study villages and from secondary sources of data including previous studies available from ASA's library.

1.2.1 Land related NR issues:

Whole region

- Massive deforestation of the dry deciduous forests has taken place leading to soil erosion, poor groundwater recharge, fodder and fuel wood scarcity, reduced biodiversity, water scarcity for drinking and agriculture, deprivation of forest products which contributed a significant portion of people's livelihood. This has led to migration to supplement livelihoods, since farming alone is not sufficient for maintaining a stable livelihood, not even for food security. Overall this has caused vulnerability of people in terms of their livelihood strategies. This is much more so in the marginal areas where the traditional dependence up the forests of the common lands by the tribal population to meet external revenue demands or compensate for low agricultural output is higher (however this is being countered through increased migration).

Deforestation has been a product of increase in population causing increasing demands for cultivable land, fodder and fuel wood; inappropriate and insufficient forest management practices by government, community and others; open grazing by animals. See case study on deforestation below.

- Common land within villages is being encroached rapidly by cultivators who are economically and politically strong, thus reducing the area available for livestock grazing for the community as a whole and putting further pressure on private farmlands. Encroachment is occurring for reasons such as low crop yields from existing land, due to drought conditions etc, and a lack of community-based forums to manage and protect the common areas. Moreover, with the encroachment of common land, the livelihood security of poor and landless people - whose dependency is on the commons, is usually much higher than the better off - is being continuously reduced. The recent decision (2002) taken by the Government of MP to reduce the share of common land from 5% to 2-3% in any village and distribute the available land to the landless, is perhaps remunerative from social angle, but could be detrimental from an environmental point of view.
- The region is characterised by unsuitable aquifer conditions for deep groundwater recharge, due to the domination of a hard rock base (basaltic). However, the potential for sub-surface recharge is high and therefore the ridge-to-valley watershed approach results very well, particularly in the undulating terrain areas, in terms of recharging dug wells, streams, etc.

- An increase in the use of chemical fertilizers and pesticides is replacing the use of organic materials, thus further contributing to harming of soil properties. This is much more apparent in the higher potential areas where chemical fertilizers and pesticides are preferred. However there is an increase – although much smaller - in the use of inorganic inputs in the marginal areas, which also relates to an increasing shortage of organic manure (usually cattle dung). The shortage is being caused by a lack of stall-feeding practices for livestock, as people cannot afford to do so, and the lack of practice of preparing organic manure through compost pit or vermin compost, etc.

Marginal area

- Faulty agronomic practices including tillage practices have led to further deterioration of land quality. This is often due to a lack of awareness of better practices or misapprehension with regards to sustainable practices.

- High degree of run off and severe soil erosion has happened and persists, particularly in the undulating topography of Jhabua and Dhar. The high degree of slope of agricultural lands subject to agricultural operations (ploughing, hoeing, flood irrigation techniques, etc) has eroded topsoil and led to a fall in land productivity. The indiscriminate felling of trees and loss of vegetative cover causes land to be subject to weathering from rains that comes in torrents with a high velocity. The existing undulating land is thus subject to a regular process of gully formations, which in a substantial number of cases have led to formation of seasonal nallahs (rivulets). The practice of flood irrigation in some areas and open grazing of animals act as push factors in accelerating the rate of soil erosion.¹² There is an absence or lack of practice of land improvement. Due to run off, the soil depth in the ridge and middle zone is increasingly getting thinner. Since the quantity of productive land is being reduced, the pressure on land is increasing.

- The water holding capacity of soil is largely poor in the undulating areas of the region.

Higher potential areas

- Monocropping of soybean or cotton is common in the higher potential areas with the practice of crop rotation reduced. As well as the impact this can have on soil fertility, monocropping of cash crops with small residues has reduced the fodder quantity from agriculture residues, resulting in increasing pressure on common land for grazing.
- Water logging and insufficient drainage management of the black cotton soil of the Malwa region is a problem.

1.2.2 Water related NR issues:

Whole region

- There are a number of issues related to the rainfall of the Region (see also rainfall case study below). Lack of sufficient rainfall per se is generally not the issue, rather it is:

- ⌘ Erratic and highly fluctuating nature of rainfall, which is responsible for poor agriculture and livelihood insecurity. The monsoon is very uncertain, with farmers reporting 4 years of drought or less rainfall in a cycle of 10 years.

District	Kharif (monsoon)	Rabi (winter)	Annual Average
Jhabua	31.47	9.54	26.26
Ujjain	35.08	79.14	53.56
Barwani	48.17	88.84	54.78
Dewas	32.7	92.97	55.22
Mandsaur	54.51	59.38	56.47
Dhar	57.26	80.15	64.37
Neemuch	54.48	104	75.03
Ratlam	88.10	88.88	88.40
Indore	50.38	147.53	92.92
West Nimar	78.5	191.34	95.59
M.P.STATE	32.67	62.41	46.33

Source: MP Directorate of Agriculture
http://www.mp.nic.in/agriculture/fert_dist.htm

¹² SRTT (2002)

- ⌘ The drought years are often recurrent or consecutive. However it must be remembered that drought is a multi-faceted issue. It is not only related to irregular of lack of rainfall but also on the system through which rainwater is harvested and stored.
 - ⌘ Excessive rainfall is also reported in one year in 10. This also contributes to poor agriculture and livelihood insecurity.
 - ⌘ Rainfall during a four-month period only (monsoon only) means that to grow crops during the winter, farmers generally have to invest in water harvesting and management to improve their farming systems.
 - ⌘ When it falls, high intensity rainfall also causes damage to the water conservation measures and soil erosion.
- Lack of adequate practices for water conservation either surface water or groundwater harvesting. (Although some traditional rainwater harvesting structures exist, as shown in the case study below.)
- Inadequate investment by the government towards water conservation, especially for in-situ conservation, viz. watershed programme, in comparison to the investment made for major irrigation projects. Marginal areas in particular have received less government support in terms of major, medium and minor irrigation schemes compared with higher potential areas. Immediate data is not available on the number of irrigation schemes (major, medium and minor) per district: However this conclusion is based on the researchers experience of working in marginal areas, which concludes that, due to the undulating topography of the marginal areas is not favourable towards flow irrigation and therefore the potential investment on irrigation infrastructure is limited. Government investment on irrigation between marginal vis-à-vis higher potential areas is an area ripe for further research.
- Faulty irrigation practices are undertaken, both in terms of water management in the field (eg. flood irrigation practices and lack of maintenance of farmers's field channels), and selection of crop. This can cause soil erosion. Interestingly in one village consultation, the efficiency of irrigation management practices was related to whether the irrigation was supplied by the government or through private means (ie. cost of irrigation), in that – where a farmer had irrigation supplied through both means - his management practices were much better where he had had to pay more (community-managed lift irrigation scheme). In this case, the cost per hectare of irrigation comes to nearly Rs.3000 annually in comparison to Rs.300-400 per hectare through a government run canal irrigation system. However in one consultation, where PIM was in action, farmers noted a reduction in the wastage of water due to strict vigilance by the WUA.
- Therefore there are also cases of efficient use of water for irrigation (at least in terms of less wastage) in the case of private irrigation systems either managed individually or through small irrigators group, such as community managed small lift irrigation.

Marginal areas

- Lack of awareness for improved water management (distinct from basic water management knowledge) and improper use of the existing facilities were cited as issues during the NGO consultation workshop. These however also relate to affordability of water management, which is greatly reduced in the marginal areas.
- In subsistence agriculture, the use of water and especially groundwater, is still limited and under control. For a number of reasons, including affordability, farmers in marginal areas are less likely to have exploited groundwater through tube well investment, also government and NGO schemes are promoting surface water (rainwater) harvesting as a viable option.
- Quality of drinking water is very poor, other than that sourced from hand pumps. Particularly in the drought-prone marginal areas where water is scarce, drinking water is also sourced from wells, talavs (tanks) and other storage structures in the villages, even to the point of digging the mud from the bottom of the structures. Therefore the sources can be contaminated with water-borne diseases, in addition to which, household drinking water management is generally poor.

Higher potential areas

- Irrigation with higher potential areas is increasingly rapidly (even though, overall, the irrigation potential of the Region is far less than the national or state average). This is mainly being supplied through groundwater. Groundwater is therefore suffering from the following resource problems in the high potential areas:
 - ✍ Alarming high exploitation for irrigation of commercial crops (see also case study of irrigation below)
 - ✍ Falling groundwater levels due to irregular rainfall, improper use of water (over abstraction in places) and absence of water harvesting structures for recharge purposes.
 - ✍ Deterioration in quality
 - ✍ Doubtful reliability of the resource.

1.2.3 Social related NR issues:

Whole region

- Traditionally, there is a lack of community-based institutions to deal with issues of NRM in particular and village development as a whole. Most of the community-based institutions existing in the rural areas are project/programme induced and are still in the development stage. There are very few examples available where it is seen that communities take forward the developmental issues themselves and find sustainable solutions. The culture of subsidy in government/NGO programmes has further discouraged local initiatives. This is more so in the marginal areas.
- In general, the Panchayat has not been able to reflect the needs and aspirations of people and could provide a leadership for developmental initiatives.
- The role and participation of women in community management of resources is almost non-existent. This is true for both marginal and high potential areas. However it is significantly more so in the non-tribal (higher potential) areas where there is less equality between the sexes than in tribal society. During one village consultation the researchers were not allowed access to the women, the men responding, "Why do you want to talk to women? They have small brains." Therefore non-participation of women in non-tribal areas is due to a high degree of inequality between the sexes in terms decision-making regarding productive activities. Many are forbidden or discouraged from participating by their men-folk. In tribal areas, lack of participation is mostly due to women's own inhibitions and low rating of themselves, together with a lack of awareness and understanding. However there is still some element of lack of inclusion in household decision-making by their men-folk.

Marginal areas

- Widespread seasonal migration, particularly in the tribal-dominated districts, has limited the scope and desire for people's investment on land and water resource improvements, creating/strengthening sources of irrigation or livestock quality improvement. (Seasonal migration is also evident in high potential areas amongst the landless and poorest.)
- Lack of awareness in marginal areas on some improved agricultural practices. For example, seeds which are being used are usually of traditional varieties but, due to poor preservation, they have become mixed breed, thus losing their genetic purity. This has implications for the productivity of the crops, as well as their other attributes including their drought resistance etc. There is evidence that the farmers in the marginal areas have been using varieties more than 50 years old. On the contrary, there are varieties available through the agricultural research system which have the attributes preferred by the farmers (drought resistance, yield) but which are not being used by the farmers due to lack of knowledge, information and poor extension. (This problem was not encountered in the higher potential pockets.).
- Some degree of conservatism when it comes to experimenting with cultivation practices, which can be seen by the uniformity of practices, types of crops and planting times. This is changing with the introduction of

improved varieties. However this conservatism also relates to the reliance on rain-fed systems and the need to develop a highly risk averse cropping strategy.

- Much social status is still attached to being a cultivator, working the land.

Higher potential areas

- Landlessness in the non-tribal and high potential pockets is quite high. Any public investment on land and water in this area has to be appraised in the context of equitable distribution of public resources.
- Local village politics, caste discrimination, vested interests have restricted people's initiative for developmental activities and maintenance/management of existing resources.

1.2.4 Economic related NR issues:

Whole region

- There is a lack of non-farm employment opportunities in the villages or areas. This is more a problem in marginal areas, as some diversification is happening in higher potential areas as a spin-off of agriculture. An example of this is the numerous cotton ginning factories in Khargone.
- Lack of access to and poor outreach of the formal credit sources in the agricultural sector has pushed people to relying on informal credit sources (viz. moneylenders) who often charge exorbitant interest rates, known to be as high as 120-150% p.a. This has led many people, particularly in the marginal areas, into a debt cycle or cycle of dependence on such moneylenders. Credit is borrowed for a wide range of consumptive as well as productive purposes, viz. purchase of food grains, livestock, seeds and other inputs, medical treatment, house repair, and on weddings and festivals. However the situation with rural credit is more complex, since there are also a number of factors pulling people towards the informal credit sources. Lack of access to formal lending sources can be caused by a number of factors, such as procedural issues of paperwork (which can work against a highly illiterate population) and the need for customers to "oil the machinery" in order for their loan to be sanctioned. Often banks will have unflexible or less flexible terms and conditions on loans, giving only for productive purposes such as the purchase of new equipment, or giving loans only at certain times of year. One other important barrier to formal credit sources is the previous credit history of people: often people who availed of earlier credit schemes, such as the IRDP loans, are defaulters on such loans. The factors pulling people towards moneylenders include: the fact that the person is local, often residing in their village, is well known to the family and their situation; the fact that he is often the trader of agricultural produce, the seed supplier – ie. is involved with the family in multiple roles; the flexibility of his credit conditions, both in terms of amount (will give for non-agricultural petty expenses) and most critically the timing of the loan (giving at times of extreme vulnerability); similarly the flexibility of his repayment conditions, allowing further borrowing on top of existing credit; having no or little paperwork. Of course, these are also favourable conditions in terms of rent seeking by the moneylenders. One interesting statistic garnered from previous ASA research was that a staggering 75-80% of money earned during migration of the Bhils in Jhabua is used to repay moneylenders. One other finding was that the pressure for repaying the loan is so high for some, that they prefer to stay away for a longer period in order to avoid repayment to moneylenders. As discussed later, micro finance schemes can play a vital role in lessening this dependency on and historical relationship with traditional moneylenders.

Marginal areas

- Rainfed agriculture dominates subsistence, making livelihoods incredibly insecure. Yield stability and minimisation of risk are primary strategies followed by farmers, thereby limiting what the farmers are willing to do.

- Average landholding size is small (2 ha.). It may appear big but if one takes into consideration the quality (undulating, low soil depth and poor water holding capacity) of land then it is not much.
- There is often unscientific or improper management of land, viz. cultivation down the slope, unbunded fields, etc. This is related in many places to a lack of awareness amongst farmers of better agricultural practices, which itself could be related to low levels of literacy.
- In the marginal areas, the present agriculture practice is neither sustainable in the long run nor it is economically remunerative. The question is how suitable the area is from agriculture point of view. Majority of the land area is undulating and not suitable for agriculture. Traditionally the tribals used to depend heavily on the forest produces for supplementing their livelihood. Agriculture used to be practiced in the low-lying area, mainly for the subsistence. Now with the increase of population and massive deforestation the pressure on land has increased and that has led to encompassing the degraded forestland also for agriculture. The question remains as to what extent the land resource would be able to provide livelihood security to the people, especially when the degradation of environment continues with increasing population pressure.
- Social customs like bride price, illiteracy, ignorance and superstitions have led to further deterioration of the tribals' livelihood status. Almost every household in the area is indebted with the moneylenders and pay high interest rates. Most of the earnings from migration or marketable surplus of agriculture goes into debt services. Many households are also the defaulter of banks and LAMPs (Large Agriculture Multi Purpose Society), have failed repay the loans that was provided under various government schemes, viz. IRDP (Integrated Rural Development Programme), Land development Bank, etc.

1.2.5 Delivery system related NR issues

Whole region (these were identified at the NGO Consultation Workshop)

- Inability of DRDA, Panchayat and the Line Departments to converge at the village level.
- Some degree of reluctance by line departments to undertake sufficient extension work in villages.
- A supply led outlook predominates that undermines the capacity of communities to facilitate their own development.
- Water charging on an acreage basis by the state is negligible, and can lead to inefficient management, particularly in terms of irrigation.

1.2.6 Case Studies

i) Case study of Deforestation

In MP, 1998-99 figures showed that 28% of the total geographical area of the state is covered in forest. Almost half of that – 13% - is found in the Western Region. Much of the forest consists of teak forest.

Figures comparing 1992-93 and 98-99 forest cover show overall a 3.1% decline in forest cover in just 8 years in the Region. (However, according to statistics available, this compares to a 41% decrease on the 92-93 area for the whole of the state.) Not all districts show a decline: Ratlam, Dewas, Jhabua and Indore show very marginal increases. However deforestation is most apparent in Dhar (12.4% decrease), as well as Khargone (5.3% decrease) and Indore (4.8% decrease). This is not because Dhar has significantly more forest cover than the other districts. Older figures taken to examine trends show that by the 1981 and 1991 census, only 2 districts had more than the state average forest cover per capita (in sq km), viz. West Nimar (Khargone and Barwani) and Dewas. Not surprisingly Ujjain and Indore – with their urban centres – have by far the lowest forest per capita figures in both these census.

However in Dhar, West Nimar and Dewas there has not been a huge increase in the net sown area in this time, however Dewas has seen a 25% increase in the total or gross cropped area, Dhar an 11% increase and West Nimar, 7%.

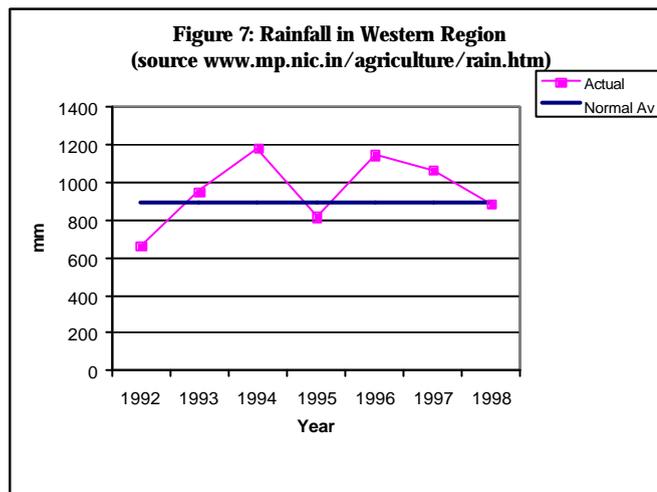
ii) Case study of Rainfall

The Region is characterised by highly fluctuating and erratic monsoonal rainfall. Normal rainfall average is 896mm per annum, below the state average of 1106 mm, making it the driest region in the state¹³. Within the Region, Dewas and Indore – the most easterly districts – have noticeably higher normal rainfall, with Mandsaur and Jhabua in the west, having the least.

Figure 7 illustrates the variance in rainfall between 1992 and 1998 for the region. Although only the two most easterly districts did not receive their normal amount for this period, the problem is the fluctuations from year to year.

However in recent years lack of rain has been the problem with 1999 and 2000 being declared official drought years in most districts of the Region, and 2001 a deficit rainfall year.

Dependency on rainfall to supply basic human needs and livelihoods is therefore a high-risk strategy. As noted in the socio-economic profile, cultivation and agricultural labourers account for over 70% of the main workforce in the Region. Also, efforts to improve the natural resource conditions through capturing and harvesting rainwater have suffered during consecutive years of drought.



¹³ Commissioner of Land Records, Gwalior (<http://www.mp.nic.in/agriculture/rain.htm>)

iii) Case study of Traditional Water Management – Pat System in Sondwa Block, Jhabua

In Sondwa block, the Bhil tribals have created a water harvesting system which takes advantage of the peculiarities of the terrain, to divert water from swift-flowing hill streams into communal irrigation channels called *pats*, used during the Rabi (winter) season.¹⁴

The pat system works as follows: the stream is bunded at a point to provide a static head of 30-60 cm, which is sufficient to divert water into an irrigation (pat) channel running for some way parallel to the stream. The gradient of the channel is less than the gradient of the streambed. Over a distance, the channel dips less than the streambed and can therefore climb to a height that varies from 3-25 metres. Therefore the system is fairly simple.

Villagers or beneficiaries of the pat, generally work together after monsoon harvest to repair the pat and build the diversion bund. The bund is built by piling stones and lining them with teak leaves and mud to make the bund leak-proof. The pat channel has to negotiate small nallahs that join the stream: stone aqueducts have to be built to span these.

The villagers then irrigate their fields in turn. The channel requires constant maintenance and it is the responsibility of the family irrigating on any particular day to take care of the pat that day. It takes about 2 weeks to get the pat flowing (if there has been sufficient rainfall) and the winter crop is sown in early November.

iv) Case study of Irrigation

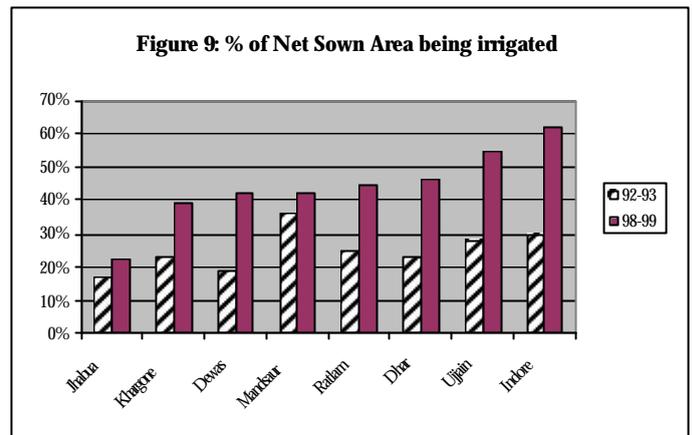
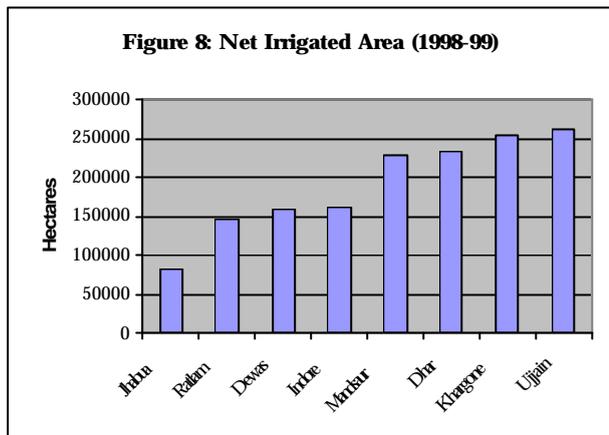
Irrigation in the Region is increasing and in the higher potential areas (for example, Ujjain where non-food crops account for 57% and Rabi (winter) production for over 40% of the gross cropped area. Comparing the net irrigated area¹⁵ data for 1998-99 with that available for 1992-93, we can see that there has been a rapid and substantial expansion of the irrigated area in the Region – on average a 72% increase in net irrigated area over 6-7 years so that by 1998-99, 44% of the net sown area was being irrigated. Dewas, Dhar and Indore districts have seen more than a 100% increase in net irrigated area, Dewas with a particularly high increase of 135%. Mandsaur (here including Neemuch) and Jhabua have seen the smallest increase - 15% and 29% respectively.

However, there is a quite a variation within the region, firstly in terms of the net irrigated area, and secondly in terms of the net sown area being irrigated between the districts as the Figures 8 and 9 show¹⁶. Jhabua has one-third of the net irrigated area of Ujjain and Ratlam just under one-half. 1998-99 figures show that only 20% of the net sown area in Jhabua is irrigated, whilst just over 60% in Indore is. However these two figures aside, on average 45% of the net sown area is being irrigated in 1998-99. The second figure also shows the increase in net sown area being irrigated since 92-93: a 20% increase across the Region. However the largest increases have been in Indore, Ujjain, Dewas and Dhar which have all seen over 23% increase in net irrigated sown area over this time period.

¹⁴ Agrawal and Nurain (1997)

¹⁵ Net irrigated area does not include area irrigated more than once. However only 0.3% of land in 98-99 was irrigated more than once.

¹⁶ In both figures, Mandsaur includes Neemuch and Khargone includes Khargone and Barwani.



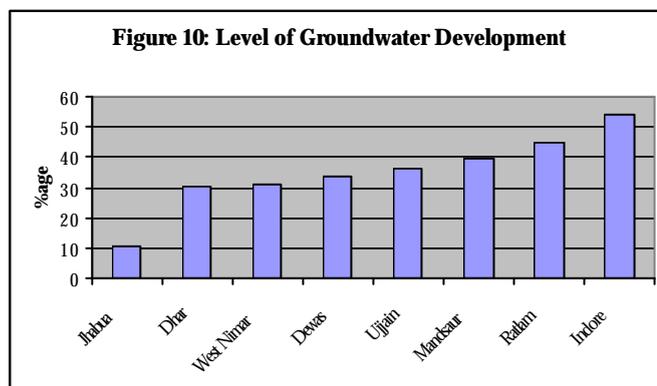
Sources of irrigation

Groundwater (and sub-surface water) extraction is the major source of irrigation, particularly in the higher potential areas.

1998-99 figures show that nearly half the irrigated area of the Region is supplied by “other sources” than canals, tanks or wells. In Dewas, Dhar, Indore and Ujjain, over 55% of irrigation is from other sources. At this point, the following assumption was made: the 1992-93 figures from the same source (The Commissioner of Land Records in Gwalior), separated out tube wells and dug wells. This was not done in the 1998-99 figures for these particular statistics. Due to the increase in irrigation from “other sources”, and the massive increase in irrigation in Dewas, Dhar and Indore - where the researchers know a huge investment in tube wells has taken place - it is presumed that the 1998-99 figures categorise tube wells as part of the “other sources”, distinct from “wells” which equals dug wells. However a further 44% is sourced from wells, showing that, overall, groundwater rather than surface water is the main irrigation source within the Western Region.

Not surprisingly, the level of groundwater development varies between the districts of the region as the Figure 9 below shows: 1995 statistics show the urban-centred Indore district having the highest level of groundwater development in the Region (54.32%) (highest of all districts in MP), and Jhabua by far the lowest of the Region with only 10% of its groundwater tapped. On average though, the Region has developed just over one-third of its total groundwater.¹⁷

Mandasaur district has the highest proportion - over three-quarters - of its net irrigated area supplied through dug wells, with Indore only 9%. Jhabua district has a considerably higher proportion of its net irrigated area being sourced from canals and tanks (ie. surface sources) compared to the other district due to its much smaller irrigated area. However this still accounts for only one-quarter of its total net irrigated area. (And net area irrigated from canals has



¹⁷ Government of Madhya Pradesh, Directorate of Institutional Finance (1998) Table HA11, sourced from Central Ground Water Board – North Central Region (1995) Ground Water Resources of MP

declined by 5% since 1992-93).

As the following table shows, the Irrigation Department plays a significant role in the provision of irrigation through canals and tanks; other departments have however played a major role in recent years in the development of tube wells. With relation to irrigation and tube wells, it is not known which Department will be involved. Similarly 97% of wells are private. The Water Resources Department has only 1 major scheme in the Western Region – the Mahi project serving Jhabua and Dhar, which is still under construction.¹⁸ This is due for completion in June 2003.

The issue is whether agricultural expansion fuelled by extraction of groundwater on such a scale is sustainable in a predominantly hard rock region. Not only is the natural rate of replenishment of ground water usually very low in hard rocks but hard rock geology also means that there is a high variability of groundwater availability within a drainage basin¹⁹

Table 3: Sources of Irrigation Structures

Sources of Irrigation Structures (98-99)	Private	Irrigation Dept	Other Dept
Canals	4%	96%	0%
Wells	97%	0%	3%
Tube Wells	0%	0.2%	99.8%
Tanks with irrigation capacity <40 ha*	0%	81%	19%
Tanks with irrigation capacity >40 ha	0%	88%	12%
<i>Source: Commissioner of Land Records, MP Gwalior</i>			
* As defined by the Commissioner of Land Records			

¹⁸ <http://www.mp.nic.in/wrd/Majorprojects.htm>

¹⁹ Government of Madhya Pradesh, Directorate of Institutional Finance (1998)

1.3 Overview of the government agencies and parastatals and their functions²⁰

In Madhya Pradesh there are four type of major government institutions function at the district and sub-district levels that have constitutional standing. These institutions are:

1. Panchayats
2. District Rural Development Agency
3. District Planning Committee
4. Government Departments, Corporations, Boards and Co-operative

Within this broad institutional framework that exists in the district and sub-district level, this section tries to look at these institutions in the context of their role in rural development and that too specifically in regard to natural resources development. The following paragraphs will build an overview of these institutions including their roles and functions.

1.3.1 Panchayats

The Panchayati Raj Institutions (PRIs) in M.P are based on the provisions made in the 73rd. and 74th. Constitutional Amendment Act. 1993 of Republic of India. The structure, composition and functions of the PR Institutions are as below:

²⁰ This chapter is heavily drawn on the study entitled District Institutional Framework Analysis With particular reference to rural livelihoods in Madhya Pradesh, 2001: Amod Khanna .at.el, DEBATE, Bhopal

Parameters	Village	Block	District
PRIs	i. Gram Sabha ii. Gram Panchayat (GP)	Janpad Panchayat (JP)	Zila Panchayat (ZP)
Composition	i. Persons registered in the electoral rolls of a village ii. Consists of a Sarpanch, a Up-Sarpanch and Panch(s). The Sarpanch and the Panch are elected directly, where as the Up-Sarpanch is elected by and among the Panch elected for the Panchayat.	Members elected directly from their constituencies, provision for membership of Sarpanch and MLAs	The members are elected from their constituencies, provision for membership of Janpad Panchayat president, Members of Parliament and MLAs. President and Vice President of are elected by and from the members elected for the ZP
Standing committees	Gram Sabha Village Development, Agriculture, Education, Health, Community Resources, Infrastructure, Village Protection, Social Justice Gram Panchayat General Administration, Construction and Development, Education, Health and Social Welfare	General Admin., Agriculture, Education, Communication and Works, Cooperation and Industries, Health, Women and Child Welfare, Forests	General Admin., Agriculture, Education, Communication and Works, Cooperation and Industries, Health, Women and Child Welfare, Forests
Functions	Gram Sabha The functions and powers GramPanchayat has vested with Gram sabha, which are related to: Planning, selection of beneficiaries, manage natural resources, control, audit and monitoring, ensuring Basic services, regulatory powers, management and maintenance of public land and records, activities to prevent spread of contagious diseases, development and admin., community mobilisation, resource mobilisation like imposing tax, levy, etc. GramPanchayat establishment and regulation of market place including village fair, prepare action plan for economic and social dev. implementation of schemes, coordinate and monitor implementation, reallocation of funds to the Gram Sabha	Preparing schemes for economic dev., consolidation of plans of gramPanchayat and submit to ZP, coordinate with GP and facilitate them for effective execution, reallocation of funds to GP, provide relief in case of distress situation like fire, epidemic of diseases, locusts swarms etc.	Preparing district annual plan (consolidation of Janpad wise plans) for economic development with social justice, coordination Coordination and guidance JP and GP for effective implementation of plan, Resource mobilization, reallocate the funds made available by the State and Central Government; co-ordinate the proposals for grants for any special purpose received from Janpad Panchayats

1.3.2 District Rural Development Agency (DRDA)

District Rural Development Agency (DRDA) came into existence in the 1980s to coordinate the implementation of anti-poverty programmes of central and state government. This was registered under M.P. Society Registration Act as an autonomous institution. The central government in a set of guidelines in 1999 (DRDA Administration Yojana in 1999) has laid down the role of DRDA within the following principles.

- (i) “The DRDAs are not the implementing agencies but can be very effective in enhancing the quality of implementation through overseeing the implementation of different programmes and ensuring that necessary linkages are provided. To this extent the DRDA is a supporting and facilitating organisation and needs to play a very effective role as a catalyst in development process” (para 1.1 of the guidelines).
- (ii) “It (DRDA) will need to develop a far greater understanding of the process necessary for poverty alleviation/eradication. It will also need to develop capacity to build synergies among different agencies involved for most effective results. It will therefore need to develop distinctive capability rather than perform tasks that are legitimately in the domain of PRIs or the line departments (para 1.2 of the guidelines).
- (iii) “It shall be their endeavour and objective to secure inter-sectoral and inter-departmental coordination and cooperation for reducing poverty in the district” (para 1.3 of the guidelines).
- (iv) “To bring about a convergence of approach among different agencies for poverty alleviation” (para 1.3 of the guidelines).
- (v) “under no circumstances will they perform the function of PRIs” (para 1.4 of the guidelines). However, it is expected that DRDAs will maintain effective co-ordination with the PRIs, “but this role is not to be confused with actual implementation which will be by the Panchayat Raj and other institutions” (para 1.6 of the guidelines).
- (vi) “DRDAs will maintain their separate identities but will function under the Chairmanship of the Chairman of the Zila Parishad. They are expected to be a facilitating and supporting organisation to the Zila Parishad providing necessary executive and technical support in respect of poverty reduction efforts” (para 1.5 of the guidelines).
- (vii) DRDAs will be accountable to the Zila Parishads, the state and central government by informing these institutions about the progress of the programmes through periodic reports (para 1.7 of the guidelines).

Thus, the DRDAs have been visualised as an autonomous agency that has the mandate of bringing about coordination and convergence between different agencies working for the poverty alleviation in the district. Even though the role of DRDA is not that of an implementing agency, yet it has to pool in expertise to enable other agencies, especially the Panchayat institutions, to fulfil their role as a decision-making body for planning and implementation of rural development programmes in the district.²¹

In 1997 the DRDA in Madhya Pradesh has been merged with the Zila Panchayat by an amendment in the M.P. People's Representative Act. The merger has been in effect since October 1997 with the transfer of all assets and liabilities of DRDA to the Zila Panchayat.

²¹ District Institutional Framework Analysis With particular reference to rural livelihoods in Madhya Pradesh 2001: Amod.at.el, DEBATE, Bhopal

1.3.3 District Planning Committee (DPC)

District Planning Committee is an institutional mechanism to consolidate the plans of Panchayats and municipalities of the district and sub-districts and coordinates the implementation of the plans. DPC came into practice by act of GoMP in 1999.

The members of the Panchayats and Municipalities, Minister of the State Government, President Zila Panchayat and Collector of the district are the members of the DPC. The Collector chairs it.

The state government has delegated significant administrative and financial powers to the DPC. The line departments at the district level now can seek approval from the DPC for those works for which they had to secure approval from the state government.

1.3.4 Government Departments, Corporations, Boards and Co-operative

In Madhya Pradesh there are 51 departments at the Secretariat, which have 137 Offices and Directorates, 60 Boards and Corporations and 81 Other Institutions.²² The Panchayats and DRDA form part of the Department for Panchayat and Rural Development and District Planning Committee is part of the Planning and Economics and Statistics Department.

These departments have their distinct operational territory (not necessarily be coterminous with the revenue or administrative jurisdiction) with clear mandate. They are controlled by the respective Secretary of the department, while executive functions are controlled by the respective directorate.

For the purpose of this study we have identified only the departments relevant to natural resources management. The following table will provide information about the territorial jurisdiction of the department at the district, sub-district and below and respective head of the unit.

²² District Institutional Framework Analysis With particular reference to rural livelihoods in Madhya Pradesh, 2001: Amod.at.el, DEBATE, Bhopal

Table 4: Territorial jurisdiction of Department

Name of the Department	District	Tehsil/Sub - division	Block	Village
Panchayat	Chief Executive Officer Deputy Director Panchayat	-	Chief Executive Officer PSEO	Gram Sahayak/ Panchayat Karmi
Rural Development	Chief Executive Officer APO	-	Chief Executive Officer BDO	ADEO
Rural Development- RES	Superintendent Engineer	Sub Divisional Officer	Junior Engineer	-
Water Resources	Executive Engineer	-	Sub Divisional Officer	-
Fisheries	Assistant Director	-	Fisheries Inspector/ Fisheries Extension Officer	-
Animal Husbandry	Deputy Director	-	VEO/VAS	-
Agriculture	Deputy Director, Agril. Deputy Director, Horti.	Sub Divisional Officer Agriculture	Senior Agriculture Development Officer	Rural Agriculture Extension Office
Forests	District Forest Officer	Assistant Conservator	Range Officer	Beat Guard
Public Health Engg.	Executive Engineer		S.D.O-PHE	Technician
Revenue	District Collector	Sub Divisional Officer	-	Patel Gram Kotwar Patwari
Planning Economics & Statistics	District Planning Officer	-	Block Level Investigator	-

The parastatals like boards and corporations are formed to carry out specific tasks of the departments under the Acts of state legislature. They are promoted by the department and have their own hierarchy of management headed by a Managing Director.

1.4 Overview of programmes and projects being implemented in the Western Region with relation to NRM

The following table outlines the programmes and projects which are currently operational and those recently operational in the Western Region. For this purpose we have listed only the programmes and projects that are fully or partly related to natural resources development. Other than the regular departmental programmes the externally aided ongoing or previous programmes are also listed including the NGO programmes. The following table will provide information about the projects and programmes that have been implemented or being implemented the region by departments, parastatals including externally funded programmes. Whilst every attempt have been made to be as comprehensive as possible in terms of NRM activities, this list is not totally exhaustive in terms of rural development activities going on.

Table 5: Programmes and Projects related to NRM in the Western Region of MP

Organisation in-Charge	Project/ Programme name	Funding source	Description of the project/programme	Length of project/ programme	Districts
Internally Funded					
Zila Panchayat and DRDA	Rajiv Gandhi Watershed Management Mission, Drought Prone Areas (DPAP) Programme and Employment Assurance Scheme (EAS)	- Central Govt. & State Govt. - People's contribution	- Participatory watershed management implemented by village committee, financial power delegated to committee; element of community contribution	Started in 1995, ongoing	All western M.P. districts in DPAP and EAS blocks (DPAP is not in Indore, Mandsaur and Ujjain)
	Pani Roko Abhiyan (Stop Water Campaign)	- Part funding by State govt. through regular allocation of Panchayat; EAS and from some other sources from Zila Panchayat like MP/MLA fund - Significant people's contribution	- Encouraging peoples' initiatives for rainwater harvesting; high component of community contribution.	Started in 2001, ongoing	All western M.P. districts
	Food Security Mission	State Government	-Land & water development works are undertaken while ensuring wage employment, establishment of Grain bank	Started in 2000, ongoing	Selected villages of Jhabua, Dhar and few more districts of western M.P.
	EAS, 10th. & 11th. Finance commission, SJSY,	Central & State Govt.	Partly for land & water management works, managed by the Gram Panchayat	Ongoing	All western M.P. districts
	Integrated Waste Land Development Programme (IWDP)	- Central Govt.	- Participatory watershed management implemented by village committee, financial power to committee ;element of community contribution	On going	Selected villages of Jhabua, Indore, Ujjain, Mandsaur, Ratlam, Dewas
Forest Department	Regular forestry development program	State Government	- Forestry development – Land & water management - Social forestry - Joint Forest mgmt.	Ongoing	All western M.P. districts
Agriculture department	Agriculture extension	State Government	- Watershed programme	Ongoing	All western M.P.

Organisation in-Charge	Project/ Programme name	Funding source	Description of the project/programme	Length of project/ programme	Districts
			- Extension of agriculture technologies - Extension of horticulture practices		districts
Water Resources Department	Water resources development	State government	- Construction of irrigation systems - Facilitating WUA for management of system	Ongoing	All western M.P. districts
Rural Engineering Services	Water resources development	State government	- Construction of small water harvesting tanks, check dams mainly for cattle drinking	Ongoing	All western M.P. districts
Department of Fisheries	Promotion of pisciculture	State government	Extension of pisciculture in irrigation or Panchayat tanks	Ongoing	All western M.P. districts
Department of Animal husbandry	Promotion of animal husbandry	State government	Breed improvement grass land development Extension of diary technologies, etc	Ongoing	All western M.P. districts
Narmada Valley Development Authority	Land and water resources development	State Government	Plantation, watershed development, etc.	Ongoing	Selected districts
Public Health Engineering	Rural water supply	State Government	Installing hand pumps, Tap water connection	Ongoing	All western M.P. districts
M.P. Agro services	Extension of agriculture technologies, farm machineries	State Govt.	Extension of agriculture technologies, farm machineries	Ongoing	All western M.P. districts
Externally Aided					
Zila Panchayat	M.P. Livelihood Mission	DFID, UK will be managed by Zila Panchayat	Natural Resources Management for livelihood improvement	Forthcoming	Jhabua, Dhar, Barwani, West Nimar, Ratlam
Forest Department	M. P. Forestry project	The World Bank, managed by the FD	Participatory Forestry Management, encouraged involvement of people in forest management, some access and control by the community over forest	1994-99 Second phase likely to come	All western M.P. districts
Forest Department	UN World Food Programme	UN World Food Programme	Routine Forestry development works against food grain	Ongoing	Some selected districts like Jhabua, Dhar
Agriculture department	Comprehensive Watershed Development	DANIDA	Participatory watershed development, element of community contribution, NGOs as collaborators with Agriculture dept.	1997-2002 second phase likely	Jhabua, Dhar, Ratlam

Organisation in-Charge	Project/ Programme name	Funding source	Description of the project/programme	Length of project/ programme	Districts
Water Resources Department	MP Minor irrigation Project	USAID	Minor irrigation development; Higher technology introduced in distribution system ; concept of WUA introduced	Mid eighties till 1992	West Nimar, Dhar, Jhabua
Krishak Bharti Cooperatives Limited (KRIBHCO)	Western India Rainfed Farming Project	DFID, UK	Comprehensive natural resources management through people's participation	1992, Ongoing	Jhabua, Dhar, Ratlam
NGO programme	Community based natural resources management	Externally and internally aided	Community based natural resources management, high element of community contribution, innovative approaches, and collaborative efforts with Govt.	Ongoing	Almost in every district there is presence of NGO. The scale of operation and approaches vary
Indian Farm Forestry Development Cooperatives	Western India Rainfed Farming Project	DFID, UK	Comprehensive natural resources management through people's participation	1999, Ongoing	Ratlam
Other Institutions					
Indian Agricultural Research Institute, Indore				Ongoing	All western M.P. districts
National Research Centre of Soybean (NRC), Indore				Ongoing	All western M.P. districts
JNKVV University, Zonal Research Station and KVK Jhabua				Ongoing	All western M.P. districts
KVK Dhar				Ongoing	Dhar
College of Agriculture JNKVV and Regional Research Centre, Khandwa				Ongoing	All western M.P. districts
KNK College of Agriculture, Mandsaur				Ongoing	Mandsaur
Large Agriculture Multi-Purpose Society (LAMPS)	Credit related to agriculture	Own source, State govt.	- Provision of credit in the form of agriculture inputs and cash to the farmers. - Extension of Agriculture technologies	Ongoing	All western M.P. districts
MARKFED	Buying and selling of agriculture produces	Own source, State govt	- Buying and selling of agriculture produces through LAMPS - Bulk supply of Agri. inputs through LAMPS	Ongoing	All western M.P. districts

2. EXISTING PUBLIC CONSULTATION AND DIALOGUE PROCESS IN THE AREA AND THEIR REVIEW

This Section has been structured a little differently to that set out in the draft table of contents, since it was found that many of the sub-headings are too interlinked to be treated separately, and doing so would mean unnecessary repetition. Therefore the original sub-headings have been bundled together into the following structure.

The main stakeholders identified within this study are:

- The project implementing agencies for NRM programmes, viz. the government line departments and agencies, and NGOs – the agencies whose mandate is to promote NRM
- The villagers – the users (and supposed) managers of NRM. Within the village, 3 sub-groups of stakeholders are identified:
 - ✍ The landowners
 - ✍ The landless
 - ✍ Women.

2.1 Success and failure in NRM programmes (previous and contemporary)

- **Contemporary government and other donor initiatives programmes in the area – both those which have been successful and those that have not and why (people's perception and the government perception)**
- **Views of the various stakeholders on the programmes**
- **Previous and existing programmes: Reasons for their success or failure and why – these may be different for different stakeholders**

2.1.1 People's perceptions

The following set of issues summarises people's perceptions on NR-based initiatives and programmes past and present in the study villages. These have been generalised for purposes of saliency and usefulness, however examples on specific initiatives/programmes are also given:

- Overall, the researchers found that awareness of the specifics of most government programmes is limited, and their understanding of the conditions often partial and somewhat distorted. Here government is taken to be programmes being implemented through government line departments. The villagers consulted could often provide only a sentence or so on what they thought it was about. Where good awareness exists, it is not necessarily due to effective services of the Government agencies, but largely due to proactive nature of the people here to learn about the government schemes and the benefits that they could derive out of it. For example, even members of a Village Forest Committee (VFC) talked to have a very unclear understanding about the role of VFC, especially their rights and accountability. Broadly they were aware that the VFC is responsible for promotion of forest protection and collective resource management that ultimately leads to village development and income generation. However how to achieve this was not very clear to them.
- A general opinion about government schemes was that they follow too much of target approach and delivery of goods (inputs) seems to be the main aim, rather than results it should deliver. Specific examples were given in the consultations in terms of the SJSY (government self help group) programme, which are currently in full swing.
- Many government programmes do not match with the requirement of beneficiaries and there is hardly any scope to adjust with the local conditions. The wrong selection of beneficiaries, poor follow-up by government staff are some of the reasons for failure.

- People perceive that the success or failure of a programme largely depends on the performance of the nodal agency or person involved in the programme implementation. The attitude and commitment of that person can make a big difference in the results of the programme, as the following examples show. (They said this also applies to the Panchayat, see Section 2.5.3 below.)
 - ✍ In one village, a specific example given was that of the local Rural Agriculture Extension Officer (RAEO) who has been staying in Sundrel village for more than 15 years (he is originally not from that village). People say that many of the agriculture technologies being practiced by the farmers here were introduced and promoted by him, with constant working with the farmers. The recent enthusiasm for organic farming in the area (in village Bagripura, the neighbouring village of Sundrel, 100% organic farming has been practised for two years) is because of his hard work only for last 3-4 years. The farmers here are very enterprising and ready to experiment with new ideas; what is required is that someone should facilitate them with information and be able to work with them.
 - ✍ In Dhabla village in Mandsaur, the local RAEO is a member of the WUA and supposed to provide agriculture related information to the irrigators and farmers in general. However, he has never attended the WUA meeting since it was formed, nor do the villagers know about him. The Rajpoot and other caste group of farmers told that they learn most of the new agricultural practices including seeds by following the Patidar farmers, who are considered to be the most enterprising farmers. The availability of government extension services like agriculture, horticulture, animal husbandry is absolutely poor.
 - ✍ Under Pani Roko (Stop Water) Campaign, the collector of Mandsaur, who is also the district coordinator of the campaign, took special initiative for mobilizing people for this campaign. River Sibna which is a tributary of Chambler river is literally the lifeline of Mandsaur district, especially for the district town for drinking water. The 54 km long Sibna is largely a seasonal river carrying most of the runoff from the area to Chambal during monsoons. The collector gave a special emphasis to damming this river as much as possible so that maximum storage can be obtained. There were already 8 dams on the river of which 3 required major renovation. A plan was made by the engineers in consultation with the people at large for 12 more new dams and repairing 3 damaged ones with a total cost of nearly Rs.192 lacs. The scheme has been completed in 2002 with nearly Rs.130 lacs of contribution from the community and rest came in from the different sources within the government schemes which are not very much tied up like M.P. or MLA funds. This scheme is expected to store at least 1058.30 Ha. metres of water or in other words fill water up to 51 kilometers of the length of the river (total length is 54 km.). This will have irrigation capacity for nearly 5000 ha. by lifting water at different dams by the farmers themselves. The drinking water problem will be reduced substantially as reported by the people. With the monsoon of 2002, the dams which are complete in full respect, are full with water. However this innovative water conservation works is down to the proactivity of the Collector himself.

However this does not mean that people are unaware of the differences that programmes and initiatives are making to them. An example of this is the watershed development work undertaken as part of the Rajiv Gandhi Watershed Management Mission (RGWM), see case study of this in Jhabua in Section 2.3.

2.1.2 NGO perceptions on reasons for programme failure and success

These were drawn from the NGO Consultation Workshop in which the Collector, Jhabua and additional CEO, Zilla Panchayat, had also attended. The reasons for failure are general rather than specific to any particular programme. They are as follows:

- Higher doses of subsidy in government programmes prevented building community ownership on one hand and created vested interests in the villages on the other.
- Too much bureaucratic control and very less scope for community participation in the planning and implementation of programmes. Most of the programmes do not reflect the actual needs of the community.
- Target approach of departments has led to minimum time spent on the processing and involving community.
- Lacuna in programme management. Only programme inputs are comprehensively monitored (physical and financial monitoring) whereas programme outputs and impacts (ie. how it is actually changing the livelihood of community) are hardly monitored and shared. This is a common problem of government and externally aided projects.

- Lack of mechanism and culture of sharing experiences and building on the previous learnings. Similar mistakes are repeated.
- Lack of skill on the part of government staff to understand the programme objectives. Lack of subject knowledge and sensitivity towards the causes of the poverty.
- There is a dichotomy between the implementation capacity and the large sum of money that is made available in the district for rural development. The Zila Panchayat of Jhabua district alone receives allocation for about Rs.55-60 crore per annum. This has direct implications in terms of target approach and spending money (input).
- No attempt was ever made to understand the problem of poverty holistically and develop strategies to address them, within the district or sub-districts plans.
- There has been a lack of collective effort on the part of community to demand development services. The Rural Development programmes continue to be supply driven and there is hardly any voices from the community for the quality performance of the programmes. The paucity of positive leadership has been one of the reasons for lack of community mobilization in developmental programmes.
- A lack of transparency prevented programmes enjoying people's confidence and trust.
- There is lack of sufficiently good NGO initiatives in the state. The Government of M.P. has to take partial responsibility for this. There is not much encouragement by the government to promote NGO initiatives in the state. National Watershed Programme (which is renamed in M.P. as Rajiv Gandhi Watershed Mission) is perhaps the only programme which has encouraged NGO initiatives in NRM. Unfortunately, in M.P. the percentage of NGO-PIAs (Project Implementing Agencies) under the National Watershed Programme is about 15% (to GO-PIAs of 85%), whereas in other states like Gujarat and Maharashtra this statistic is just opposite. The Forest Department in M.P. never encouraged NGO participation for JFM despite the fact that there was a provision for NGO involvement under World Bank funded forestry project during 1994-99. The WRD too has not come out with its policy for NGO involvement in the promotion of Water Users Associations.

What this boils down to is failure or reduced success mainly due to a lack of community participation within programmes, and not just from the implementation stage, but from their very inception. Community participation at the planning stage is as critical as during implementation. However the concept and methodology of participatory development is increasingly being recognized and the government has also responded to this change very positively in recent years (last 810 years). For example, the guidelines for common approach for natural resources management by GoI is in fact radical in their provisions for participatory, equitable, gender-sensitive and decentralized approaches in watershed development²³. The results have also started coming in of such initiatives: Rajiv Gandhi Watershed Management Mission, Joint Forest Management, Participatory Irrigation Management, the Gram Sabha Adhiniyam of 2001 are some of the success stories of people's involvement in natural resources management.

2.1.3 Government perceptions

However there are always two sides to a story: a lack of community mobilisation by government and other promoting agencies on one hand is one aspect of non-participation: another aspect being that communities themselves are not committed to participating, due to factors such as lack of time, resources, understanding.

MP Government Participatory Irrigation Management (PIM) Act, 2000

For example, the views of Mr Tiwari, the Chief Engineer and Nodal Officer for Externally Aided Projects for the WRD, on the success of the transfer of the O&M of the distribution system to the community under the PIM Act, were the following. There have been some success stories and some grey areas. Although 2 million

²³ Workshop proceedings of National workshop on watershed approaches for managing degraded lands in India : Challenges for 21st Century, 27-29 April 1998

hectares of irrigation potential has been created through government sources, in reality only 50% of that is currently available, in that capacity built in terms of community management for use is only 50%. It is recognised that the WRD has to devote time to convincing the community that they are getting the benefits, therefore they have to manage it. However this is proving difficult in practice. The main reasons are:

- Community capacity is not sufficiently built, partly due to years of government subsidies creating mindset that "government should pay". Because of this, it remains very difficult to collect water charges etc. It is proving difficult to convince farmers that it is their system, they are getting benefits, and therefore they should pay for it.
- It is difficult to involve farmers from planning stage in practice, as believes that understanding of IWRM amongst PIM canal users is limited.
- The WRD staff is not sufficiently skilled to deal with social issues being raised by community and by farmers, eg. relating to agricultural inputs. (Supply and demand problem).
- There is a lack of sufficient awareness campaigns and training due to lack of funds. There is a need for both awareness raising and capacity building of firstly the WRD to de-learn and learn secondly, community learning on value of water and irrigation management.
- There are still many disputes amongst Tail enders. There is a need for cooperation between farmers and that is quite hard to come by, to get the farmers to be "gentlemen".

MP Water Resources Department PIM Programme (October 2002)

Transferred O&M of distribution system (canals) to community in June 2000. Dams etc remain with the department.

- *Handed over 1.495 million ha to FUA*
- *1470 WUA Presidents in place*
- *10,280 Territorial Committee members*
- *Of the 1470 WUAs in place: 466 for major irrigation; 158 for medium irrigation; 846 for small irrigation.*

2.2 Participation of stakeholders

- **How did the various stakeholders learn about the programmes**
- **The dialogue process involved in the implementation of the programmes**
- **Were stakeholders given options and opportunities to make decisions, choose the programmes they were interested in participating in etc; do the different stakeholders understand the conditions of the programmes – were they told about them?**

With regards to the three questions, which are asking mainly about the extent of participation of stakeholders, the following summary can be given:

2.2.1 Government-implemented programmes

As noted above, and broadly speaking, awareness of specifics of development programmes and initiatives remains low amongst the wider community. There appear to be two main "formal" information channels through which villagers learn about government schemes and initiatives. These are:

- a) through Gram Sabha meetings, where the Sachiv "sometimes" tells them about new schemes in the village
- b) through contact with village level government functionaries, namely the health workers, teachers, agricultural extension workers.
- c) Also, if NGOs are working within a village, then they will also be another source of information on development programmes in general. Finally informal contact between villagers will be also be a source.

The information that many villagers receive appears both partial and distorted. Whether people are able to avail of the schemes (ie. the effectiveness of the service delivery) appears directly related to individual proactivity of that person: with most people being unclear on how to do so. The general feeling is that people have to go out

to learn about schemes rather than schemes coming to them. Part of the problem relates to the ineffectiveness of the Gram Sabha (see Section 2.5.3). However proactivity of a person itself relates to a number of different factors.

In terms of the dialogue process involved in the implementation programmes, one comment made with regards to those programmes the Panchayat implements was that, people would prefer that the Panchayat involve them in the planning and implementation of works, rather than give them a post-facto description at the end of the year on what has been done, as is typical. Information sharing of financial information is often the only dialogue process happening with the wider community.

2.2.2 NGO-implemented programmes

Experience is drawn from ASA's work as a Project Implementing Agency (PIA) of the Rajiv Gandhi Watershed Mission, detailed in Section 2.3 below.

2.3 Case Study of Rajiv Gandhi Watershed Management Mission (RGWM) in Jhabua district: perceptions on its success

Due to three years of continuous drought, it is difficult to appreciate the full impact of the RGWM. On the other hand, continuous cycles of drought are part and parcel of the conditions in the Western Region, particularly within Jhabua.

2.3.1 Perception of Kolyabeda villagers, Jhabua (Kalakhoont village is not part of RGWM)

The background to the RGWM is given in Section 1 of the report. Within the village of Kolyabeda, ASA has been implementing watershed development and water resources management under the RGWM since 1996 (until 2002).

It is clear that villagers appreciate the benefits that the Watershed Programme has brought to them, however it is evident that continuous drought has had a huge impact on the effectiveness of the schemes and the villagers' livelihoods. Even after one year of good rain, it remains difficult for them to see beyond drought conditions.

During the separate discussions, both men and women made it clear that because of the soil and moisture works (SMC) under watershed, the high amount of water run off and soil erosion from their fields was now less. They also appreciate that water is flowing into their wells because of the treatment. Patel hamlet (where a good amount of SMC and water resources work has gone on) was compared to Mori hamlet where less SMC work has gone on and where there is no Talav or wells (due to conflicts over the siting). It was pointed out by the men that because of the lack of work, there was less water in the handpumps, and Mori hamlet cattle had to be taking to another hamlet for drinking.

When asked to consider the future and forecast their water needs for the next 5 years, the men responded that they have already seen the benefits of treatment through the various measures, and that if they try to maximise the storage of available rainfall, then that will be sufficient water. They are keen to carry out nallah bunding in particular since these can store a good amount of water and are cheap (ranging from Rs 400-3000 per nallah bund depending upon the size of the nallah). They are also keen since they saw good examples of nallah bunding during an exposure visit to Ralagaon Siddhi in Maharashtra. They would be willing to carry out the work themselves if they can get boulders close-by, otherwise they would need some help with transportation costs.

2.3.2 ASA's perception on RGWM

As a Project Implementing Agency (PIA), ASA has been involved in the RGWM since 1996. It believes that, on the whole, the watershed scheme has been largely beneficial to the communities. In the sloping area of Jhabua, (villages look like a basin, surrounded by hills), the results of watershed activities are noticeable in a very short time. The degree of sub-surface recharge is quite substantial which itself is convincing enough for the villagers about the benefits of in-situ conservation methods. The Mission has managed to engender some degree of community-wide participation and collaboration where previously little collective action existed, people used to approach individually.

ASA considers the following as main reasons for the success of the RGWM:

- it is a radical, new breed of government programme, in that it delegates much administrative and financial power to the communities for project planning, implementation and monitoring.
- therefore, there is less interference from government officials, which can sometimes slow down or obstruct the implementation of programmes.
- the programme follows a process and needs-based rather than blue-print approach, making it more flexible to suit local conditions.
- in the marginal areas and especially among the tribal community, the distribution of land is not very skewed, therefore watershed programme largely benefits the cross section of the community.
- there is a high degree of NGO involvement as PIAs in Jhabua, who are often best placed to work with communities at the grassroots level, establishing a good dialogue process.
- crucially, being a long-term programme (5 years per phase) allows the community to think and commit themselves long-term to development. In the past, programmes were commonly annual or seasonal.

The main issues for the RWGM programme include:

- level of investment per ha. is low especially for the marginal area where the topography is highly undulating and the degree of denudation is very high. Therefore many of the watershed opportunities are left out due to a resource crunch. It is therefore doubtful whether this investment alone would be able to generate economically attractive proposition for the farmers to sustain the efforts for land and water management. On the contrary, the same cost norm is applied in the relatively flatter area, e.g. parts of Malwa and Nimar, where the prescribed per hectare allocation may not be required.
- question of how to make interventions sustainable postprogramme, including the establishment of a relationship between WDC and the Panchayat
- watershed is purely land-based programme, therefore those who own the land take maximum benefit. This does not affect the equity ratio in the marginal areas where land ownership is not uneven. However, in the places where land resources is largely concentrated in the hands of a few people, (mainly in non-tribal and agriculturally progressive area) the programme ends up benefiting only those who are already better off and can afford to invest for land development activities. Worse even, the landless who actually work for the development of land (viz. field bunding) of these land-owning people, end up paying contribution (10% of the wages earned) since the guidelines require a minimum of 10% community contribution which goes into the village fund for the maintenance of work in future. The question is who pays for whom and for what.
- The NGO participation in the programme is low as compared to other states. Almost 85% of the Project Implementing Agencies (PIAs) are from the government department while this is opposite in some states like Gujarat, Maharashtra. Thus, as a result the programme is getting departmentalized (bureaucratic control and procedure, and there is increasingly a lack of capacity to drive people centred programmes .

2.3.3 ASA's Dialogue Process

In terms of its own experience with RGWM, ASA puts down its successes to a rigorous dialogue process, which it follows when preparing and implementing work in any villages. This process is summarised as follows:

a) Dialogue with programme beneficiaries

i) Preparation of initial Action Plan

- Calling an initial meeting with villagers (either at the village or hamlet level), to introduce themselves and the programme.
- Holding a participatory rural appraisal (PRA) in the village, conducted by a multi-disciplinary team (water resources, agriculture, social specialists). The team spends a minimum of 3 days in the village (and at least 3 nights). From this PRA, a baseline document is then developed, using a common pre-prepared format. ASA has developed a set of criteria of a successful PRA, which include: 75% participation or presence of households, more women and poor households present, baseline document completed, participation of complete multi-disciplinary team.
- Once baseline document has been analysed by team members, another 2 days PRA will be conducted for baseline information sharing and discussion on the proposed watershed treatment plan; development issues; what, where, when and how to do. This will include field-to-field survey and discussion about the budget, people's contribution and other management modalities.
- The Action Plan for the village (or hamlet) is then prepared.
- Meanwhile, Selfhelp Groups (SHGs), WDC and Users Groups will be formed. SHGs must be formed before any work can begin in the village. The WDC secretary and volunteer shall be selected and approved by the Gram Sabha.
- Action Plan approved by Gram Sabha
- Painting of Action Plan in a common place (eg. side of school building) along with year-wise budget.

ii) Entry point activities

Agreed through consensus at village and WDC level. So far, ASA has undertaken:

- Regular conduct of primary health clinics in villages, once a fortnight 50% of cost of medicine borne by the patient
- Pre school education, in villages where no school facility is available
- Audio-visual shows, every month 12 video shows are conducted showing films on development education, eg watershed development, savings and credit, nursery development
- Distribution of improved seed varieties, of paddy and maize and others.

iii) On-going dialogue process with stakeholders

Regular interaction with the villagers and provide critical support in time is the strategy behind ASA's on-going dialogue process with the community. Day-to-day interaction by the village level workers with the CBOs like SHGs, WDCs, UGs, etc.; monthly Gram Sabha meeting, monthly convention of WDCs and UGs of the programme area as a whole, inter village exposure visits and trainings, are some of the methods used.

b) Dialogue with wider village community

Through the monthly Gram Sabha meetings, ASA attempt to keep wider village community updated on the work. Agenda points include:

- Reading out income and expenditure statements
- Reading out and discussing all expenditure between the meeting
- Discussing and approving any new work
- Giving details of the contributions
- Discussing about benefits of physical works, training and exposure visits
- Updating of treatment map after every season as the project progresses .

c) Government Liaisoning/Dialogue Process

- Compulsory attendance in Janpad meeting, sharing progress
- Attending PIA monthly meetings by all team members at the district level
- Attending Panchayat meeting.
- Sharing experiences at the state level meeting with the mission officials.

2.3.4 Perception of Jhabua Zila Panchayat

Interviews with the current Collector and Assistant CEO, Zila Panchayat highlighted that the programme is very much viewed as a success story within the district. The following summary of the five-year review of the RGWM in Jhabua (which began in 1994) was outlined by the CEO in 1999, Mr Sachin Sinha²⁴.

Table 6: Perceptions on Rajiv Gandhi Watershed Management Mission in Jhabua

How Watershed (RGWM) has combatted drought	Lessons learnt
<ul style="list-style-type: none"> ○ 90% of handpumps are working in watershed villages, whereas only 80% are working in other villages. This is attributed to new wells and cleaning of old wells. ○ Kharif (monsoon) anavari (actual production) was 45% higher in watershed villages in comparison to neighbouring villages ○ Out of 1.20 lac ha of Rabi (winter) area the district has, only 40,000 ha could be sown this year. Watershed accounted for 14,000 (35%) when cropped area of watershed is 19% of the district. ○ 76 lac bales of fodder made watershed villages self-sufficient in drought. About 500 tonnes of fodder was imported by the non-watershed villages. 1500 thrift groups and 312 grain banks delivered to the needy ○ About 20,000 people migrated from watershed villages against a peak of 115,000 who migrated from the district (16%). (The district has a usual migrating population of 180,000). 	<ul style="list-style-type: none"> ○ Kharif (monsoon) and Rabi (winter) crop cover could have been increased if the subsurface water was put to effective use. Strategically located wells, both for irrigation and recharging executed out of watershed programme could have made a huge difference. Sub-surface water flowed out of watershed like budget that lapsed every year ○ Where works had ended and there was no alternative livelihood, people migrated ○ Less distribution of crop was possible if breeds that required less water were used ○ High Yielding Variety (HYV) maize seeds yielded good results yet the usage was limited ○ About 465 of 1500 SHGs are linked with economic activities. Those linked sufficiently with alternative means of livelihood stayed in villages. But others did not. ○ Animal induction of improved hybrid species and artificial insemination was not achieved in full, because measure not visualised on the platform of watershed. Every micro watershed has potential to be micro milkshed. ○ Horticulture plants like papaya, guava and seasonal vegetables have been successful in drought where wells were available for irrigation. Drip irrigation sets have also been effective. ○ The impact of drought would have further lessened if these various successful measures were thoroughly spread, carefully planned and executed in the micro-level during the five-year period.

2.4 Lessons learnt especially with relation to the participation of the various stakeholders and their ability and constraints in participating in the process

What has worked and not worked in terms of people's participation in community-based NRM? What are the constraints in seeking people's participation? And how do you improve people's participation?

2.4.1 Successful strategies that have worked

- Programmes pre- designed with people's participation in the decision-making in mind
- Needs based approach
- Some degree of financial cost sharing of development works, where appropriate (see below).
- Scope for training and capacity building of community
- Participatory planning process, involving people from Day 1 in decision-making
- Participatory monitoring process, transparency in terms of accounting and sharing information
- Strategic planning in terms of paying specific attention to the targeting of the poor and women
- Capacity of the implementing agency to carry out participatory development process
- Continuous devotion of time and resources by implementing agency to developing community involvement and maintaining participation

Community Cost-sharing

This is fast becoming an acceptable and critical component of many NR development activities. In its work, ASA requests a contribution (in cash or kind) of 25% of total costs for common land development and 50% of total costs for private land development. Experience is that this promotes a feeling of ownership, particularly over community development works (eg. a dam or earthen tank), which in turn can lead to higher levels of participation amongst contributors. In short, people want to see a return on their contribution, giving them a strong incentive to participate. Critics may argue that financial contribution can impact negatively on people's

²⁴ Sinha S (1999)

participation especially with the poor: however ASA's experience (which also seemed to be that of NGOs consulted in the Workshop) is that it doesn't. People manage to contribute, particularly when they can see what returns their investment could provide in the longer term. What is imperative is that flexibility exists as to how they contribute (ie. the option of labour or money). Also contribution can have knock-on effects: after hearing about the community's efforts in contribution towards a new check dam in one of ASA's villages, the Collector willingly donated 400 quintals of wheat, up-front, to the community towards the costs. (This mobilisation was worth 11% of the total cost of the dam.)

2.4.2 What has not worked and constraints for seeking participation

What has not worked/constraints for seeking participation:

- o Assuming that people will naturally participate at a community level
- o Assuming that there is a "need" for development works already existing within a village, which will prompt participation. "Needs realisation" or "needs creation" within a village is often necessary
- o Limited time frame of the programme – development is a long-term process
- o Target-oriented approach
- o Campaign approach
- o Lack of sensitivity of PIAs towards people's participation, this is more with the Government PIAs.
- o PIA's incapacity to derive people's participation
- o Lack of integration of programmes
- o No follow-ups after programme implementation
- o Inappropriate implementation of participatory programmes

Constraints in seeking people's participation:

- o Seasonal migration for a longer period
- o Inhospitable geographical conditions
- o Unhappiness among people about previous experience of programme / Lack of trust
- o Habituated to subsidy
- o Lack of awareness
- o Low literacy
- o Social and cultural norms
- o Low opinion of themselves (eg. women)

2.4.3 How to improve people's participation

- o Training, campaigns for capacity building- both community & PIA, and other agencies
- o Peoples contribution/ cost sharing in cash or kind- negotiate with people
- o No duplicity in work- (same village under watershed programme groups, under SJSY groups- this affects participation)
- o Integrated planning

2.5 People's views on JFM, WUAs and the Panchayat System

2.5.1 People's views on JFM

Members of JFM's Village Forest Committee (VFC)²⁵ consulted told that the following were the main benefits of being part of the VFC:

²⁵ As per the Joint Forest Management regulations there are 3 types of JFM committees formed depending upon the density of the forest and in each case the norms for benefit sharing varies; these committees are called i) Forest Protection Committee, ii) Village Forest Committee; iii) Eco-Development Committee. The VFC is formed in the forest area where the density is less than equal to 40% .

1) The forest protection and regeneration has provided the members access to the following products, which means they are not facing acute shortage of fuel wood and fodder:

- *Fodder grass*: which appears to be the most valued immediate benefit being derived from the forest, due to the fact that the committee members have the sole right to grass harvests. Mechanisms for harvesting and distribution of grass are elaborate. Plots are assigned to all families @ Rs 50/plot every year. The surplus plots are also allotted to neighbouring villages at the same rate. Open grazing is strictly prohibited.
- *Firewood*: Fuel wood is the next important benefit. Fuel wood collection is primarily in the form of dry wood or products of minor pruning from species of lower economic value. Dry wood collection is open for all villagers. Pruning as fuel wood is available to members as well as non-members, however anybody requiring such wood has to approach the VFC.
- *Tendu leaves*: People collect Tendu leaves (used for Bidi binding) and deposit with the "Fad Munshi"²⁶ which provides some income for them. Each registered member has a card on which the number of leaf bundles is entered. Accordingly payment is made at the end of the season to the collectors. The rate is Rs 40/1000 bundles. Note: Fad is a unit of area for collection of tendu leaves. This process has no direct linkage with the VFC. People can collect leaves from any area including forest under other VFCs.

However, a point was made that role of extraneous factors like proximity to some influential members of the group on relational, political and social grounds definitely played a role in such allocations of tendu leave collection contract.

2) *Other environmental benefits of the forest protection were highlighted by members, namely:*

- They say that rainfall is more on the forest land than on barren lands -has been experienced by farmers.
- Clean and cool air from the forest heat is less because of green area
- Not sure about impact on level of water in wells, nallahs etc but agree that there is a direct relationship.

Researchers' views

Researchers comments of JFM after completing community consultations are that firstly, a sense of community ownership of the forest amongst the people was definitely witnessed. Also, people seem to be socio-economically and politically dominant/vocal, and in better contact with the outside world. However this cannot be directly attributed to the presence of JFM. A long term vision about forest management had been engendered: with many seeing high benefits for them in the future.

However, it is clear that building community capacity to undertake the autonomous running and management of forest protection is a slow process. From the community consultations, it was evident that people were not clear regarding the mechanisms of harvesting and benefit sharing, and in one village, the members were absolutely unconfident to even think of managing on their own. However, the main reason for this opinion relates as much to power dynamics within the village, as to belief in their own capacity. This was to the point that they believe the protection cannot sustain without continuous intervention of the FD. "If the Dept. takes a back seat a few notorious people will destroy the entire initiative and we will get back to the situation we had begun with."

Observations/Issues on village Malipura's relationship with the Forest Department under JFM:

1. The traditional hierarchy between FD and the people does not seem to have diminished except that now people feel that the FD have become more approachable and perhaps accessible. From the point of view of women, there seems to be no change from the earlier relationship, since the former have not been involved in the VFC activities at all, although in the JFM regulations there is a provision of both woman and man household head being the member of the VFC. Those (women) who know that a VFC has been formed have less and insufficient idea about its purpose and functions.

²⁶ Fad Munshi is the registered person by the FD to collect tendu leaves from the collectors and pay the rate as prescribed by the FD. "Fad" is the unit of area for which the person is registered to operate.

2. It seemed that the entire process of micro plan preparation was largely guided or prepared by the FD. It was not possible to probe further that whether people would have preferred to do it differently since the FD officials were present in the meeting.
3. People expect the FD staff (the middle level at least) to attend/facilitate the meetings. In a way it is positive that the officials are taking efforts to visit the villages personally. However what needs to be looked into is how long this will continue. The VFC is already 8 years old. Another issue which has probably some implication to this dependency factor. As per JFM regulations the Beat guard is the secretary of the VFC and he does most of the VFC's work. If today after 8-10 years of JFM the FD could not achieve the independency with the JFM committees then it is very much because of this policy, leaving apart factors like insensitivity of FD staff, lack of skills, etc.
4. Also it was found that no importance was given to the representation of different communities in the village. There are 10 landless members in the village. Land Patta was given to 4-5 members long ago. However land that was allotted to them has already been encroached by the dominant group in the village. When asked whether the VFC does not take up these kinds of issues for resolutions in their meetings, the prompt answer was " who will dare challenge them"?
5. It was felt that the seed money is still largely controlled by the FD representative and most of them are ignorant on the accounts (income-expenditure) related information- how much has been spent on what, what has been the income, how much have been the Bunkar samities (Weavers' group) earnings, how much of it has been deducted against their loan from the VFC and so on. For example, a couple of Bunkar samiti members participated in a fair organised in Bhopal to sell their products. The Forest Ranger also accompanied them. They sold about Rs 14,000/ worth of products. However they have no idea where the money has gone. Even the President of the Bunkar Samiti is not aware.

Case study of JFM in Jhabua

Jhabua was one of the pioneer districts to start JFM activities in early 1990s due greatly to the initiatives of 1 District Forest Officer (DFO). With the WB-aided Forestry Project in 1994, it received a boost in terms of scaling up of efforts and activities. ASA conducted a study in 1997 for two JFM committees in Jhabua to understand the functioning of the JFM committees. The findings were:

- These two JFM committees had achieved substantial physical outputs in a relatively small period of time. The gains are in terms of grass, minor timber through pruning operation and the most valuable one was the forest which was getting naturally regenerated. The vast tract of barren land had been transformed into a regenerated teak forest within 45 years.
- The JFM committee consisted mainly of a handful of influential village people who were promoted by the Forest Department to protect forest from grazing and illegal felling. The involvement of the rest of the villagers in the affairs of JFM was almost nil. The Beat guard, who is the secretary of the JFM committee, appears to be the key person in the committee and he controlled the majority of affairs (keeping accounts, writing proceedings of the meetings, etc) of the committee, while the role of the other members was submissive.
- The interim benefits like grass, minor timber, etc. were not distributed equitably, the JFM committee members getting the most.
- Over the years, with the back up of Forest Department, the JFM committee members have further consolidated their position and power in the villages. They have also consolidated their stake in the forest which they have invigorated in last 45 years by protecting it from grazing and felling.
- The rest of the villagers felt that they have been left out. With the increasing value addition to the forest, the feeling of deprivation increases. Although there is an acknowledgement of the efforts made by the committee members to regenerate the barren land into forest, the standard grudge with the rest of the villagers is that the common property has been handed over to few people for their use. There is a growing tension within the villages. There is pressure from the neighbouring villages also for cattle grazing since these villages had enjoyed grazing rights when the land was unprotected.

There following issues emerge from this and can be said to be relevant for JFM in general:

- As far as the productivity of forest is concerned there is definitely a gain, but the issue of equity in terms of forest management and benefit sharing remains unresolved. As per the JFM regulations all households of the village or the villages coming under the periphery of the forest coupe should be involved in the JFM institution and be eligible for equitable sharing of benefits. But in practice this does not happen due to various reasons. Some of the prominent reasons that the study found out were:
 - i. people were not informed or were not made aware of the JFM scheme by the FD before the formation of the Committee. Clearly there was not much groundwork done before the FD ventured into formation of JFM institution. For the FD it was perhaps easier to work with few influential people of the village who in turn guaranteed them protection of forest, which the FD desired most;*
 - ii. many households could not afford to share labour for the rotational guarding of the forest (a mechanism which FD suggested for the protection) due to pressing need for seasonal migration in search of employment. The influential households (who are also economically better off) supplied the majority of the labour for protection, as the need for migration is less with them and often casual as against the others for whom it is a distress call. Due to lack of a mechanism for the regular migrants to compensate their share of labour for guarding in any other form at the end of the year or the option of joining the committee later after compensating for non-participating kept them out of the JFM institution;*
 - iii. people were not clear about their rights and duties and the potential benefits of joining JFM. Had there been an attempt to broad base the information and do groundwork in regard to JFM institution, the level of participation would have been more.*
- The second issue concerns the sustainability of these institutions, whose foundations are not laid with a democratic process. There does not seem to have been many efforts going on at the FD level for rectification of previous mistakes. The extent to which these institutions or the forest will be sustainable with the growing tensions inside and outside the villages, is highly unclear.
- The capacity of Forest department to facilitate community organisation work is probably another issue. For FD, it is a move from regulatory to participatory mode to facilitate JFM kind of initiatives. The skills which are required to facilitate such process is currently lacking with the functionaries, especially with those at the district and below. Unless there is some work done to build the capacity of the staff, we cannot expect a better results. Collaborating with local and credible NGOs may lead to a better performance but so far in M.P. FD has not shown any such interest.
- The current JFM regulations do not provide full opportunity for the JFM institutions to grow as an independent institution. There are substantial amount of control kept with the FD to regulate the JFM institutions.

2.5.2 People's views on Water Users Associations (WUA) and Water Users Groups

During the consultations, 2 Water Users Associations (WUA), set up under the Government of MP's Participatory Irrigation Management (PIM) Act, 2000, were consulted (Mandsaur and Dhar). In comparison, a *Sammelan* (literally "get together") of Water Users Groups (WUGs) established under ASA's watershed programme was also consulted. The Project Implementing Agency under the Rajiv Gandhi Watershed Management Mission (in this case, ASA) is obliged to form Users Groups (along with Watershed Development Committee and Self Help Groups).

a) Views on Water Users Associations

Villagers (non-members and members of the WUAs) were asked about the benefits and drawbacks of the institutions, what achievements they have had and what issues they face in terms of water management and distribution. These are outlined through the following case studies with the main issues summarised beneath:

WUA of Kunda Minor Canal Irrigation Project, Dhar

The story of Shala, as a tail end village of the Kunda Minor Irrigation Project, is no better than any other tail end villages of the country in any canal irrigation command. The village has a significant (could not get the exact figure from the WRD or WUA) designed command area. Ever since the scheme was commissioned in 1963, the water has never reached this village. Nearly four kilometres of main canal that is supposed to link this village is damaged (or non-existent as villagers put it) and therefore there is no way that water can reach. The villagers and the WUA members both felt that the problem of cutting of canal by the head-end farmers can be tackled but then what can be done if there is no canal at all to transport water to this village. The villagers informed us that the WRD had sanctioned Rs.60 lakhs for the repair of canal in 2000-01 but there was hardly any work done by the department. The irrigators of Shala therefore gave up hope to get canal irrigation and, since 1984, started their own initiatives of installing private lift irrigation (LI) schemes from Narmada River. Currently, an estimated 85-90% of the cultivable land of the village is being irrigated through these LI schemes. There about 20-25 such schemes operational in the village, with average unit cost Rs. 3-3.5 lakh. All of them are individual initiatives, financed (without subsidy) by the local banks.

It appeared from the discussion that the general irrigators have liked the concept of WUA. It is said that after taking over charge by WUA the water distribution and management has improved. The net irrigation area has increased and the wastage of water has reduced, due to strict vigilance and imposition of penalties by WUA. About Rs.3 Lakh is pending as water charges from the previous years, which the WUA plans to recover in the beginning of this year's irrigation i.e. in October-November 2002. However, the dependency of WUA on the WRD is still very high. Two reasons could be attributed for this. Firstly, there is a lack of clarity about the roles, responsibilities and rights of WUA on the part of WUA itself and the department. For instance, WUA was not clear whether it could charge more water fees than what is specified by the WRD, for generating additional resources. The WRD officials present in the meeting were also not clear. Secondly, although on paper WRD has transferred the scheme below the tank to the WUA, the department still enjoys a lot of control over the system. On the other hand, WUA has not developed into an institution with independent identity to work comfortably under the guidance of WRD. It is office bearers' work as an extended arm of the WRD. This is expected to be happening in the beginning, and this hand holding process can help WUA grow into a mature organization.

There are some operational difficulties for WUA to work effectively. As the WUA members grudge, "nobody listens to our complaint". An example was given where the WUA tried registering a complaint with the police, against some farmers who broke the canal. The police declined to register the complaint saying that the complaint should be registered by the WRD since WUA does not have such authority. This is the clear case of lack of communication among the government departments: an institution recognised by the PIM act does not enjoy recognition by other departments of the government. Another issue raised was the interference of the Collector and political leaders in functioning of WUA. There are instances when collector permitted the upstream farmers to lift water directly from the tank, which is something not to be encouraged. The same is the

case with the political leaders also. WUA members say that farmers from outside the command approach the political leaders and put pressure on the WRD to allow them to take water from the canal or from the tank directly. The local WRD officials are too scared to disobey the verbal orders of these influential authorities.

The irrigators in general and the WUA office bearers in particular feel that the powers of WUA need to be widened. The local WRD officials also think in the same line. There were some suggestions made in this direction. They are:

- WUA should have power to issue notices to any violator of its rule, be it the command farmers or the government officials.
- They should have the power to take possession of any instruments like motor pump, etc. which are used illegally to create obstacle for smooth operation and maintenance of irrigation system.
- The usufruct right of the tank should be given to the WUA, which will then be a very good source of income for WUA by doing fish cultivation. *(Note: While having discussions with the WUA, the main issue of importance was the present management of the tank by the WRD. It was quite evident that the WUA was not happy with the way the tank was being managed. They therefore made the point that if the usufruct rights had been passed on for the tank as they were for the disnet (distribution network) under the PIM, then this would have been beneficial. However the researchers did not explore whether the WUA is willing or in a position to take over the management of the tank and how their management would have differed. In this Nimar region, there are not many example of traditional water harvesting structures (talavs) like in Bundelkhand region, therefore exploring on the issue of community management of tank did not seem to be quite relevant.)*
- The WUA should be authorized to tackle the farmers encroaching land on both sides of the canal.
- WUA should be repaid the irrigation fees collected by the WUA for the non-supply of water at the earliest. The WRD has promised to pay back 90% of the total irrigation fees collected by the WUA, which has not happened so far. The local WRD officials confirmed that the instructions from the higher authority have come in this regard and soon this will be implemented.

Interesting development taking place – WUAs of Dhar became federated

An interesting development has taken place in Dhar where all 38 WUAs of the district became federated under their own initiative. The purpose of the Federation is reported to be addressing larger issues such as lobbying for funds for renovation of the systems, more power (like usufruct rights for tank) delegation to the WUA, etc. It is at the rudimentary stage and it is actually not known about the real purpose (exploiting political interests seems to be the most prominent reason) of this move. Nonetheless, this initiative is appreciable and indicates that, with constant encouragement and capacity building, many such initiatives will be seen in the future, which will strengthen the community based approach in irrigation management.

WUA of Jothkheri Minor Canal Irrigation scheme, Mandsaur

In contrast to the above, there are examples where tail end farmers can be assured irrigation. The case of this WUA was just that, where members claimed that after their takeover of the scheme in the last year, they have ensured irrigation to the tail end farmers of Sindpan village after a gap of 10-12 years. The WRD officials and the tail end farmers corroborated this. This is obviously a major achievement by the WUA. This success is largely due to the commitment of the WUA members to enforce the rules as laid down on paper, which detail that water be rotated (or supplied) to the tail end users first. Previously this had not been happening.

There is about Rs. 65,000 pending water fees, which WUA is confident of recovering soon. However, the WUA does not seem to have assumed their responsibility fully; the dependency on WRD is still very high. There is expectation that the government should continue to provide subsidy for operation and maintenance of the scheme. (The other issues such as more power to WUA, usufruct rights for tank, stop interference of collector in WUA' work etc. are the same what we found in Dhar). However, there is a confidence with irrigators that, given a time and guidance, the WUA can make this a profitable venture.

Main issues regarding WUAs

- People like the idea of WUAs, however there is still some degree of inertia, particularly in areas and amongst those who have long benefited from government subsidised systems.

- Clarity must be attained about the roles, operational responsibilities and rights of WUAs and the WRD, on both their parts, otherwise dependency upon the promoting agency can remain high and autonomy reduced. To repeat the example given above, the Dhar WUA was unclear as to whether it could charge more water fees than the WRD has specified.
- The WRD should also make other line departments and government officials aware of the autonomy of such WUAs.
- For development of WUAs as an autonomous institution, handholding by the WRD is required, particularly in terms of community organisation and capacity building of the WUA office bearers, and users of irrigation.
- This in turn – and particularly in the case of the WRD – will require capacity building and training of staff, especially those who will be at the cutting edge for community interaction. This should be a top priority for the WRD. It was acknowledged during a meeting with Mr Tiwari, Chief Engineer of Externally Aided Projects, that Irrigation Department is not sufficiently skilled to deal with some issues being raised by community.
- Approving the Participatory Irrigation Management (PIM) Act will not alone help unless the capacity of those who are supposed to implement the policy on the ground is built.
- More power may have to be invested, such as in terms of roles formerly carried out by the WRD.
- Action must be taken to limit the scope of WUAs use as a political tool, so that political people do not unnecessarily get involved in the WUA's functioning.
- Where there is potential, consideration should be given to federating WUAs.

b) Views on Water Users Groups

A regular meeting of Water Users Groups (WUGs), being organised by ASA, was also consulted to solicit views. Since most of the Users Groups represented have only recently been formalised, discussion focused on more general issues including: whether they see water management as their issue or the government's, the purpose of a WUG, why it is necessary, what it will do for them.

The village-based Users Groups are bodies set up to deal primarily with maintenance of water storage structures. Some of the WUGs existed informally earlier and ASA is now in the process of formalising them. Others were created in January 2002, to look after new structures being built in the summer of 2002. All structures are being built as part of ASA's watershed programme, funded through the RGWM DPAP and EAS programmes, with the help of funding from Aga Khan Foundation-India. The members of a User Group can range from 6 to 25.

35 men from 5 villages (7 Users Groups) attended the *Sammelan* (get together), including representatives from Kolyabeda village where one consultation has been carried out. No women attended and no women are members of the Users Groups.

The Users Groups represented are maintaining the following structures in the following villages: (Kolyabeda: 1 check dam and 1 talav, Semalda: 1 check dam, Ratmaliya: 2 check dams, Badi Sudi: 1 check dam, Madavgarh: 1 talav). These structures are usually small, involving an irrigation potential of 10-15 acres each, with 10-15 farmers. To date the progress of the UGs includes the opening of a bank account, with a minimum deposit of Rs500 per group, and they have been responsible for opening and closing of gates of dams, and generally monitoring the "health" of the structure.

These *Sammelans* (get together), facilitated by ASA field staff, are held in order for Users Groups to come together and collectively explore issues relating to their functioning. During this particular *Sammelan* (get together), role plays were undertaken where ASA staff and some villagers took on the role of an imaginary Users Group deciding a) when the gates of a dam should be closed b) what to do when a new person wants to join the group - ie. how much to make him pay, etc. Based on the role-play, villagers were then prompted to share what they were doing in their villages.

Conclusions on Water Users Groups

Depending on the history of watershed development works in the villages, responses as to who should be responsible for maintaining structures were mixed. Some said that where government had made the structures, then government should maintain. However, and with regards to the community-based approach that ASA has taken to watershed development (eg. in terms of high levels of social and economic participation), there is definitely some awareness that the community has responsibility to maintain the structures.

Members understand the main purpose of a Users Group to be ensuring that the water harvesting and storage structures continue to provide them with benefits in the future. The main role foreseen is the maintenance of the structure.

The UGs plan to manage the maintenance of the structure collectively by setting up a bank account, where all members deposit. The bank account will be used for example when mending or painting gates of a check dam, renewing stones on a talav etc, clearing of waste weir, repairing of bund etc. All members initially deposited an equal sum of money, usually enough to meet the minimum balance the bank accepts. The funds will probably be built up through collecting a cess (levy) on volume of water drawn for irrigation, or per number of times irrigated or area irrigated. The levy can be collected at the time of irrigation or at the time when crops are harvested.

Since it is early days for the UGs, they had not yet finalised how to manage the use of water. Certainty is that the members will decide together: and as noted in the above paragraph, it could be through a levy on either volume of water extracted, or on harvested crops.

Issues and Challenges relating to Water Users Groups

- Achieving equity in rights over water is a challenge. In ASA's case, it is trying to convince members that, through the Users Group, they should also collectively plan their crop planting and irrigation, to try and instill some sort of management of rights, this way.
- A Users Group should be formed prior to the construction of structure, and the need for a formal institution to manage it emphasised to the community from the very beginning. ASA's experience is that once a structure has been built, convincing people of the need for such a group is more difficult.
- The irrigation requirement must be properly identified before the structure is built, otherwise maintenance of the structure will be difficult (ie. if there are too few people using the structure, then maintenance costs per capita may be too high to maintain).
- The question on how Users Groups will fund the overhaul, or big-scale maintenance of structures needs to be considered from an early stage.
- The following actions are recommended to help a WUG become a sustainable, autonomous institution:
 - ✍ Users Groups should be formally recognised by the Panchayat: since this will add weight and teeth to the groups.
 - ✍ there should be a representative of each User Group on the Watershed Development Committee. Roles and relationships need to be clearly defined and Users Groups should seek ratification of decisions from the WDC. The WDC can then act as a mediator, for example in terms of conflict resolution.
 - ✍ federating Users Groups at an appropriate level should take place. This will be a key task, if sustainability of Users Groups is to be ensured, post-project and post external funding. For example, in ASA's case the NGO foresees the Federation taking over its current role of facilitating/mediating the WUGs and providing technical assistance work, such as employing engineers to take care of the structures' maintenance.

2.5.3 People's views on the Panchayat System

On the whole, people throughout the Region were found to hold similar views of the Panchayat System. People were asked about their relationship with the Panchayat, how it impacts on their lives, how effective it is in terms of delivering development benefits to their families and the community, whether it could do in future.

The concept of decentralizing power to the people through the Panchayat and Gram Sabha is generally welcomed, however the following conclusions can also be drawn:

- *Panchayat = Sarpanch/Secretary, ie. individual personalities:* For many people, the Panchayat is synonymous with Sarpanch (elected head of Gram Panchayat) and in some cases the Secretary (government official). See case study of Kalakhoont Panchayat below. In Mandsaur, people were quite appreciative about the consultation process that their Sarpanch undertakes to involve village people in the Panchayat's work and feel that all government programmes should follow such methods of consultation.
- People feared (though this fear largely came from NGO consultation) that Panchayats are increasingly becoming extension arm of the government - another layer of bureaucracy at the village level. There are often too many vested interests by powerful people.
- *Involvement of Panchayat in village development activities and its effectiveness correlates directly to individual leadership:* This relates to the point above, in that the successes and failures of the Panchayat are being directly attributed to the credibility of the particular person in charge ie. "good leadership". People view the leadership as the key ingredient to proactiveness of the Panchayat, rather than the body per se. This is so, because it most likely reflects the reality within villages: effectiveness does indeed depend upon the proactiveness of the Gram Sabha.
- *Lack of faith in Gram Sabha:* Faith in the ability of the Gram Sabha to actively participate in developing the village and delivering livelihood improvements, generally appears to be minimal. In one village, the reason was that although there had been hundreds of proposals approved by the GS, no action had been taken to operationalise them. Also, people's perception is that the Panchayat has limited financial resources (which it is dependent on government for supplying), and for this reason, it is hard to stimulate people's interest or attract attention of the whole village. People not involved were questioned as to why they were not, and responses given were that they are too busy in their quest for earning livelihood and do not feel very motivated to take part in the Gram Sabha, which actually cannot do much for improving their livelihood.
- *Concept of Gram Sabha Standing committees impractical:* The Standing committees are meant to be the extension arm of Gram Sabha for the execution of programmes and schemes in the village. The consultations found that the concept of Standing committees is impractical and appear to exist mainly on paper. People did not seem to have found sufficient reasons for these committees to exist - what they are supposed to do, where the resources are for them to be engaged in developmental works, were some issues bothering people. This lack of clarity over the role and functioning means that nobody appears to be taking the business of establishing sub-committees very seriously, one reason being perhaps that the clarity on the role and functioning of the sub-committees had not been made clear. In one village, the consultees recognised that they were members of various standing committees, but did not know which ones in particular as no meetings had been held.

The example on the following page illustrates how dependent the Panchayat system is on good leadership to deliver benefits and yet how the lack of resources from government should not be a limiting factor to development:

How can the Panchayat be made more effective? Some answers that came up during the consultations included:

- Instead of being an implementer it should perform the role of governing institution. (The role of the Sarpanch should be made clear. The different committees formed should implement the programme as per their function.)
- May get the work done through respective samitis or community organizations existing in the village
- Increasing awareness among Panchayat samitis and Gram Sabha
- Scope for transparency should be increased
- Educated people should be encouraged in PRI
- Encouraging people to view the Panchayat as an institution rather than as an individual.

Sundrel village, Dhar

In the village of Sundrel in Dhar, the Panchayat has carried out crucial works within the village to supply the whole village (and neighbouring village of Bagripura which comes under same Panchayat) drinking water under its own Tap water scheme. It appears that almost every household is benefiting from the Panchayat scheme and there is adequate scope still to provide more connections.

The Tap water scheme was started by a government initiative in 1981 through a bore well. In 1986 the scheme was affected due to severe drought in the area and there was acute shortage of drinking water in the village. The Panchayat took the initiative for digging up 2 dug wells with its own resources, however, that did not help much in solving the problem. In 1987, the Panchayat decided to lift water from Narmada river, which is about 6.5 kms. from the village, to permanently solve the problem. They took a loan from the Bank of India and installed the pipeline system and overhead tanks. The bank loan was subsequently repaid through water fees collected by the Panchayat. With a subsequent increase in village population, the demand for water was going up and a shortage occurred due to low capacity of the overhead tanks (20,000 litres). The Panchayat took initiatives again and constructed a overhead tank with 6 lakh litre capacity with its own fund in 2001. In the same year the Public Health Engineering Department (PHED) provided financial assistance for installing of high powered motor and high capacity pipe line. Today, there are about 1200 tap connections in Sundrel and Bagripura village with a potential of meeting the drinking water demand for the next forty years. Rs. 30 per month per tap connection is charged by the Panchayat as water fees, of which it claims that there is no defaulter. (Interestingly, while constructing the overhead tank the Panchayat has thought of constructing a small pond (nearly 1 ha. area) near the tank to store the spill from the overhead tank and use it for cattle drinking.)

The Panchayat does not seem to be dependent on government allocation for development works, which is usually the case with thousands of Panchayats in the state. This Panchayat has conceived and implemented several innovative ideas to generate its own resources. Taxation on cattle selling (Panchayat has a traditional cattle market) is their main earning source. As another earning source, it has constructed many houses and given them on rent to the government officials who are headquartered in the village. The local branch of Bank of India is housed in a Panchayat building. A recently constructed community wedding hall has joined the fleet for the same purposes of earning rent.

However it appeared that, in this case, it was the Up-Sarpanch (who is from dominant caste) together with another influential political village figure (who is also an ex-Sarpanch and people recognize his contribution for the development of the village) who are the main think tank and driving force behind this Panchayat. It appears that the role of Sarpanch has been marginalised into a dummy candidate (it is reserved for a tribal candidate). However, while talking to other people and different caste groups in the village, people in general are happy about the performance of the Panchayat and its leadership. The time was a constraint to go into the details of how far this Panchayat has been able to maintain social justice and equity in distributing benefits and avoid discrimination.

Undoubtedly this Panchayat is unique in many fronts, especially by its innovative ideas of generating resources and serving the people better.

3. THE SELECTION OF THE AREAS AND THE PROCEDURE AND TOOLS USED IN THE CONSULTATION PROCESS

3.1 The procedure followed to select the study area

3.1.1 Selection of Western Region districts

ASA undertook the Community Appraisals within the Western Region of Madhya Pradesh. Several different definitions could have been applied to classify which districts to include as Western. For the purpose of these appraisals, the following ten districts were included: Jhabua, Dhar, Ratlam, Barwani, West Nimar (or Khargone), Dewas, Ujjain, Indore, Mandsaur and Neemuch. Barring other reasons, the choice of these districts as the Western Region made logistical sense.

3.1.2 Selection of Study Districts

Within the Region, the researchers chose to undertake consultations only within rural communities. The main reasons for this were: first, as the socio-economic profile details, almost three-quarters of the Region's population is classified as rural and over 70% of the Region's total workforce is either cultivators or agricultural labourers. This implies that the majority of issues with regards to IWRM will relate in some way back to agriculture, and; second, ASA's and the researchers' experience is solely in terms of *rural* community-based development. During the preparatory meeting with the Halcrow team, we were also reassured that some data on the issues pertaining to the major urban centres in MP had already been gathered.

The following summary with regards the characteristics of the Western Region was known to the researchers:

Overall, rural Western MP can be classified as a marginal area, in terms of agricultural productivity and opportunities for livelihood through the utilisation of natural resources. The main characteristics of the region can be summarised as:

- Semi-arid area; land and water productivity is far below the potential despite a reasonably high rainfall of average 1000 mm per annum, nonetheless it is highly erratic;
- High percentage of rural and tribal (bhil, bhilalas) population, low density of population, literacy rate is very low particularly with women, largely homogenous community (in case of tribal) with same clan or kinship groups;
- Predominant subsistence form of agriculture characterized by minimum use of technologies; highly dependent on unreliable monsoonal rain; minimum utilization of surface and ground water;
- Dependency on a highly degraded natural resource base to supply basic livelihood needs;
- Undulating topography, with high runoff; estimates of surface runoff vary from 21 to 54% depend on the soil type and slope;
- Lack of self-motivated initiatives on conservation of natural resources including harvesting of surface water;
- Lack of basic amenities and infrastructure facilities
- The outreach of formal lending institutions in the agriculture sector is very poor leading to the exploitative operations by the moneylenders, whose interest rates ranges between 120-150%.
- Lack of irrigation infrastructure, both in term of surface and groundwater utilization, few Minor and Medium scale irrigation schemes are operational in the area, but capacity utilisation of the systems is poor and there are a number of unresolved issues in terms of operation and management;
- Substantial government efforts suffer from poor implementation including lack of mechanism to involve people in the process of development;
- Seasonal migration constitutes a significant portion of livelihood coping mechanism of tribals;
- Overall, there is a very high incidence of poverty despite of the abundance of natural resources and high potential for agricultural growth.

However within the region, there are pockets, which can be categorised as higher potential productions system (in terms of NRM), which have the following characteristics:

- Availability of irrigation facilities

- Low lying, flatter land with good quality soil (eg. black cotton soil in Malwa and Nimar region)
- Concentration of progressive farmers with better awareness (mostly in non-tribal pockets)
- Agriculture is largely market based, not subsistence
- Heterogeneity in terms of social settings (caste and class)
- More politically active than tribal areas.

This understanding initially framed the approach to selection of study districts. However to achieve as proper representation of the differing conditions in the Western Region as possible, within the given timeframe, the following, more rigorous, rationale was then applied to choose the study areas and select villages:

1. Out of the four regions of Madhya Pradesh, as classified in the TA ToR, the Western Region is characterised by being a semi-arid area of low rainfall. Yet, it is known that highly erratic nature of rainfall or *failure* of rainfall, rather than low rainfall is the bigger issue: ie. drought-proneness²⁷, particularly for agricultural-based livelihoods. However it was also known that there are pockets where drought is less of an issue. In such pockets, it is likely that strategies for water management and irrigation etc would be different. Therefore the first level of categorisation used was to classify areas or districts which are drought-prone and non drought-prone.
2. Drought-prone v non drought-prone: the classification used to categorise drought-prone was borrowed from the Government of India's Drought Prone Areas Programme (DPAP)²⁸. Unfortunately it was not discovered whether the MP State Government has used the Central Water Commission's or Irrigation Commission's definition of drought-proneness, the latter of which is:

“ Areas where the frequency or probability of failure of annual rainfall by more than 25 per cent from the normal was found to be 20 per cent or more for the observed years, were considered to as drought-prone. Areas where the frequency exceeded 40 per cent were considered as chronically drought-prone.”

There is also likely to be some political implications in the classification of districts as drought-prone, due to the development funds involved. However this aside, the following table outlines the number of blocks per district within the Western Region which are covered by the DPAP programme.

Table 7: Blocks included under GoI DPAP programme in Western MP

District	Number of blocks included under DPAP	% of blocks under DPAP
Jhabua	12 out of 12	100%
Khargone (ie. what is now West Nimar and Barwani)	11 out of 16	69%
Dhar	8 out of 13	62%
Dewas	3 out of 6	50%
Ratlam	2 out of 5	40%
Indore	No DPAP	n/a
Mandsaur (including Neemuch)	No DPAP	n/a
Ujjain	No DPAP	n/a

Source: 1994 National Watershed Guidelines, Ministry of Rural Development

²⁷ Nadkarni (1985)

²⁸ DPAP is explained in the Introduction to this report.

From this first order level of classification, a decision was therefore taken to select villages out of the following three districts:

- a) *Jhabua*, since it can be considered wholly drought-prone;
 - b) *Mandsaur*, since it is not considered (under this definition) to be drought-prone. Mandsaur was selected ahead of Indore and Ujjain, primarily because it has the highest rural population (significantly higher than Indore's).
 - c) Either *Khargone* or *Dhar*, since it was known to the researchers that Jhabua itself could present a separate case to the rest of the Western Region, and might not reflect the only reality of the effects of drought-proneness. Both these districts could also be termed as drought-prone since over 60% of their blocks as classified so.²⁹
3. At this point, a number of other factors were brought into consideration, firstly to support the choice of Jhabua, Mandsaur and West Nimar/Dhar above, secondly to see which other areas needed to be represented. These factors included:
- a. Need to have representation of non-tribal, as well as tribal communities
 - b. Need to cover areas where government-run irrigation schemes and private or community-run irrigation schemes are operational
 - c. Need to have representation of both degraded and better natural resource conditions and lower and higher value agriculture as explained above.
 - d. Related to above, need to have representation from all 3 Agro-climatic zones (ACZs) existing in the Region, since as explained in the Socio-economic profile, it is true that with a highly rural population, agro-climatic zones influence to a large extent the present livelihood pattern of its inhabitants. (These are the Jhabua Hills, Malwa Plateau and Nimar Plains ACZs. as explained in Section 1.1).
 - e. Need to ensure consultation on Joint Forest Management (JFM) as requested in the ToR.

To ensure adequate feedback on Joint Forest Management and also to consult with a community in the east of the Western Region, Dewas district was the final district selected for study. In 1991, Dewas (together with Khargone) had the highest per capita forest area in sq km in the Western Region. The Forest Department officials were also known to ASA. The table below summarises the final selection of Study Areas and including justification.

Table 8: Summary of Study Districts chosen

	Study District selected	Rationale for selection
1.	Western Jhabua district (ASA project village)	<ul style="list-style-type: none"> ○ Wholly drought-prone district, predominantly tribal and marginal area as described above. Choose villages falling within the Jhabua Hills Agro-Climatic Zone (ACZ) ○ Although, as the socio-economic profile highlights, Jhabua should be considered as a separate case, this sample should also be able to give insights into the issues faced by other the overall Bhil tribal tract of western M.P. in the districts of Jhabua, Dhar, Ratlam, Barwani, West Nimar. ○ Conditions very well known to ASA and should get very good results. ○ Successful district in terms of using small-scale watershed development as a form of drought-proofing. Out of 1300 villages in Jhabua, more than 450 are covered under watershed programmes ○ Little presence of government-run irrigation schemes in the district.
2.	Mandsaur	<ul style="list-style-type: none"> ○ Not classified as drought-prone by DPAP ○ Government-run canal irrigation schemes exist ○ Part of Malwa Plateau ACZ ○ Marginal farming system

²⁹ This uses Nadkarni (1984) study of socioeconomic conditions in drought-prone areas as a basis, where he has treated those districts where over 55% of their taluks were identified as drought-prone.

	Study District selected	Rationale for selection
3.	Eastern Dhar	<ul style="list-style-type: none"> ○ Drought-prone district (as classified by DPAP), but: ○ Government-run canal irrigation schemes exist from Narmada ○ More mixed society (more non-tribal than tribal) ○ Higher potential farming systems in the Nimar Plains ACZ
4.	Dewas	<ul style="list-style-type: none"> ○ To include a district which has one of highest forest covers in the Region ○ To cover the eastern part of the Western Region ○ Understand functioning of JFM was another area of interest

3.1.3 Selection of Study villages

Within these four districts, the rationale used to select the study villages was:

District	Block	Village	Final village selection by:	Rationale for selection
Jhabua	Bori	Kolyabeda	ASA Researchers	<ul style="list-style-type: none"> ○ ASA project village covered under RGWM ○ In Jhabua Hills Agro-climatic Zone (ACZ), with very much sloping topography ○ Tribal, few landless ○ Low input agriculture ○ ASA has good rapport, have been working in village since 1997 ○ Much work undertaken in terms of SMC, and sub-surface water development ○ Water Users Association exists ○ Remote
Jhabua	Pitol	Kalakhoont	ASA Researchers	<ul style="list-style-type: none"> ○ ASA project village, but not covered under RGWM ○ Part of Jhabua Hills ACZ but flatter terrain ○ Tribal, few landless ○ Low input agriculture ○ Presence of a proactive community-run Lift Irrigation Cooperative/Society ○ Much work undertaken to harvest surface water ○ Less remote than Kolyabeda
Mandsaur	Mallargarh	Dhabla	Local officials of WRD	<p>No rigid criteria, but:</p> <ul style="list-style-type: none"> ○ In Malwa Plateau ACZ ○ Under Canal Irrigation command ○ Mixed caste group, more landless ○ Water Users Association exists
Dhar	Dharampuri	Bagripura	Local officials of WRD and Kunda WUA	<ul style="list-style-type: none"> ○ In Nimar Plains ACZ ○ Higher input, capital intensive agriculture ○ Pioneering work in terms of organic farming
Dhar	Dharampuri	Sundrel	Local officials of WRD and Kunda WUA	<ul style="list-style-type: none"> ○ In Nimar Plains ACZ ○ Higher input, capital intensive agriculture ○ Tail end village of irrigation command of Kunda Minor Irrigation project of Water Resources Department
Dhar	Dharampuri	Shala	Local officials of WRD	<ul style="list-style-type: none"> ○ In Nimar Plains ACZ ○ Higher input, capital intensive agriculture ○ Tail end village of irrigation command of Kunda Minor Irrigation project of Water Resources Department
Dewas	Bagli	Malipura	DFO and other FD officials	<ul style="list-style-type: none"> ○ In Malwa Plateau ACZ ○ Better natural resources base especially the forest resources ○ JFM initiatives

Further details of the study villages are given in Annex C.

3.2 The tools used for the consultation process and why they were used

The consultation process was completed through:

- a NGO Consultation Workshop held with a wide range of NGOs (also few representative from GOs) in the field of community based natural resource management and rural development;
- Consultations with 7 different villages: 2 within Jhabua district, 3 within Dhar and 1 each from Mandsaur and Dewas districts (as identified above);
- Consultation with ASA Water Users Group Sammelan (consisting of 5 villages);
- Secondary data consultation and collection, through literature review and key interviews.

3.2.1 NGO Consultation Workshop

As proposed, a NGO Consultation workshop was held in order to discuss and solicit views on the critical issues related to Natural Resources Management and Integrated Water Resources Management from NGO partners working in the field of Community Based Natural Resources Management (CBNRM) in western M.P. Due to time constraints, it was easier to call NGO representatives in one place, rather than visit them individually: also it was thought that this forum would provide a useful discussion place to share information and issues with regards to IWRM.

The list of Workshop participants is included in Annex D. In total, 33 participants attended (including 10 staff from ASA) representing a total of 16 NGOs, plus the Collector and Additional CEO, Zilla Panchayat from Jhabua district. The Workshop was held in Jhabua town. NGO representation came from the following districts: Jhabua, Dhar, Indore, Ratlam, Ujjain and Shajapur (although it is not officially part of the Western Region as defined here!). Representation was sought from other districts, but unfortunately due to time commitments, people could not attend. For this reason also, the majority of participants were from Jhabua itself.

The workshop was structured by framing seven key questions upon which the participants were asked to work in three working groups. While forming working groups, regional representation was ensured as far as possible. The questions framed for the working groups were as shown in the following box:

Tools used within the Workshop were a presentation on IWRM made by Director of ASA, group discussions on the issues identified above, followed by presentations in a plenary session to facilitate group reflection and conclusion drawing. The medium of language was Hindi. The full proceedings of the Workshop are available if required

Questions used within NGO Consultation Workshop

1. What are the relevant NRM related issues in your area? *Eg. environment, economic, social, institutional, management, poor and women*
2. IWRM
 - *What do you think could be done to manage the supply and demand for water in the Western Region?*
 - *What should be the strategy in Western MP accepted by the people for:*
 - *Effective harvesting*
 - *Supply*
 - *Management of water? Eg. water charging*
 - *Do people think that management of water is an issue or purely insufficient supply of water?*
3. What are the NRM related programmes currently being run in your area and also those implemented in last 10 years?
4. Which programme/s have not worked and why? *Reasons for failure.*
5. What are the key factors you think are important for success of any NRM programme? (Recipe for success) *Recipe for success for Western MP in terms of:*
 - ≈ *Strategic physical interventions*
 - ≈ *Institutional and management mechanisms*
6. Community Participation
 - ≈ *What has worked and not worked in terms of people's participation in CBNRM.*
 - ≈ *What are the constraints in seeking people's participation?*
 - ≈ *How do you improve people's participation?*
7. Panchayat
 - ≈ *What is their opinion of the Panchayati Raj institution at the village? Is it an effective body?*
 - ≈ *How do you perceive the PRI in terms of CBNRM?*
 - ≈ *Do you think the PRI has potential in terms of service provision? Constraints/Opps.*
 - ≈ *Any egs.*

3.2.2 Community Consultations

The community consultations took place within the study villages, as identified above, usually at a favourite meeting place, such as the school ground. (One consultation was also held during a *Sammelan* or “get together” held at one of ASA’s field offices, as detailed below). The consultations were facilitated through the use of the following participatory tools. These tools were selected on the basis of the researchers’ previous experience of undertaking community consultations on natural resource management within different locations in the Region. They were also selected as the most appropriate tools to gather information required for this study.

In all consultations, the main tool used was discussions either at the village level or through Focus Groups. To aid these discussions the following participatory tools were also used:

- ***Transect walks*** through the villages with a handful of villagers (men and women where possible) in order for the researchers to familiarise themselves with the natural resource conditions and watershed/water resource development activities and to prompt villagers to talk about the natural resource issues of importance to them. The average length of the walk was 1-2 hours. The walks were found incredibly useful in terms of first hand appreciation of village conditions and life, and uncovering the issues that were further probed in the focus group discussions. When we were passing through or alongside a person’s plot, that person would stop to answer questions from the researchers – this usually prompted a discussion amongst the village members.
- ***Resource mapping*** of the village was facilitated, the maps mainly depicting the natural resource features, and watershed/water resources development works completed, and those which are desired. The maps were drawn by villager(s), either on the ground, using different colour powders, or on a sheet of paper. Two examples are included below (Figures 12 and 13 – Participatory Rural Appraisal maps of Kalakhoont and Dhar). This is a very useful visualisation tool, particularly when discussing natural resources issues.

- **Chapatti or Venn diagramming** was used as a focus for various discussions in the groups. The tool produced some interesting results when used to uncover people's perceptions on the strength of and relationship between the various actors within the Panchayat system (viz. the Sarpanch, Up-Sarpanch, Secretary, Panch (elected body) and Gram Sabha. (See Figure 11 below)
- **Scenario Analysis with key informants** with the help of paper and pens, this was used in order to promote discussion firstly on the rainfall pattern within a 10-year cycle, and on top of that, the cropping choices and strategies followed during the different types of rainfall years (eg. total drought, "less" rainfall, "normal" rainfall, "too much" rainfall) of one particular farmer. Similarly it was used to discuss future requirements of water within villages.

3.2.3 ASA Water Users Groups Sammelan

During the consultation period, a Sammelan (get together) of Water Users Groups was being held at ASA's field unit office in Bori village. The Sammelan gathered 35 men from 5 different villages, including Kolyabeda to share experience on how to take forward the Users Groups and common issues arising through the Groups. The researchers took the opportunity to use the Sammelan as a discussion forum for this assignment.

3.2.4 Secondary Data consultation

To complete the research, consultation of secondary sources took place. This was mainly a literature review of existing documentation on natural resources, community participation and development programmes from the ASA library, and other documentation personally obtained from various government departments and key NGOs in Bhopal. Also the following interviews were held in order to fill gaps on governmental perspectives and to provide some background information:

- Mr J K Tiwari, Chief Engineer and Nodal Officer, Externally Aided Projects, Water Resources Department, Government of MP
- Mr Niraj Mandloi, Collector, Jhabua
- Mr R K Gupta, Additional CEO, Jhabua
- Mr S C Agrawal, SDO, WRD Sub-division: Dhamnod, Dhar
- Mr Rajesh Rathore, ADM, WRD Sub-division: Dhamnod, Dhar
- Mr K C Jain, Sub-engineer, WRD Sub-division: Dhamnod, Dhar
- Mr S K Nahata, Sub-engineer, WRD Sub-division – Mandsaur, Mandsaur
- Mr C. Singh, Amin, WRD Sub-division: Mandsaur, Mandsaur
- Mr. Sharma, Dy. Ranger, Bagli Forest Range, Dewas

Apart from these the researchers' team have met the villagers of the respective study villages including office bearers of WUA, JFM, WDC, Panchayat whose names are not given here.

Figure 11: Use of Chapatti diagrams in Kalakhoont village

In Kalakhoont, a participatory exercise was undertaken with paper chapatis to understand the importance that the villagers attach to each actor in the Panchayat system and the relationship between the actors and the Gram Sahba. Four different sizes of chapatis were given to the group. They were asked to choose the size of chapati which they thought reflects the importance of each Panchayat actor (viz. the Gram Sahba, the Panch (elected representatives), the Sachiv (Secretary), the Up-Sarpanch (Deputy) and Sarpanch (leader). The villagers were then asked to show what they perceive to be the strength of relationship of each actor with the Gram Sahba. What might have been expected is that the chapatis were placed on top of each other, to show that each actor is integrally related to each other. However, the outcome is shown in the figure below. The discussion around this exercise concluded that the villagers attach much importance to individual actors in the Panchayat rather than the institution per se: in particular the Sarpanch and Sachiv (government staff member) are viewed as “the Panchayat”. In short, it is the person (or in this case 2 persons) not the institution which is the Panchayat in the villagers eyes. They are the ones who are seen as having the power to take decisions and influence affairs.

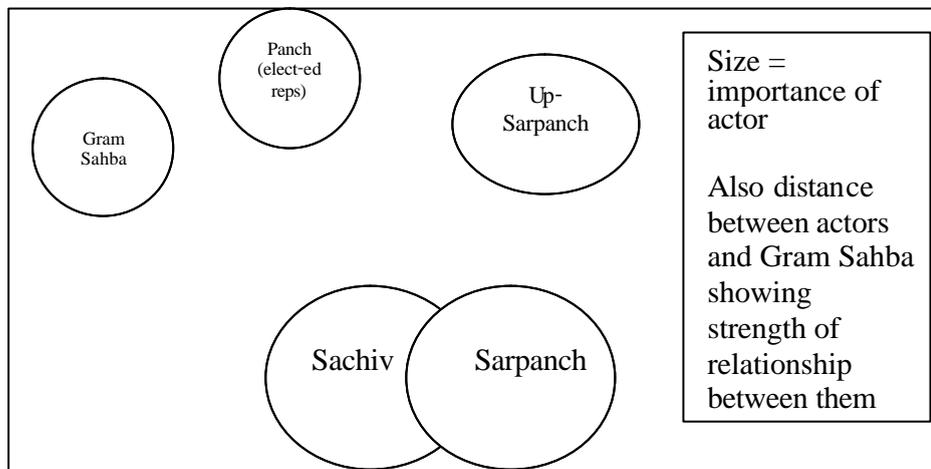


Figure 12: PRA Map showing NR and watershed work in Kalakhoont (hard copy only)

Figure 13: PRA Map showing irrigation system in Kharam River Diversion Project, Dhar (hard copy only)

3.3 Identification of the various focus groups

In summary the following village level workshops and focus groups discussions (FGD) were held:

	District	Block	Village	Consultations
1.	Jhabua	Bori	Kolyabeda	<ul style="list-style-type: none"> ○ Village level meeting and transect walk with men and women from Watershed Development Committee and other villagers ○ FGD with men (including Harijan hamlet) ○ FGD with women (including Harijan hamlet)
2.	Jhabua	Pitol	Kalakhoot	<ul style="list-style-type: none"> ○ Village level meeting (including transect walk and mapping) within men and women ○ FGD with men members of Lift Irrigation society ○ FGD with women
3.	Dhar	Dharampuri	Sundrel	Focused Group discussion with mixed caste groups, Transect walk
4.	Dhar	Dharampuri	Bagripura	Focused Group discussion with the farmers practicing organic farming, Transect walk
5.	Dhar	Dharampuri	Shala	Focused Group discussion with the irrigators and WUA office bearers
6.	Mandsaur	Mallargarh	Dhabla	Focused Group discussion with the WUA office bearers, different caste groups
7.	Dewas	Bagli	Malipura	Focused Group discussion with VFC office bearers, Weavers group, Transect walk

3.3.1 Women Focus Group Discussions (FGD)

From the outset, the researchers followed a strategy of holding separate FGDs for women. Due to the reasons identified in the socio-economic and natural resource profiles, women's participation in community based natural resource management and in development activities in general, is quite lacking. From this point of view, we thought it critical to speak to women separately, not least to share information regarding IWRM clearly.

However, this was easier said than done. During one of the community consultations in Mandsaur, the men in the village dissuaded researchers from talking to women, even though repeated attempts were made. Men would not understand the need to talk to women separately, and persisting to do so would have resulted in some animosity from the men.

During the consultation in Kolyabeda village in Jhabua, it proved extremely hard to mobilise women, despite having already asked them to attend some days before, and reminding them again the day before, and the morning of the meeting. ASA recognise this as a common and persistent problem in the Bori area of Jhabua, even after having worked there for 5 years and having the meeting facilitated by community organiser from the same village, who now works for ASA. Women's empowerment takes time. Women did not see why we wanted to talk to them, since we had already talked to the men the day before. It took a lot of encouragement from us and from their men-folk before they came to sit with us.

3.3.2 FGD with the Poorest

For the consultations completed within the tribal villages of Kolyabeda and Kalakhoot in Jhabua, it was not necessary to hold a separate FGD with the poorest, or other castes or ethnic groups. There are no castes to speak of within tribal society (although a sort of class-based system does exist); and in reality, there is little gap between the rich and poor within the villages (everybody tends to be at a lower level). Their society is fairly homogeneous both economically and socially. Within the Kolyabeda consultation, both men and women from the one Harijan hamlet in the village attended. This hamlet is long established and well integrated with the rest of the village society, therefore there was little need to talk to this hamlet separately.

For the other consultations the researchers met people from the cross section of the society including office bearers of the WUAs, VFCs, Panchayats and people from different caste groups. Some discussion was held with the landless groups as well.

3.3.3 Other FGDs held

Lift Irrigation FGD

In Kalakhoont village of Jhabua, a FGD was held with members of the Lift Irrigation Cooperative or Society, which was established in 1991 and is the main source of irrigation within the village. ASA has found this to be a very motivated and successful Society, therefore it was thought that useful comments and discussion on IWRM could be facilitated with its members.

4. FINDINGS

4.1 People's perception of IWRM

4.1.1 Introduction

People's perception or awareness of the principles of IWRM varies across the Western Region, as the socio-economic and natural resource conditions vary.

Due to its comparably low rainfall and traditional reliance on rain-fed agricultural systems, the value placed on water use across the Region is generally high. Water is clearly the backbone to rural livelihoods in the Region. However the amount of government subsidy involved in the supply of water, particularly the supply of irrigation, does appear to have affected how farmers value it. An example detailed below of one farmer in the Dhar region highlights the differences in value placed on his own public-supplied and private-supplied, or "cheap" and "costly" irrigation systems. Making water "costly" in the eyes of users is a critical, political issue that needs to be tackled.

Within the marginal areas, where awareness of issues is generally lower, it was pleasing to see that both men and women have a good basic understanding of the importance and need to integrate the management of water with the management of other natural resources. This appears more so where watershed development works have happened: the holistic treatment of the watershed clearly shows to marginal people the need to integrate NRM in order to assure them some sort of water supply. It was also encouraging to see that there is clearly some indigenous demand management strategies followed – precipitated by a reliance on erratic monsoonal rainfall to supply their basic livelihoods. In villages with watershed development works, where previously a lack of awareness and capacity stopped them developing their water management, now the main reason is a lack of funds.

The issues involved in water management do vary between the marginal areas and higher potential pockets. Villages within the marginal areas dominated by low value agriculture are facing more basic issues of how to harvest rainfall to provide sufficient water to grow mainly subsistence crops. Within higher potential pockets, farmers are dealing with issues of how to manage over abstraction of groundwater, which has now happened. What is interesting is that due to unfettered exploitation of groundwater without adequate integrated management, villagers are now considering move back to lower input farming systems.

In the rural areas, both the landless and women are critical users of water and therefore are necessary stakeholders in any IWRM strategy. However the consultations have shown that their participation in community-based natural resources management remains dismally low.

4.1.2 Marginal areas of Western Region

Value of water and water management

Defining IWRM as understanding the criticality of water and the need to integrate its management with other natural resources for livelihoods, it was clear that both men and women understand that the 5 Js (Jal, Jamin, Jungle, Janwar and Jan, or Water, Land, Forests, Livestock and People) are interlinked and that to manage one, you need to manage them all. They gave the example that when you protect the forests in the upper ridge and do work like field bunding and contour trenching, water will appear in the lower ridge in the nallas and the sequence of wells. There is therefore no doubt of the value now placed on water management in terms of functioning of their livelihoods. The implementation government and non-government programmes should take some credit for this understanding: however the villagers have also learnt the hard way, in a region of continuous drought years, highlighting the criticality of water conservation measures.

Existence of indigenous water demand management at household and community level

Defining IWRM as integrating uses of water at the household and community level and managing demand for water, there is definitely understanding of the need to integrate and prioritise demands for water and there is clear evidence that action is taken to do so, particularly during drought conditions.

Household level: It is clear that demands for water are managed and prioritised at a household level, particularly as part of a drought coping strategy. As is common in these marginal areas, most villagers have the same 3 needs for water: themselves, their cattle, their land (ie productive and consumptive needs). How these needs are met is based on the volume of rainfall received across the monsoon months (June-September) in any given year. The following scenario given during the consultations, illustrates this:

Planning water use in Kolyabeda

Planning of water use for the dry winter and summer months will take place usually at the end of monsoon (September). If there is less water stored, then it is used only for cattle and drinking water during Rabi (winter) and summer (cattle being the backbone of their farming systems). If more is available, then it will also be used for agriculture. What to grow also depends on the volume of water stored: if less then chickpea is preferred as it can grow effectively using residual soil moisture, yielding a good crop fetching a fair price. If more water is available, then wheat is preferred (the men intimated that wheat needs 5-6 waters before getting a good yield). Vegetable cultivation, for own consumption and selling, will also be taken up when water storage is greater. Therefore, we can see that what to grow is also influenced by the amount of rainfall during the month of Sept: if there are good rains during September, then the tendency will be to grow channa (chickpea) due to the high percentage of residual soil moisture. It is important to mention that due to low soil depth and less water holding capacity of the soil the farmers prefer early sowing of crops like chick pea to maximize the advantage of residual moisture.

However, water storage is itself a complex issue, in that the *distribution* of rainfall across the monsoon period is as critical as the volume received. Uneven distribution can reduce the sub-surface percolation and recharge, which means less water available in nallas (rivulets), wells and other downstream structures for the longer period. Distribution of rainfall also affects volume of stored water in another way: if there is a dry spell during the monsoon, say of 2-3 weeks (which is often a case in the region), then farmers will use some of the stored water as survival or emergency irrigation to save the Kharif (monsoon) crop.

Community level: It is also clear that there is some degree of collective management (through the WDC) of the sources of water: nallas (rivulets), talav (earthen tank), community wells, and that water demand on each source is again prioritised according to amount available and urgency of needs at this level. For example, cattle drinking in Kolyabeda village. Villagers will firstly use the talav to supply cattle drinking water and if the supply dries up, then dug wells will be used. The individual and group wells within the village are also used for human drinking water (where hand pump water is unavailable), but villagers take a judgement as to whether the wells will be needed for cattle drinking, and if so, then the water is preserved in the wells for this purpose. Where this has happened, human drinking water then has to be fetched either from the community well in the village, or as has happened in the last 3 years from the nearby village of Bahedia (from their handpumps). If dug wells dry up, then the bottom of wells is dug to see whether further sub-surface water can be tapped, and if not, then cattle are taken to nearby villages to be quenched.

It is even the case that water needs amongst the livestock are prioritised: bullocks will be given first priority, followed by cows, then buffaloes, then goats. This relates to the productivity of each animal: bullocks are used in the farming system and are therefore priceless, cows can produce bullocks (the reason for rearing cow is mainly for producing bullocks), buffaloes and goats are kept for milk and as insurance.

Another example of commonly practiced water management between villagers given was: if one man has less land but water in his well, he will give some water to his neighbour with no water and more land, in exchange for some land to cultivate.

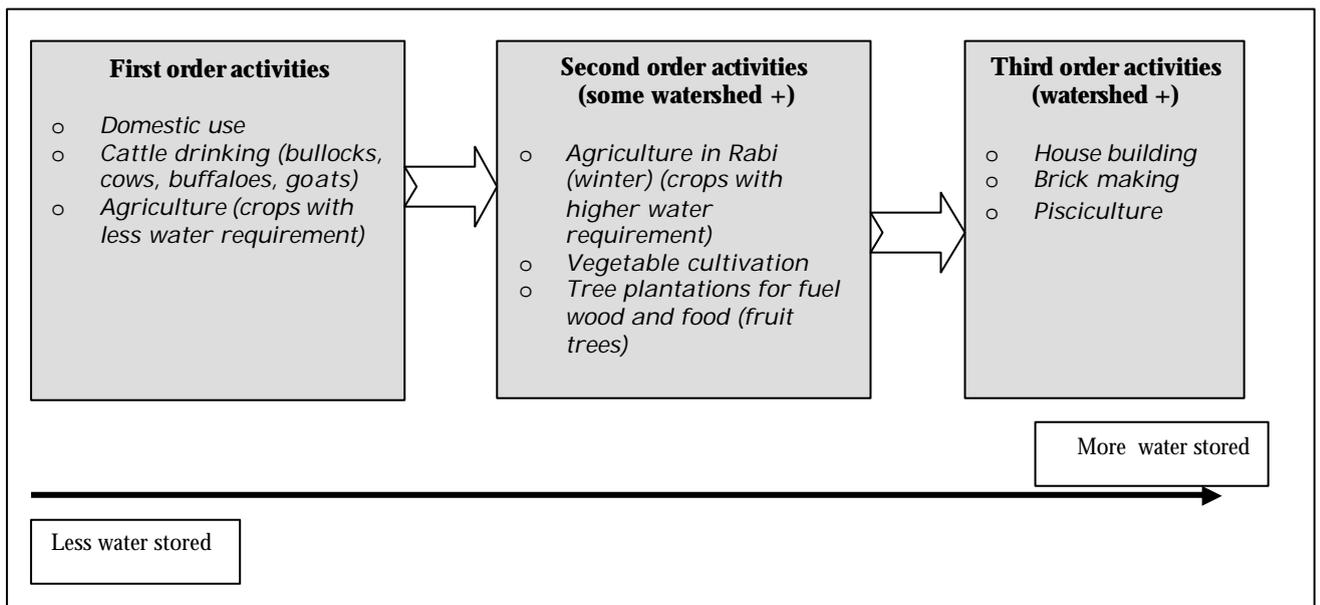
Maximising use of water

Such is the value placed on water that a number of watershed plus activities are being taken up in ASA's villages. These mainly include value-additions on farm, through trialling high yielding varieties, taking up vegetable and other horticultural and agro-forestry activities. Both fuel wood and fruit trees (eg. guava, custard apple, Indian gooseberry) are being grown. Some farmers were encouraged to use what to them was innovative irrigation technologies, viz. drip irrigation.

Water is also being used for house construction and brick making. The men informed that they are considering taking up pisciculture (fish farming) activities, after seeing them in the talavs of nearby villages. The men are most interested to take this up in individual wells, however they would plan to do it in the talav also. It was clear that some research had gone into this opportunity: when asked how they would guard against fish theft, the reply was that the WDC would take the responsibility of managing the activity, and any proceeds from fish sales would go to the Gramkosh (village fund developed through people's contribution in watershed works), from which the salaries of watchmen would be paid. They plan to sell the fish in the village or nearby Bori, and little by little so that the market is built up. Floriculture (flower farming) has been researched, however the conclusion is that there is no market in Bori, and other nearby markets are already well supplied.

The following Figure 14, presents a simplified version of the indigenous demand management practiced in Kolyabeda village.

Figure 14: Simplified water use prioritisation in marginal areas



Appropriateness of water use in farming system

Within the marginal areas of the Region, water use is mostly about survival through low input rain-fed farming systems. For this reason, as the consultations in Kalakhoont village highlighted, villagers follow a well-established, well-diversified and highly risk-averse indigenous strategy when it comes to coping with rain-fed agricultural systems, using water when it is available. It is evident that these strategies have been in place for generations, with some adaptations along the way. They also reflect that farmers consider supply of water within the context of a number of years, rather than on a seasonal or annual basis.

Rainfall scenarios and coping strategies

The men's group in Kalakhoont was asked to categorise the types of rainfall years that occurred during a 10-year period. Over 10 years, the following rainfall pattern was envisaged:

- 1 year of excess rainfall: during Kharif (monsoon), they would lose 50% of their crop through crop damage and water-logging (maize which is the main crop in the area is sensitive to water logging), particularly where crops are grown on black soil; during Rabi (winter), they would get a very good crop;
- 4 years of normal (and preferred) rainfall: will good crops during both Kharif (monsoon) and Rabi (winter);
- 3-4 years of less rainfall: will get a 50% crop during Kharif (monsoon), and no crops will be grown during Rabi (winter).
- 1 year of complete drought: no cropping can take place either in Kharif (monsoon) or Rabi (winter).

During 2000, the last type of rainfall scenario occurred in Kalakhoont. Even though some water was stored in the talavs and wells, it was preserved for cattle drinking and washing (talav) and human drinking (wells). This demonstrates some inherent water management strategy that the villagers follow. However a government ban was also put in place during the year, prohibiting villagers to use water in talavs for irrigation. This was probed further and we were told that even with the ban in place, the villagers would have used the water for irrigation if they had thought it the right thing to do. However they realised that using the water for irrigation, could leave them high and dry during the summer months of March-April in terms of water for human and cattle drinking and for other domestic purposes. Interestingly, one villager during the winter of 2000 sold water from his well to the nearby town of Pitol at the cost of Rs 250 for one tanker-full. During Kharif (monsoon) and summer the villagers supplement their income through migration, which is a well-established component of their livelihood strategy.

Factors influencing crop decision during Kharif (monsoon)

There are a number of factors that the men take into consideration when making crop decisions during the monsoon season. These include:

1. Land type
2. Soil type
3. Household fodder and food requirements
4. The potential of crops to add value to the land (shading leaves, nitrogen fixing)
5. Location of plot and distance from house (as crop safety is a perceived problem, particularly of valuable food and cash crops)
6. Amount of inputs required (mainly pesticides and fertilizer)
7. Credit/debt situation

Interestingly, the type of rainfall is not taken into consideration for crop decision (uncertain monsoon factor is already inbuilt into the crop strategy) in Kharif (monsoon) since this is the factor that is unforeseen and the farmers have to plan for monsoon season much before the monsoon starts. However, the rainfall in monsoon has a huge bearing on the planning of Rabi (winter) as we have seen in the case of Kolyabeda. The points need to be mentioned that this uncertainty of monsoon causes considerable loss on the part of these marginal farmers, because of the inputs that they have already invested in Kharif (monsoon). The agriculture in Kharif (monsoon), which is the main season, is like gambling in the rain-fed areas.

There are two direct implications of uncertain monsoon or rain-fed agriculture in the region: (i) farmers are reluctant to make any significant investment in soil and land development activities on their own. However, the willingness is found to be more if the land development activities are linked with the water resources development which then ensures some kind of guaranteed agriculture; (ii) the farmers have developed a crop mix over the years as a risk averse strategy to counter the uncertainty in rainfall. The value of crop is the least consideration while developing this mix. For instance, the farmers may prefer a low value crop like Jowar over a high value crop like Pigeon pea. This decision cannot be said to be foolish since their crop strategy is to counter the worst kind of monsoon scenario, where Sorghum will ensure some amount of return where

Pigeon Pea would have failed totally. This phenomenon was observed in the high potential areas of Dhar also, where we found that considerable number of fields is sown with maize and sorghum. This is happening because the area is increasingly losing its irrigation opportunities which they have enjoyed for years, and so the dependency on monsoon is increasing.

In the marginal areas growing food crops for consumption will be a priority above commercial crops in Kharif (monsoon). Crops will be grown which meet purposes of human consumption, and which will provide good residues which can be used for fodder. Commercial crops viz. cotton, pigeon pea, black gram, soybean, and ground nut (very little) also find a place in the crop mix. However, the degree would vary from farmer to farmer, more in the case of farmers who have larger risk bearing capacity in the event of failure of crops. A total or considerable shift from food to commercial crop will perhaps never take place in the marginal area unless there is a drought proofing mechanism in place and farmers feel secured about the alternative livelihood mechanism.

Through the focus group discussion, it was found that villagers follow a well thought-out and highly risk averse strategy in terms of cropping pattern, which reflects the reliance on rain-fed farming systems. An example of this pattern was illustrated through an in-depth analysis of one farmer's case, who has 10 field or plots of land within the village.

Table 9: Cropping pattern during Kharif (monsoon) and Rabi (winter) season of normal rainfall year

Field	Yr 1 Crop combo Kharif (monsoon)	Soil	Rabi (winter) crop grown?	Yr 2 Crop combo (Kharif (monsoon))	Reasoning for Yr 2 crop
1.	Cotton and Maize intercropping	Black soil (kalimatty)	No Rabi (winter) crop grown due to length of growing season of cotton	Soybean/Pigeon Pea and Maize	These will add value to the soil, so good for 3rd. yr. crop which will be cotton and maize again
2.	Pigeon Pea and Maize	Black soil	Chickpea	Maize and Cotton	Shedding of leaves by P.Pea
3.	Cotton and Maize	Black soil	No Rabi (winter) crop grown due to length of growing season of cotton	Soybean/Pigeon Pea and Maize	These will add value to the soil, so good for 3rd. yr. crop which will be cotton and maize again
4.	Maize	Brown soil (burrimatty)	Wheat	Maize	Goes for maize only so that he can take up wheat, even with less or no water. Can go for chickpea also
5.	Paddy	Black soil	Chickpea which can be grown on residual soil moisture	Paddy	Low lying field & paddy can only grow
6.	Maize	Brown soil	Wheat	Maize	Reason mentioned above
7.	Cotton and Maize	Black soil	No Rabi (winter) crop grown due to length of growing season of cotton	Soyabean or Pigeon pea plus maize	Reason mentioned above
8.	Pigeon Pea and Maize	Black soil	If Pigeon pea is local variety which matures early and therefore will go for chickpea.	Cotton	Shading of leaves by P.Pea
9.	Sorghum (jowar) and Pigeon pea	Light brown sandy soil	No Rabi (winter) because no residual moisture	Sorghum (jowar) and Pigeon pea	Considered less productive land
10.	Black gram, pigeon pea, ground nut and sorghum	Light brown sandy soil	No Rabi (winter) because no residual moisture	Single crop	Considered less productive land
Lady's Fingers and Beans are grown in 1-2 rows along the edges of every field.					

Notes on soil types: Light brown soil: typically very sandy and found on highly weathered or eroded areas. Brown soil: most common soils with higher clay content and can be gravelly, but wheat can be grown on this. Black soil: least common but most preferred, with high clay content and good water holding capacity.

The highly risk averse cropping strategy can also be seen through an analysis of the number and range of crops grown.

Kharif (monsoon) crops		Rabi (winter) crops (mostly cash crops)
○ Maize (food)	○ Gujra (food)	○ Wheat (with irrigation, 5-6 waters)
○ Pigeon Pea (food)	○ Kuri (cereal, food and fodder)	○ Chickpea (mainly on residual moisture but some irrigate partially with 1-2 waters)
○ Sorghum (food)	○ Horse Gram (Kulthia) (fodder)	○ Jow (partially irrigated, 1-2 waters)
○ Paddy (food)		○ Castor (irrigation not required if good soil)
○ Chowla (food)	○ Cotton (cash)	○ Maize (no irrigation)
○ Mung (food)	○ Soyabean (cash)	○ Green Pea (less irrigation, 1-2 times)
○ Mustard seed (food)	○ Black Gram (cash)	
○ Ralah (food)	○ Ground Nut (cash)	
○ Kodhra (food)		
○ Badhi (food)		

Proactivity in terms of the management of water supply

In the marginal areas, the extent to which communities have taken on the role of managing water supply appears to vary according to both capacity built and awareness, and economic circumstances.

In Jhabua, both men and women villagers understand well the concept of ridge-to-valley watershed treatment works and have a good awareness of how to go about rainwater harvesting and conservation. As previously mentioned, part of this awareness can be attributed to the strong presence of the Rajiv Gandhi Watershed Mission in the district, for the past 7 years. To some extent the credit should be attributed to the much-popularised Pani Roko Abhiyan (Stop Water Campaign), which has been going on for last two years.

In Kolyabeda village for example, the men's FGD made it clear that everyone understands that there is sufficient water, and that the issue is the need to capture and store it. They admitted that good work had been done in places and in other places there was very little because of lack of funds and because of this, the water supply and generally NR conditions were not so advanced. The men were asked who should be responsible for undertaking the work where it was needed. The answer came that it should be the responsibility of:

- the WDC, and should be funded through selling fodder harvested from the common lands (the previously socially protected area).
- The promoting agency (ASA) to go and meet government to get funds
- The villagers themselves. They made the point that they would like to go directly to government but would they be willing to listen to them? (There is a history of exploitation of these tribal people). Help from ASA is required.

The following situation was also posed to the men groups: there is a demand for talav (eathern tank) to be built, but only part of the necessary funds has been secured, where should the rest come from? ie. whose responsibility is it to fund the rest? The answer came that the beneficiaries of the talav (eathern tank) should contribute, either cash or kind, plus money should come from Gramkosh (village fund administered by WDC) and if possible, get some from government. Therefore in the case of Jhabua, the main problem in terms of initiating further community water supply management appears to be financial reasons. However once works have been done, there is definitely need to build capacity within the villages to manage the supply, through the formation of Water Users Groups etc.

During the consultation in Mandsaur however, there was no awareness prevailing for rainwater conservation, although few farmers talked about watershed but did not know how this works. The scale of watershed works in the district is limited, only 39 watersheds works are currently undergoing, as against some 300 odd in Jhabua. This is primarily because this district is not part of the DPAP programme which funds majority of the watershed programme under central government's watershed scheme. During the 2001 Pani Roko (Stop Water) campaign, the Panchayat insisted on well recharge and put pressure on the villagers in the form of

blocking clearance from Panchayat on matters (viz. copy of the land registration paper, or No Objection Certificate) which are mandatory for any villager to obtain to pursue for government schemes or bank loan, etc. 400 wells out of 500 had a well recharge system installed on their own, without the well owners being convinced about its benefits. As a result, many, as the villagers said, have just done a formality in installing the system (pit was not of proper size, many did not even lay the recharge pipe). Some, of course, said that they are convinced by the logic behind the well recharge and expect some benefits in coming years.

There are no other initiatives either by the government or by the villagers own for conservation of water in the village. Yet even so, during discussion the villagers showed their concern over the continuous degradation of natural environment around them and its impact on their livelihood. There is definitely an urgency on the part of villagers to initiate some actions in this regard. However, what is perhaps lacking is the know how of how to go about it.

4.1.3 Higher potential pockets of Western Region

The researchers found that some issues pertaining to IWRM within the higher potential pockets in the Western Region were different to those of the marginal areas, as supply of water in the past has been more assured. In one way, these villagers should be at the next level of thinking, with regards to IWRM.

Need for IWRM due to overexploitation of water

As noted under 4.2 below, the major NRM related issue in the villages consulted in eastern Dhar region was overexploitation of groundwater. Villagers consulted in the villages were asked what could be done to solve the problem of overexploitation, this giving some sort of insight of their understanding on IWRM. It seems they have a good understanding of the problems, and the need for the principles of IWRM: however this appears as a reaction to the livelihoods problems caused by the overexploitation.

o Surface water harvesting was a common solution proposed by the different communities, in particular:

- ✍ Construction of check dams on the nallahs and rivers that are flowing through the villages/area. There was a suggestion of constructing an earthen dam on river Keram which, according to them, will not only serve the area as irrigation command but will also increase groundwater table.
- ✍ Small tanks/ponds should be another measure for rainwater harvesting
- ✍ Recharging of dug wells by connecting with the nallah.

Asking who should finance these, it appears that farm ponds is one measure on which farmers are ready to make investment. The researchers met farmers who have constructed such ponds with bank loans, the ponds mainly being used for pisciculture. However people suggested that government should come up with some financial assistance for promoting more such water harvesting measures.

- o One group suggestion was that all the bore wells which are dry and in thousands in number should be filled with concrete material. The logic the group gave was that the water from the sub-surface level is draining to the deep ground water through these bore wells. Therefore, unless these bore wells are packed the efforts for surface water harvesting and recharging the sub-surface level will not succeed.
- o There is an eagerness to shift to low water requiring crops but those should be remunerative enough to compensate the existing level of income from agriculture. Horticulture seems to be a popular option; however there is not much technology available in the area at the moment.
- o Lower input agriculture - organic farming - is another option which farmers are considering seriously. The use of vermicompost (made by worms) and bio-pesticides is rapidly increasing in the area. The village Bagripura converted to 100 percent organic farming two years ago. In other two villages, many farmers have either partially or fully converted into organic farming. It is reported that the technology of organic farming is rapidly spreading in the area. Each farming household of Bagripura makes their own

vermicompost and bio-pesticides to use as a replacement for chemical fertilizers and pesticides. Many farmers in the area have started commercial production of vermicompost and bio-pesticides and are selling in the local market. There seems to be a growing market for these products in the area. The agriculture department is also buying earthworms from these farmers in large quantity. The researcher was pleasantly surprised seeing commercial advertisement for these products in many places of the area. The farmers using vermicompost and bio-pesticides have reported significant increase in productivity and reduced agricultural cost. Unfortunately, there is no market developed for their organic produce and the farmers are selling it at the same price as non-organic produce. At the moment the motivation for shifting to organic farming appears to be low cultivation cost. However, the farmers are slowly getting to know about the higher value for organic produce. For example, one company from Bhopal has registered the farmers of Bagripura for organic soybean and has offered double the market price of ordinary soybean. Mekal fibres, a company near Dhamnod, is reported to be purchasing organic cotton at higher prices.

- The effects of consecutive years of drought in Dhar (this year too the rainfall is about 50% of the normal) and intensive campaign for Pani Roko Abhiyan (Stop Water Campaign) and RGWM seem to have made some impact on people's thinking of harvesting rainwater. There are number of local initiatives in recent years, individually and collectively, for the measures like recharging of wells, construction of farm ponds and temporary weirs on the flowing nallahs. In many places, the researchers saw that farmers individually or collectively or in some places through Panchayat, have made a weir with sand bags on the flowing nallahs, and are using the water for irrigation and household purposes. Well recharging is also catching up, with individual initiatives being undertaken.

Are the farmers ready to pay for water?

From the examples mentioned above in regard to farmers' initiatives for water conservation and use, one can conclude that the farmers will be more than willing to pay an even higher cost, if the supply of water is assured. The initiatives like Sundrel's drinking water works, farmers' own initiatives for lift irrigation from Narmada, recharging of wells, construction of farm ponds leaves the farmers in no doubt that they are paying a very high cost for assured supply of water.

Unfortunately, the government could not capitalize on the fact that farmers are willing and able to pay such costs, and still continue to provide highly subsidized water, especially in the case of irrigation water. The WRD's specified rate for canal irrigation is minuscule (average Rs.300/ha/season) in comparison to the costs these farmers incur when irrigating through their private lift irrigation (it comes to nearly Rs.3000/ha/season). This difference in rates appears to have a direct implication on how one values water. What was found in practice was that the "cheap" water is being misused (flood irrigation, ponding, etc.) more than the "expensive" water. The farmers have confirmed this fact that wastage of water is more in case of canal irrigation than the lift irrigation, which is usually privately owned.

4.2 Relevant NRM related issues identified by the different stakeholders

Unsurprisingly, water supply came out as the most critical issue identified with the communities consulted in the Western Region: however there is quite a degree of variation in terms of what exactly the issue is within water supply.

4.2.1 Marginal Areas

It is very difficult for many villagers to see past the effect that recent consecutive years of drought have had on their livelihoods. For them, everything zeros down to lack of water, and in particular, the erratic nature of monsoon and the erratic rainfall pattern during the monsoon. Successful monsoon and reliable water supply emerged as the immediate and long term need for the community.

Examples given for the effect of drought (ie. lack of water) on livelihoods in Kolyabeda included:

- o Debt trap - loan repaying rather than asset building: income used to pay off debt: during the drought years, it was difficult for them to pay off their electricity bills (Average Rs.5000 per household who has used it for irrigation purposes); therefore money earned from this year's harvest will go to pay off old debts.
- o During the previous years of drought they had to use all their stored seed supply, therefore during the good rains of 2002 they had to purchase new seed, which they said was an unexpected cost
- o Problem of lack of water in handpumps, due to 3 years of drought. Even though they have had sufficient rainfall during this monsoon, they realise that recharge will take time. They foresee it taking another good rain to recharge handpumps even though there is water in their wells this year. This means that women expend much energy obtaining water, through physically handling the water-scarce handpumps and through travelling to neighbouring villages to fetch it.
- o Lack of fuel wood within the degraded village forested area. Having to use dung cakes, plus weeds and some wood from trees around the houses for fuel.
- o Lack of fodder has led to cattle deaths (30-35% death in Patel and Mori hamlets in 2001).
- o Lack of fodder has also meant that villagers were forced to graze their cattle on the upper forest ridge which had been under social protection through a Forest Protection Committee. This means the social protection efforts will need to begin all over again. It was literally a life or death situation for their cattle. (Note: the villagers are keen to begin the protection again and have deputed four people to look after the land.)
- o Lack of fodder means income has to be spent on purchasing it if possible (if normal rainfall then no problem to get from agricultural residues). Previous calculations done by ASA showed that a hamlet of 20-25 households together had to spend around Rs 80,000 per annum to purchase agricultural wastes and fodder to feed their cattle.
- o Cattle get sick which means huge veterinary bills – Rs1000 per head of cattle. They go to moneylenders and avail of their facilities at 120-150 % interest rates.
- o High level of migration – every household in the 3 hamlets was migrating.

4.2.2 Higher potential pockets

In the Dhar villages, one of the major NRM related issues identified by the villagers was overexploitation of groundwater. Traditionally the major irrigation sources in the area has been deep bore wells, with farmers having indiscriminately dug bore wells to pump out water for irrigation over the years. A minimum of 300 bore wells is typical in villages of the area. As a consequence, the villagers and WRD staff estimated that the groundwater table has gone down drastically (500-600 feet) in recent times and most of the bore wells are running dry.

This has affected the agriculture badly and the dependency on monsoon has increased. This is corroborated by the fact that a considerable number of fields are sown with low water requiring crops like sorghum, maize, pigeon pea in monsoon 2002. One of the farmers present in the discussion said that availability of electricity and PVC pipes have made all these negative impacts. The farmers are now making significant investment for installing individual lift irrigation system for lifting water from Narmada for irrigation. The farmers having fields on both sides of Narmada, who used to irrigate through dug wells before are now lifting water from Narmada to fill their dug wells and then lifting further for irrigation. Hence, the cost of irrigation per hectare of land, as farmers reported, has increased significantly in recent years.

Drinking water not a problem

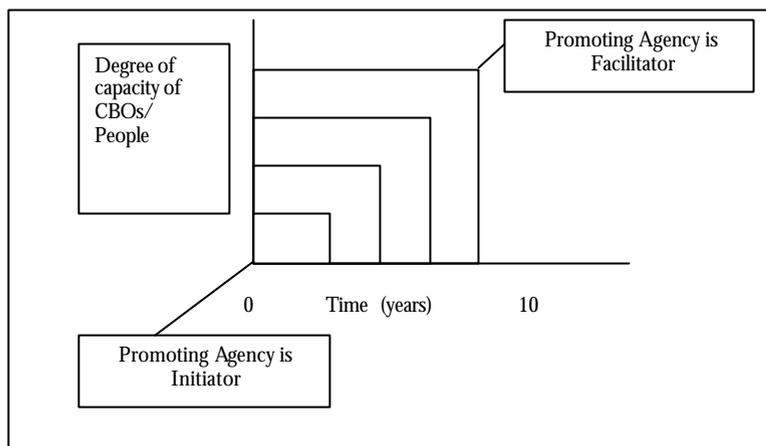
Interestingly, the availability of drinking water does not seem to be a problem for these villages in Dhar, having the Narmada so near. However proximity to the river alone does not assure supply: rather it is down to community initiatives, including the Tap water system in Sundrel as highlighted in Section 2.5.3. In the neighbouring village of Shala, most of the landowning households have their own lift irrigation system drawing water from Narmada (it is 1500 ft. away from the village) for agriculture. However, interestingly, a one-inch pipe connection has been fitted with the LI system which goes into the houses and cattle sheds for domestic use. Almost all LI system, about 25-30 in the village, has such innovation.

4.3 The views of the various stakeholders on the different participation methods for dialogue, both those used by the various programmes and if different methods are used by the NGO/group involved here then that too

Sections 2.4 and Section 5.2 cover participation methods (what works, what doesn't work, with different stakeholders) in some depth. The main point which can be made here is that there is no universal formula for choosing which participation methods will work in any given situation. This is because what people are happy with in terms of their "participation", is seen to vary from place to place and across time.

The diagram right illustrates this. It shows that as the degree of capacity within the people or the community based organisations to participate increases over time, the role of the promoting agency changes from one of initiator of development activities etc to one of facilitator.

As this happens then the methods of participation for dialogue also change.



4.4 Areas and methods identified by different stakeholders on how they would like to be included in the planning, decision-making, monitoring and O&M of issues that concern them

What is clear from the consultations and from ASA's own experience in the area of CBNRM, is that people are increasingly enjoying being involved in the process of their own development, although their realisation of this is taking some time. For example, within the marginal areas, and due to programmes like the RGWM, people are now making it explicit that they want to be involved in the planning and execution programmes, they like the sense of ownership they are producing.

However, where and how people want to be included in the planning, decision-making, monitoring and O&M depends very much on the stake they have in the issues and activities at hand, and also the stake they think they have. What the latter means is that often – particularly in marginal areas – people do not realise which issues or activities could potentially concern them. An example of the latter can be drawn from ASA's own experience. When ASA first started working in the village of Kolyabeda, people were not interested in getting involved in issues regarding agronomic practices, seeing only the need for construction of check dams and talavs. They did not see why promotion of new agronomic practices, such as new seed varieties, were of relevance to them at that time. This highlights the criticality of "needs realisation" within communities.

It is clear that people like methods for planning, decision-making and monitoring which promote discussion, inclusivity, openness and transparency. These include for example:

- o Villagewide meetings where programmes are introduced and discussed, in terms of how implementation will take place, where clarity on the roles and responsibilities of both the people and the promoting agency is gained;
- o Open forums where sharing of accounts and other project implementation issues happens;
- o Open forums to discuss for example distribution of benefits amongst the villagers, how to ensure equity etc.

The consultations highlighted that, in terms of O&M, people – mainly the men - are realising the benefits of forming and being part of institutions including Water Users Associations (WUAs) in the case of irrigators,

Water Users Groups (WUGs) in the case of watershed development, and JFM in the case of forest management.

In the case of the WUA consulted, the members expressed that they would like to see more power being transferred into the WUA from the WRD as outlined in Section 2.5.2. For example power in terms of law enforcement (ie. to deal with violators of its rules; farmers or government or to take possession of any instruments used illegally which are disrupting smooth operation; encroachers),

In terms of awareness raising and sensitisation on programmes (either the overall concept, or technical aspect on programme functioning) in its own work, ASA has found the following communication strategies to be particularly effective. Please note that whilst these are effective with the tribal communities in the marginal areas of the Western Region where literacy is much less and TV ownership is very low, their efficacy amongst the communities in the higher potential pockets such as Dhar and Khargone is not known, but presumed to be less. The strategies are:

- *Role playing (or simulation)*: this is used to discuss and explore management issues related to water resources development, Self Help Groups (SHG), forest land protection etc. For example, as was detailed for the ASA Water Users Group Sammelan in Section 2.5.2, role play was used to get the Users Group members to explore management issues of dams or talavs (earthen tanks), including when to close gates of a dam, what to do when a new person joins a group. It is used as part of SHG training to enlighten SHG members on, for example, how to conduct a meeting, how to manage multiple demands for loans, how to determine priority, how to undertake appraisals of SHG members. Within the Watershed Development Committee, it is used to outline members roles and responsibilities.
- *Puppet shows* these have been used to highlight what the watershed development programme is and most notably the spirit behind it, ie. the need for people's participation particularly women's, for community contribution, the fact that it attempts to address poverty. The puppet shows are performed by outside professionals, but the shows themselves must be customised to suit local conditions, ie. performed in local language, the puppet dresses to be local costumes. The shows are undertaken within every village.
- *Audio-visuals*: showing videos of different NRM success stories from all over the country has proven to be successful. For example, on the wadi (homestead horticulture programme), videos from the NGO BAIF are shown; for watershed development there are many good examples eg. AKRSP(I) in Gujarat and MYRADA. Discussion is facilitated during the screening of the videos.
- *Exposure visits*: facilitated by experts in inter-group interactions: either to other ASA project villages or villages under a different NGO/GO. In terms of watershed and watershed plus development, exposure visits have proved particularly effective in showing people how to carry out soil and moisture conservation works, ridge-to-valley treatment works, participatory crop improvement programmes, horticulture and vegetable growing. Not only are these effective in terms of clarifying exactly what work should be done and how, they definitely promote enthusiasm and can spark initiative amongst those being exposed. They are also a good method for increasing the participation of women within development programmes, to the point that women-only exposure visits can be held.
- *Influencing opinion leaders in community*: another effective strategy for ASA is influencing those within the society or community who are well respected and regarded as opinion leaders. Once the message is clearly appreciated by such people, it is found that information on schemes or programmes can spread throughout communities.

However, as in any communication strategy, a combination of the above is crucial for success. For example, after an exposure visit, a video is often shown and discussion held about what the people saw and what they understood. Follow-up on communication activities is crucial.

4.5 Gaps or problems encountered in participation

The following gaps and problems encountered in participation within natural resource programmes are highlighted:

4.5.1 Assuming participation is a natural activity

Participation in water and other natural resource management (eg. the various tasks of acquisition of water, control of structures and organization), should not be assumed as homogenous and voluntary. It should be realised that not all people have the same interests, incentives or capabilities. Some factors which can contribute to unequal participation in activities and benefits of irrigation include: location of water users (upstream versus downstream); gender (irrigation regarded as a man's work even though women are involved in agricultural activities); land holding in terms of size and land quality (mobilisation of labour for construction and maintenance may come from small farmers whilst larger farmers make most of decisions about water allocation and distribution); land holding in terms of tenure status (resolution on water disputes and other matters may be restricted to land owners, so that tenants at disadvantage in terms of water conflict resolution.); economic aspects (part time versus full time farmers, level of migration and conflicts between agricultural and non-agricultural uses of irrigation water); individual's own knowledge and skills with regards to water management.

In terms of capabilities, some villagers are not able to articulate demand for development initiatives and work as equal partner with the delivery agents. The lack of capacity on the part of the villagers to organise on development issues and negotiate/bargain with the delivery system is one of the primary problems affecting not only development of natural resource but also other sectors.

Similarly, the subsidy led initiatives of government (not only irrigation but for most of the RD programmes) has shaped the attitude of the people to expect government dole for everything resulting in less indigenous initiatives to manage the natural resources. The recent initiatives of government to promote people led development programmes with less or no subsidy component (viz. WUA, Pani Roko Abhiyan) is taking time to take root in the community because of this subsidy driven attitude.

Participation of women and the landless appear to be fairly entrenched problems in the Region and are considered in more depth below.

4.5.2 Participation of women

The non-participation of women within the dialogue process of NRM persists as a major issue in the Western Region. Whilst women do actively participate in terms of physical NR development works (eg. soil and moisture conservation activities) in the villages, their input as decision-makers in development activities remains quite abysmally low. However it is not all bad news: most NR programmes now give special emphasis to the mobilisation of women, if not making them the focus of the programmes. Yet what is clear is that the process of participation and empowerment is a long and drawn-out one.

There are a number of reasons for women's non-participation that together make the situation quite complex: the major ones found in the Western Region are summarised thus:

- o In many places, women have traditionally never been part of the decision-making process with regards natural resources management or agriculture, in that it is viewed by both men and women as "the men's domain";
- o Similarly, in some places, women have traditionally never been part of the community decision-making process;
- o Often women do not have the time to attend and be part of decision-making: having to undertake both reproductive (ie. household) and productive daily tasks, many which are time consuming and full of drudgery;
- o Social customs and norms can forbid women attending meetings, or speaking out at meetings in the presence of one's elders or relatives;
- o Input to meetings can remain limited, if not facilitated properly by project implementing agencies;
- o Men do not listen to women's input or believe that their input is unnecessary or useless;
- o Women can view their own participation as unnecessary. For example, when one group of women was asked whether they should be involved in decisions like selection of the site of a dam, women replied "whatever the men say is OK for us". Another replied that if men and women were to do it together then it's a good thing;

- o Interest in attending meetings and in the meeting content can also be low: when one group of women were asked what was said at the WDC meeting, they replied “why should we remember, there is someone noting down what was said” and “by the time I got back to the fields, I had forgotten”.

Even after five years of working in the village of Kolyabeda, ASA is still encountering problems of mobilising women to participate in decision-making, or even attend meetings. In the Jhabua area, it appears linked to literacy and remoteness of location. Comparing ASA’s two main project areas, Bori (where Kolyabeda is) suffers from lower literacy rates, particularly amongst women (even though literacy rates amongst tribals are generally very low). It is also much more remote from main highways and urban centres. The other area around Pitol (also tribal) straddles a State highway, and is closer to the relatively large urban centres of Dahod and Jhabua. Literacy rates tend to be slightly higher. ASA’s experience is that it is much easier to mobilise women to form Self Help Groups (SHGs) and to become involved in meetings to do with natural resources management in the Pitol area, even though the natural resource conditions are worse in this area.

What can be done to encourage women’s participation is explored in Section 5.2.

4.5.3 Participation of landless

Assuring participation of landless in community-based NR programmes still remains a critical issue in the Western Region. Landless people should be allowed to benefit from such programmes, however ensuring their participation so that they can do so is problematic. Often migration is a major factor hampering their participation: whole families are often absent from villages for many months (rather than in other families where some members stay behind). Also, social status can be such that they are excluded from community decision-making. What can be done to encourage landless participation is also explored in Section 5.2.

In the high potential pocket of Dhar, high landlessness is observed. Agriculture operations and the agro-based industries in the area together provide job opportunities for the area’s landless for almost 8-9 months in a year. In fact at times the area imports labour from the marginal areas like Jhabua, other parts of West Nimar, etc. This is happening as a trickle-down effect of the progressive agriculture systems in the area. However, the issue of equity, the role of poor in the community natural resources management (the power to speak is proportionate to the wealth) remain unresolved. Distribution of common land, which is usually of low quality, to the landless is a welcoming measure (although not from environmental point of view as already mentioned), but if the GoMP is really serious about the issue of landless then probably they have to demonstrate this by implementing land reformation and ensuring tenancy rights. The example of West Bengal suggests how the agriculture sector has experienced a boom due to increased investment in land and water after the effective implementation of land reforms. The concept of village republic or Gramraj, which GoMP tries to do by enacting PRI – Adhinyam in 2001, will not succeed with so much of wealth discrimination in the village. However, this requires a strong political will, much stronger than what is required to distribute wasteland to the landless.

4.6 Gaps or problems in service delivery (particularly govt. service delivery)

4.6.1 Lack of convergence or integration of activities at micro or meso level

Unfortunately our planning system has failed to take a holistic view of the natural resources within the context of their impact on people’s livelihoods. The resources have been treated in isolation and this has either imbalanced the natural environment or has led to under utilization of the created potential. It is perhaps a pity to observe farmers with irrigation facilities using lowest value crops or using seeds that are old and unproductive. Villages with steep uncovered hills are left with big tanks in the valley, which gets silted up quickly. The national watershed programme perhaps the first of its kind in such a scale, is trying to address the issue of natural resources at the micro level. Despite the progress that has been made over the last 5 years, much still remains to be done. The inadequacy in the resources left many watershed opportunities unexploited

and therefore its potential to ensure livelihood security through management of natural resources has been limited. It is doubtful whether the economic returns from the current level of investment (both financial and technical) shall be rewarding enough for the CBOs to continue functioning around them.

4.6.2 Maintenance of quality and quantity of service delivery through community

What appears a most common issue here is the maintenance of the quality and quantity of service delivery. As mentioned in Section 2, the effectiveness of service delivery appears directly related to the proactivity of individuals – both those supplying and those receiving the service. Particularly in terms of government service delivery, people relate effectiveness to the activities of individual characters within the line departments or Panchayat. On the last note, much indeed appears to depend on the proactivity of the Sarpanch as in general, there appears to be little faith in the effectiveness of the Gram Sabha. However government also relate effectiveness to the willingness of people to participate.

Similarly high levels of subsidy have created vested interests in programmes, meaning that often there is unequal distribution of benefits, with the most powerful benefiting, and patchy coverage throughout villages.

4.6.3 Lack of sufficient targeting and consultation in planning

A simple example of lack of consultation in one village was during the siting of a hand pump. Women in a FGD noted the difficulty they have in using one of the only hand pumps in the village, since it is located across a perennial nallah, which is hard for them to cross. In this case, where women's priorities have not been met, it may have a knock-on effect on their participation. Often NR development programmes have to take into consideration delivery of services not considered the focus of the project, but which are practical needs of beneficiaries.

The fact that there is often little scope for internal learning and feedback during a project cycle is also a limiting factor. Many project monitoring and evaluation systems focus on monitoring physical and financial inputs rather than gathering learnings on outputs and impacts, which could provide valuable lessons. Participatory monitoring and learning systems are now gaining acceptance as an alternative method of project monitoring.³⁰

4.6.4 Lack of extension and follow-up activities

Often there is little follow-up or extension following development activities, meaning that the potential created through the activities (eg. to grow higher value crops through watershed development) is not realised.

4.6.5 Lack of adaptability

There is wide variability in natural resources and socio-economic conditions. This requires a local adaptability of the government programmes and projects to deal with the situation. However, the limitations in the operational procedures often do not allow such adaptation.

4.6.6 Lack of cross-learning

There is little evidence of cross learning among the wealth of different approaches being practiced by different implementing agencies for natural resources development and between projects within the same implementing agencies.

4.6.7 Ensuring sustainability of service delivery

This is a critical issue in that ultimately the aim of most development activities is to build sufficient (social and economic) capacity within the village so that the community themselves can continue to deliver necessary

³⁰ ASA is undertaking a World Bank-funded initiative helping 3 WB Natural Resource projects within MP to set up a participatory monitoring and learning system.

services into the future. The following interesting example of how this might be achieved was made by the Jhabua Zila Panchayat with regards to Watershed Development Committees.

Comments made by Jhabua ZP on watershed and Panchayat

Ultimately a PIA will hand over a watershed to the WDC set up in the village, the aim being that the WDC does the needful to ensure utilisation, maintenance and furthering of a watershed, ie. watershed programme is an ongoing process. To do this, the WDC may have to use more funds than are available as development or gramkosh funds, such as the EAS and JGSY available through the Panchayat. Mostly WDC, Users Groups and SHGs are not members of Panchayats, however especially after 2-3 years of project completion; these institutions will require some legal sanctity as members of the PRI. This could be done through making WDC and users groups ex-officio members of Panchayats and their concurrence made compulsory in such resolution as affects works of watershed. It is anticipated that this will ensure furtherance of watershed as a permanent agenda of the gram Panchayat.

Similarly, Federation of both WDC (with users groups) and SHGs at block and district level can be thought of as potential pressure groups. The similar opportunity lies with the Joint Forest Management Committees and Water Users' Association (Federation of district level WUA has been initiated in Dhar district). Such pressure groups can divert the flow of some RD schemes such as EAS or ITDP for maintenance and construction of bigger water holding structures. Simultaneously they will act as deterrents to potentially harmful Panchayat decisions.³¹

³¹ Sinha S (1999)

5. ANALYSIS AND CONCLUSIONS

5.1 Why past or contemporary programmes succeeded or failed (both people and government perceptions)

Table 10 overleaf presents a summary of the reasons why past and contemporary NR programmes have succeeded or failed – reasons which have been elaborated on fully during the previous report sections. It has been sub-divided into reasons for success or failure in a) uptake of programmes, b) delivery of benefits and c) sustainability of interventions. The reasons for failure are further sub-divided, using some judgement to categorise those reasons which were avoidable and those that were more difficult to deal with or avoid.

5.2 Ongoing experience of participation and ways for improving the participation of all the stakeholders

What this appraisal highlights is the need for a more people-centred development process within NRM. There is need to facilitate a process that encourages people as partners in development and builds up people's capacity so that they can themselves decide and pursue developmental objectives. Section 2.4 outlined the methods that, in general, have worked and not worked to achieve participation.

As a reminder, what is seen to be successful is:

- o Programmes pre-designed with people's participation in the decision-making central to achieving objectives
- o A needs-based, rather than blue-print, approach
- o Some degree of community cost-sharing of development works and the establishment of a village fund for community NR work
- o Scope for training and capacity building of community
- o Participatory planning process, involving people from Day 1 in decision-making
- o Participatory monitoring process, transparency in terms of accounting and sharing information, making joint decisions
- o Strategic planning in terms of paying specific attention to the targeting of the poor and women
- o Good capacity of the implementing agency to carry out participatory development process, ie. sufficient skills
- o Continuous devotion of time and resources by implementing agency to developing community involvement and maintaining participation.

Table 10: Summary of reasons for success and failure in NRM programmes		
Reasons for...	Failure	Success
<i>In Uptake:</i>	<p><i>Avoidable:</i></p> <ul style="list-style-type: none"> ○ Programme didn't reflect actual needs of people and local conditions and therefore viewed as irrelevant (as community not sufficiently involved in project planning) ○ No needs realisation or creation took place ○ Insufficient awareness raising and proactivity on part of project implementing agency (due to inertia and/or lack of funds) ○ Lack of capacity within project implementing agency to facilitate people's involvement ○ Programme did not build on previous works going on in the village (eg. duplicating or making same mistakes) 	<ul style="list-style-type: none"> ○ Needs-based approach followed, with flexibility inbuilt (to adapt to specific community needs and local conditions, such as high levels of migration) ○ Community involved in programme planning, engenders community ownership ○ Sufficient capacity and skills of the PIA to facilitate participation
	<p><i>More difficult to deal with:</i></p> <ul style="list-style-type: none"> ○ Success still dependent on the proactiveness of project implementing individuals - proactivity is not institutionalised ○ High levels of out-migration ○ Insufficient awareness and low level of proactivity amongst community ○ Hard to get community to participate ○ Low levels of literacy ○ Not taking into account the entrenchment and inflexibility of social and cultural norms ○ People hesitant because of experience with previous schemes 	
<i>In Delivery of benefits:</i>	<p><i>Avoidable:</i></p> <ul style="list-style-type: none"> ○ Community unable to articulate demand for development activities and work as equal partner, ie. supply driven not demand driven ○ Lack of flexibility, too much of a blue-print approach ○ Wrong selection of beneficiaries ○ Vested interests created due to high subsidy component creaming off the benefits ○ Lack of skills within the PIAs 	<ul style="list-style-type: none"> ○ Targeting of women and poor
	<p><i>More difficult to deal with:</i></p> <ul style="list-style-type: none"> ○ The lack of capacity on the part of the villagers to organise on development issues and negotiate/bargain with the delivery system 	
<i>In Sustainability of interventions:</i>	<p><i>Avoidable</i></p> <ul style="list-style-type: none"> ○ Too high subsidy component makes people less self-reliant in terms of management of resources and no feeling of community ownership of assets created (habituated to subsidy) ○ Livelihood and poverty issues being viewed in isolation and not holistically by different line departments, Panchayat etc ○ No convergence of departments at the community level ○ Poor follow-up to build on increased capacity created ○ Lack of transparency ○ Insufficient investment in terms of training and capacity building of the community ○ People not involved in monitoring and learning from project (eg. <i>nearly all development projects</i>) ○ Unmanageable size of projects 	<ul style="list-style-type: none"> ○ Community cost-sharing which engenders feeling of community ownership ○ Longer project implementation periods (allows both PIAs and community to think long-term, sustainable development) (eg. <i>RGWM</i>) ○ Community participation in project planning, implementation, monitoring and learning from outset helps create community ownership ○ Sufficient follow-up and forward linkages to build on capacity created (eg. for farmers in watershed development programmes, linking them to extension services for improved seed varieties or market advice)
	<p><i>More difficult to deal with:</i></p> <ul style="list-style-type: none"> ○ Continuous drought years and other environmental shocks ○ Insufficient core costs for PIAs ○ Short term nature of projects (time span of programmes not long enough to achieve objectives) 	

Please note: these were collated mostly from discussions held in NGO consultation workshop: due to the time available and range of NGOs and districts covered, it was not possible to undertake a full and comprehensive analysis of individual projects and programmes. Doing so, would require detailed substantiation from many different stakeholders.

5.2.1 Improving participation at the programme/strategy level

In terms of programme management, the process of encouraging people to be partners in development demands a U-turn: from a historically regulatory, to a participatory approach. This is happening. The concept and methodology of participatory development is increasingly being recognized amongst the donor community, and the government of India/MP has also responded to this change very positively in recent years. The guidelines for common approach for natural resources management by GoI are in fact radical in their provisions for participatory, equitable, gender-sensitive and decentralized approaches in watershed development³². The results have also started coming in of such initiatives: Rajiv Gandhi Watershed Mission, Joint Forest Management, Participatory Irrigation Management, the Gram Sabha Adhiniyam of 2001 are some of the success stories of people's participation in natural resources management. However, it is fair to say that there are miles to go.

The specific suggestions for the improvement of programme performance:

- Although more people centred developmental programmes and policies are emerging, there is a need to build capacity of the government staff who are actually implementing the programme. Strengthening capacity of staff to steer participatory development process is key for the success of the programme. This was recognised in interviews held with certain government officials.
- Increasing community awareness about the development programme should another focus area.
- There should be adequate coordinated policy support for development programmes. A lack of coordinated policy support means that for example, one set of policies relating to JFM, PIM, policy on Self Help Groups are based on strengthening CBOS in their execution role: however another set of policies, eg. the 73rd Constitutional Amendment and subsequent enactment of Government of MP of Gram Swaraj Adhiniyam 2001 has been advocating executives role for Panchayats as well which is leading to confrontation between these 2 types of institutions with similar Terms of Reference. The role of JFM committees vis-à-vis the Watershed Development Committees is not spelt out clearly and experience has shown that there is conflict between these 2 CBOS, with JFM committees not allowing WDCs to work on forest land – a prerequisite for any ridge-to-valley watershed development approach.
- A mechanism should be devised to encourage transparency, involving people to monitor and evaluate their performance against the development objectives set by them.

5.2.2 Improving women's participation

Specifically in terms of improving women's participation, the following may be considered appropriate strategies:

- Involving women from the project planning stages. This way, minor adaptations can be made to interventions that in turn can make even a small difference to women's lives. Not only does this go some way towards addressing women's needs, but the process of consultation is itself a means of empowerment and can help ensure future participation.
- Targeting of programmes towards women, in particular identifying which activities women will more readily participate in, rather than forcing them to participate in activities. For example, ASA's experience is actually that:
- Mobilisation of women for activities like common property resource management is very difficult, but doing smaller thrift and credit activities are more socially agreeable;
 - ✍ Women are hesitant or are otherwise restricted to be vocal in public events where the major village decisions are taken eg. on Joint Forest Management formation.
 - ✍ Channelling development activities through women's community-based organisations (although this can have drawbacks too)
- Ensure that sufficient and correct information is collected on women's strategic and practical needs
- Including activities which will help to meet women's practical needs first and foremost, even though these might not be core to the overall programme. This should help to free up women's time to participate.
- Developing women's skills through training

³² Workshop proceedings of National workshop on watershed approaches for managing degraded lands in India : Challenges for 21st Century, 27-29 April 1998

- Undertaking exposure visits to other villages or areas where development work is being undertaken, or where women are actively participating, and not necessarily on NRM or water management issues (ie. taking the view that any exposure is beneficial)
- Creating space for women to participate, through formalising the need for their participation within community-based organisations (eg. requesting at least one women member on Watershed Development Committees, WUAs or JFM committees)
- Ensuring that any technology or inputs introduced (eg. improved seed varieties) are women-friendly.
- Making women as beneficiaries of additional employment generated through projects
- Ensure that PIA staff are facilitating women to express their concerns in the meetings
- Systematic monitoring of women's development, so that conclusions drawn from monitoring can feedback directly into interventions.

5.2.3 Improving landless participation

As noted in Section 4, participation of the landless, who are often the poorest, within community-based natural resource management programmes is a problem. Leaving land reform aside, strategies that may encourage participation include:

- High degree of flexibility within programmes, so that they are tailored to suit local conditions. For example, landless often face exclusion due many if not all family members migrating for long periods of time. Programmes to take this into account, and work round, rather than against migration should be thought of.
- Including non-land based interventions within natural resource programmes is vital. For example, as part of the RG Watershed Mission, the Project Implementing Agencies are obliged to set up Self Help Groups or other traditional craft groups with the landless and other marginal groups within villages. These at least give those without land space to participate in community affairs and also
- Ensuring that NR programmes include some common land development in which landless people can participate and which they can benefit from. For example, construction of ponds which can be used for pisciculture, brick making and house construction or at least to charge the wells of the landless, if these exist. JFM is also a key activity through which landless can participate. However previous experience with JFM has shown that this has to be carefully facilitated and managed: otherwise it could actually jeopardise previous relationships and rights the landless held over the forests due to vested interests and power dynamics within the village institutions. Inevitably the ability of the landless to correct in injustice happening is minimal.

5.3 Constraints identified by different stakeholders regarding the use/access to natural resources

This report has identified a number of constraints affecting the use of and access to natural resources in the Western Region, most of which are detailed in Section 1 (under the NR profile). The constraints are summarised in the following table (Table 11). The main impacts that these constraints are having and what could be done to improve the situation is discussed below the table.

Table 11: Summary of constraints regarding use of and access to natural resources in the Western Region

		Whole Region	Marginal areas	Higher Potential
1.	Land	<ul style="list-style-type: none"> ○ Massive deforestation ○ Encroachment of common lands ○ Unsuitable aquifer conditions for recharge ○ Increase in use in chemical fertilisers and pesticides 	<ul style="list-style-type: none"> ○ Faulty agronomic (incl. tillage practices leading to declining productivity and under-utilisation of potential) ○ Severe soil erosion causing high degree of run off ○ Water holding capacity of soil poor due to natural undulating topography 	<ul style="list-style-type: none"> ○ Monocropping reducing soil fertility ○ Water logging and insufficient drainage management
2.	Water	<ul style="list-style-type: none"> ○ Erratic and highly fluctuating nature of rainfall ○ Frequent and consecutive drought (3-4 years in 10) ○ Excessive rainfall years ○ Monsoonal rainfall only ○ Can be high intensity ○ Lack of adequate practices for water conservation ○ Inadequate investment by government towards in-situ water conservation ○ Some faulty irrigation practices undertaken, particularly within highly subsidised schemes 	<ul style="list-style-type: none"> ○ Lack of awareness of improved water management ○ Quality of drinking water, other than through hand pumps, is low 	<ul style="list-style-type: none"> ○ High levels of (generally uncontrolled) groundwater exploitation due to massive increase in irrigation ○ Falling groundwater levels ○ Deterioration in quality
3.	Social	<ul style="list-style-type: none"> ○ Traditionally lack of village institutions to deal with NRM issues ○ In some areas, little tradition of collective action ○ Panchayat not being able to reflect needs and aspirations of people ○ Participation of women in very limited 	<ul style="list-style-type: none"> ○ High levels of migration limits scope and desire for people's investment ○ Lack of awareness regarding certain improved agricultural practices ○ Some degree of conservatism and risk-averseness when it comes to changing practices (relates to reliance on rain-fed systems) 	<ul style="list-style-type: none"> ○ Landlessness is high ○ Local village politics, caste discrimination, vested interests can affect NRM
4.	Economic	<ul style="list-style-type: none"> ○ Lack of access to appropriate credit sources forces people into indebtedness 	<ul style="list-style-type: none"> ○ Rain-fed agriculture dominates subsistence making livelihoods incredibly insecure ○ Average landholding size is small ○ Unscientific and improper management of land ○ Present agricultural system not sustainable or economically remunerative ○ Social customs 	<ul style="list-style-type: none"> ○ Lack of non-farm employment opportunities in area
5.	Delivery system	<ul style="list-style-type: none"> ○ Inability of line departments, DRDA and Panchayat to provide a holistic view to NRM development ○ Insufficient extension work within villages 		

5.3.1 Drought

The most crucial question pertaining within the Western Region (and mostly within the marginal areas) is how to minimise the effects of drought, to remove the shock it places on the livelihoods of the people. The issue is not the amount of rainfall, rather it is its erratic nature. Incidence of drought in 3-4 years in a ten years cycle is the trend, and these years are often consecutive. The impact of drought in the region is to reduce the effectiveness of development programmes or hamper their progress, and to constrain the ability of people to improve their livelihoods, to move out of a situation of subsistence. This, of course, is a very simplified account of drought: its complexity is well recognised as is the severity of its impact being influenced by a combination of social, economic and human factors. The impact that drought has had on the marginal areas was explored in Section 4.2.1.

Drought proofing strategies, which view the impact of drought on people's livelihoods holistically, are therefore key. For example, watershed development per se, is not sufficient. What is necessary is a combination of land development (private and common land bunding, SMC, watershed, appropriate use of land promotion); creation of irrigation potential (private dug wells, Lift Irrigation Schemes, tanks, innovative drip technique); modern agriculture techniques (drought resistant crops – although desi varieties tend to be, higher yielding varieties, inputs, biogas, better implements); seed banks within village, allied activities (poultry, prawn culture, milk routes and stall feeding, fisheries).

5.3.2 Need for more integrated water management

In terms of water management in particular, a comprehensive measure following the basin approach within the small rivers is perhaps the answer for tackling drought. This consultation process has further strengthened this argument by the successful examples of Jhabua watershed activity or by diverting Karam river water to local nallahs or by the incidence of damming the Sibna River in Mandsaur. There is ample opportunity in Western M.P. to catch water in the vast network of nallahs and rivers.

The average rainfall in the Western region is good; however, there is lack of measures to harvest surface runoff. Harvest of surface water should be given maximum emphasis through various water conservation measures such as in-situ conservation like field bunding, trenches; small water harvesting structures like tank, check dams, farm ponds, etc.

However there is another point to be made regarding watershed works and groundwater development. As water harvesting and conservation methods increase, this implies an increased use of water for irrigation. This is likely to lead to:

- ✍ abstraction setting in gradually as the community realizes the improvement of well productivities
- ✍ A period where increased abstraction will overtake the maximum recharge to the groundwater system (primarily controlled by the limited specific yield of the aquifer).

This will lead marginal farmers into unfamiliar territory in terms of managing new demands for water. Therefore there is a need for demand-side interventions – such as groundwater management strategies - as a follow-up to watershed development. This could include proper monitoring of groundwater systems, especially its behaviour through an annual cycle and the trends that would develop consequentially to watershed development measures. For example, a network of dug wells could form a simple means of regular monitoring of the shallow groundwater system.³³ Surface water management strategies will also need to be developed. Unsustainable options in groundwater development include: more wells for more water, obtaining water over short period of time, wells as “sources” of water rather than “mechanism” tapping a source (aquifer). This will have to be managed by appropriate and highly functional community-based organisations or federation of CBOs between villages within a river basin.

³³ Acwadam (2001)

5.3.3 Farm potential still grossly under-utilised

Within the marginal areas, old-fashioned as well as inappropriate agriculture practices persist and the farm potential remains grossly under-utilised. Improved and diversified agriculture is needed for more job creation to take care of the growing population. Emphasis on the *promotion of farm-based micro-enterprise* perfectly fits into a rising production system to lessen the burden on agriculture diversifying into non conventional areas like agro-forestry, vegetable growing, agro-horticulture, etc.

Effective extension of farm technologies can add significant value to the productivity level. For instance after soil and water conservation, seed is one of the most important components of agricultural production and having potential to increase crop yield from 20-30% within a very short time. Modern crop varieties offer significant improvements in yield and utility and occupy specific niches never targeted by the conventional research and extension systems. *ASA's personal experience with participatory crop improvement programmes has shown that the identification and popularisation of such new varieties through participatory processes leads to increased uptake and geographical spread even in marginal areas.*

5.3.4 Move to higher potential systems determined by costs of credit

Informal credit sources (moneylenders) continue to be the main credit sources in agriculture and are likely to remain so with more investment in natural resource development in the marginal areas. With the investment on natural resources including water resources, the marginal area in theory should gradually convert into a high potential production system. In this situation the supply of credit - especially the volume - becomes extremely crucial to provide a support base to the whole production system. The cost of credit becomes a determining factor of whether farmers actually gain out of the increased productivity, or whether all the marketable surplus generated ends up paying the exorbitant (120-150%) interest rates of the money lenders. ASA's experience suggests that micro finance schemes play an important role in maximising the benefits accrued from NRM interventions. *Micro finance through Self Help Groups is crucial as it provides an informal institutional base for low cost credit for the watershed community in particular to the marginal groups who do not have easy access to credit. Through such schemes, links can also be made to the formal credit suppliers, viz. NABARD and other banks.*

5.3.5 Common property resources management needs more attention

While the common land is being encroached rapidly by the people who are economically and politically strong, the rights over surface and ground water is reduced to an open access resources. The management issues related to important common properties like land and water have not been addressed adequately. *A broad based institutional mechanism of CBOs along with the PRIs will be required to address these complicated issues.*

5.3.6 A contested domain between Panchayati Raj Institutions (PRIs) and the NRM Community Based Organisations (CBOs)

The role of PRIs and the CBOs are increasingly overlapping in many areas. PRIs are increasingly being treated as a mechanism of project implementation rather than a governing institution. Both the institutions are increasingly getting importance through government policies and programmes and the likelihood of the conflicts of interests becoming more. There is a need to work on this issue to find a viable relationship between these institutions.

Whether NRM institutions should be in line with NR boundaries or as per revenue boundaries -pros. and cons and experience from Jhabua district

This is a debatable issue. It is acknowledged that there is much evidence that NR institutions are not sustainable or effective when delineated according to civil administrative bodies. However in watershed programme the micro watersheds of 500 ha. are delineated as per natural drainage of the area and often involves more than one village. The village institutions, in this case the WDC, is supposed to be formed for the entire microwatershed thus

involving two or more villages coming under the microwatershed. In Jhabua, we have seen that WDC formed with the people of more than one village do not gel together well due to inter-village conflicts and physical distance. However, a mechanism to form separate WDC for both the villages with separate Action plans and allocation of resources within the overall drainage system of micro or macro watershed have worked well. The social and revenue boundary of the village is more distinct in the mindset of the villagers than the hydrological boundary and therefore it provides a relative advantage of building an institution with homogeneity as the key cementing factor. From the point of resource distribution this is also advisable. There is evidence in Jhabua where we found that a WDC formed with two or more villages has ended up spending maximum allocation in one village due to the pro-activeness of the people of that village, leading to inequitable distribution of resources. Understanding this problem, the Rajiv Gandhi Watershed Mission now encourages formation of village-wise WDC within the micro or macro watersheds. A point needs mentioning here that due to the same problem of unequal resource distribution at the Gram Panchayat the M.P. Gramswaraj Adhiniam 2001 authorises every village within the jurisdiction of a Grampanchayat to form its own Gramsabha (village assembly) and pass resolution for developmental works.

5.4 The need for sensitisation identified amongst different stakeholders to inculcate demand for sustainable NRM models and the right to participate

5.4.1 Need for sensitisation within project implementing machinery and how it can be achieved

This appraisal recognises that there is much need to sensitise project implementing staff, and particularly the government machinery, in terms of integrated (viz. sustainable) NRM models and the concept of people's participation.

There appears to be no dearth of policies or money when it comes to people-centred NRM approaches in MP, as in recent years a number of policies have been enacted in this area. This is due to the rapid decentralisation of administrative and financial authority is taking place in MP, which is trying to change the nature of governance towards participatory model of democracy. Another ongoing development is the increasing presence of many bi-lateral and multilateral development agencies such as World bank, DFIDI, UNICEF, UNFPA, WFP, DANIDA, AUSAID, etc.

Therefore some level of sensitisation exists in terms of realising that sustainable NRM and participation is a now a key policy of the government. However what is in short supply are "how-to-do" and "best practice" modules at the level of project implementation, to translate such policies into action. For example, through what measures can PIAs ensure that integration of NRM (and other development) activities happens? What methods can PIAs use to get people to participate? And if participation is achieved, how do PIAs deal with community dynamics and issues that arise, particularly if they are not specifically related to their area of expertise? The reality is that many government line departments, such as Irrigation Department staff, are not sufficiently skilled to deal with many issues being raised by community and by farmers. In general, there is a lack of capacitated people with the correct mindset and set of skills and a lack of coordination.

What can be done about this? The following set of tools is recommended:

- a. *Exploit the opportunities for micro-level planning:* There is an opportunity now to develop micro-planning at the Panchayat level in addition to which, the District Planning Committee is also more empowered (as explained in Section 1.3). These opportunities need to be exploited to develop effective planning, taking into consideration the local needs and opportunities. It is suggested that District governments should develop plans for five years on the basis of village planning by the Panchayat. This kind of planning with clear objectives, strategies and development indicators will help for integration of activities. However, this requires a long term political commitment on the one hand and bureaucratic support on the other.
- b. *Coordination between departments:* There is a need for coordination among all departments engaged in providing development services. There is lot of overlapping and contradictions in the nature of programmes and also in

management. The district planning should be the right kind of platform for coordination and convergence. ASA's experience is that the use of management tool like Logical Framework Analysis (LFA) for district planning is useful for setting up common goals for the district, and strategies to achieve them.

- c. *Comprehensive training and capacity building*: Comprehensive training and capacity building of staff particularly in participatory approaches; cross learning methods; monitoring, evaluation and learning, especially "process" approaches; and strategic planning"³⁴. Donor support in these areas would be particularly useful. This could be done through experience sharing between NGOs and GOs on best practices and lessons learned. For example, ASA is now providing training to Government PIAs under the RG Watershed Mission on Participatory Rural Appraisal techniques, similarly it is providing training to District-level government officials on Logical Framework Analysis.

5.4.2 The need for sensitisation amongst villagers and how it can be achieved

How do you instill demand for sustainable viz Integrated NRM models at the community level? How do you inculcate that it is their right to participate? These responses below are mostly drawn from the NGO Consultation workshop held and interviews with key government officials.

- a. Comprehensive natural resources management should be the strategy. This should effectively take into account the opportunities and constraints of natural resources like Jamin (land), Jal (water), Jungle (forest or vegetation), Janwar (Livestock) within a river basin. The river basin could be the sub-river basin of a larger basin. For instance, within Mahi river basin there are several sub-river basins that should be the unit of planning for a comprehensive measures.
- b. The concept of water budgeting should be introduced at the unit level. The unit could be the village. A village should assess the annual water requirement taking into view of all purposes and accordingly develop plan to harvest surface water. The point is that all units should think in the line that what they consume should be replenished. There is a need to change the mindset of the people in which water is considered as a low value commodity. The community contribution in water harvesting should be encouraged. The state sponsored Pani Roko Abhiyan (Stop Water Campaign) has made a good dent in sensitizing community on water issues and mobilizing community share in water conservation. However, there is a need to promote the concept of equity in community contribution mechanism. Often it happens that the poor labourers end up paying the contribution in the form of deduction of the wages at source. The people who will receive direct and indirect benefits should actually make the contribution. For instance if a Tank is built in a village the people who will receive irrigation benefits should pay the higher contribution than those who will receive benefits in the form of drinking water for cattle.

The use of water should be looked at in terms of subsistence (household) and commercial. Domestic purposes including drinking water, cattle drinking, need of water for small farmers are to be considered subsistence while other purposes like commercial farming (sugarcane, banana, vegetables in large farms), dairy farming, vermicompost for commercial purpose (as is happening in Malwa and Nimar rapidly) should be considered as commercial, like how electricity service is categorized. The water charges should be different for both the purposes. The water charges should be based on volumetric basis; the slab system should be introduced so that those who use more after a certain limit pay more.

- c. There is a need of a stringent law and its application (including community sanction) for the violators of water law. The exploitation of groundwater through bore wells should be banned immediately except for the drinking purposes. The present laws of discouraging bore well in grey areas by not providing bank loans or electricity connection is not sufficient. There are many examples that the rich farmers invest their own money for bore well and install diesel operated pumps.

³⁴ Participatory watershed development in India : Impact of the new Guidelines, DFIDI and ODI; April 1998

- d. There will be need of multi-tier community institutions within a basin involving different stakeholders of water users viz. rural, urban, industry, etc. A special reference was made about the "Aravari Sansad" (Parliament for Aravari), an initiative started by Tarun Bharat Sangh in Alwar district of Rajasthan. The aim is to involve all stakeholders, those who are getting benefits directly and indirectly from the river, people from catchment and command in the decision making process of management of the resources.

Currently existing Water Users Associations and Users Groups have reasonably well executed institutional arrangements but are without much scientific basis. However effective community management of groundwater will depend on the understanding of the hydrogeology science, as much as the socio-economic considerations of the people.

In terms of actual tools to be used to carry out sensitisation, those which ASA have found to be effective in Jhabua are detailed fully in Section 4.4. They include role playing, puppet shows, audio-visuals, exposure visits and influencing community opinion leaders.

5.5 How local people feel their interests and aspirations can best be incorporated in the decision-making process regarding IWRM

Through the consultation process it is evident that the facilitation of participatory processes has the strength of encompassing people's aspirations and need in the development. The people have vouched for such processes in more inclusive manner. Examples of success are available which are further strengthening the argument for participatory process in development. This is an emerging area and the entire development process appears to be in the transition. The increasing policy support is further encouraging such initiatives. However, there appears to inadequate capacity and effort to build the capacity on the part of development promoting organisations to nurture such a process. This is a critical area and more emphasis will be required to facilitate a decentralised nature of project and programme governance.

Action for Social Advancement

21/10/2002

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ANNEXES

Annex A: Data tables

Annex B: Definitions of “workers” as categorised in Census of India

Annex C: Factsheets on Study Villages

Annex D: List of NGO Consultation Workshop Participants

Annex E: Examples (success and failure) of water management from the Western Region

ANNEX A – Data tables

Please see Excel file “Annex A – Tables.xls”. (These are ready to print out.)

Table A: Population

Table B: Literacy

Table C: Scheduled Tribes (STs)

Table D: Scheduled Castes (SCs)

Table E: Below the Poverty Line (BPL) families

Table F: People in Employment

Table G: Types of Employment

Table H: Performance of Women

Table I: Land Use

Table J: Agriculture

Table K: Net Irrigated Area

Table L: Irrigation Sources

ANNEX B - Definitions of “workers” as categorised in Census of India

Cultivators:

A person in a cultivator if s/he is engaged as either employer, single worker or family worker, in cultivation of land owned or held from the Government or held from private persons or institutions for payment in kind or share of crop and whose cultivation includes its supervision and direction.

It does not include fruit and vegetable growing or keeping orchards or groves of working plantations eg. tea.

Agricultural Labourers:

Persons working on another person's land for wages in money, kind or share are treated as agricultural labourer. Such a person has no right of lease or contract on land on which s/he works.

Household industry:

Household industry is defined as industry conducted by the head of household, himself/herself and, or by the members of a household. In rural areas, such activity can be at home or within the village, but within the precincts of the house if householder lives in urban areas.

It relates to production, processing, servicing, repairing or making and selling (but not merely selling) of goods, eg. handloom weaving, dying, bidi rolling, bicycle repairing. It does not include profession such as Doctor, Waterman, Dhobi or merely trade or business, even if such professions, trade or services are run at home by members of the household.

Other workers:

Others than who are listed above, eg. factory workers, plantation workers, these in trade, commerce, business, transport, mining, construction, political or social work, all government servants, municipal employees, teachers, priests, entertainment artists.

ANNEX C – Factsheets on Study Villages

1. Kolyabeda village, Jhabua

Kolyabeda village is situated in the southern part of Jhabua district, 3km from the nearest town of Bori, and 15 km from Udaigarh the block headquarters. The village has a total population of 1735 residing in 13 falias (hamlets), 12 of which are populated by Bhil and Bhilala tribals and 1 by a Harijan population. ASA is working in all hamlets through 3 Watershed Development Committees (WDCs).

The Bhils today remain primarily cultivators of land, to which a considerable amount of social and cultural status is attached. Their livelihoods are traditionally highly dependent on the natural resources, however distress migration now figures as an important livelihood strategy for almost all households, particularly due to consecutive years of drought (1999-2001). There is no strong culture of non-farm micro-enterprise in Jhabua as there is in other tribal areas, viz. basket weaving, carpet or jewellery making.

Current status of watershed development works in village:

ASA established contact with the villagers on 15 July 1996 when it took up watershed development activities under the Rajiv Gandhi Watershed Mission.

Existing work in village (ASA and previous)

- o Common land development (forest land) = 49 ha
- o Private land field bunding = 37 ha
- o Common land stone bunding = 37 ha
- o Private land plantation = 8188 trees
- o Common land plantation = 41140 trees
- o Irrigated area (from 2 Talavs) = 27.5 ha
- o No. of beneficiaries from talavs = 26 families
- o No of wells recharge (from percolation tank) = 16
- o Irrigated area from wells recharge = 10 ha
- o No. of check dams = 1
- o Irrigated area from check dam = 4 ha
- o No. of beneficiaries = 9 families

Other works being undertaken:

- o Participatory crop improvement: during monsoon 2002, 2 trials of Bt Cotton are going on. Besides that, 5 farmers are growing maize and 5 growing black gram with improved seed varieties supplied through ASA. Previous trials included: 24 trials of maize, 12 trials of green gram and 5 trials of wheat. Also 36 farmers are cultivating vegetables with seed supplied by ASA, including bindi, bitter and bottle gourd, pumpkin, capsicum. Some of the produce is sold in the local markets, some is for home consumption.
- o No of credit and savings Self Help Groups existing: 3
- o 1 Watershed Development Committee (WDC): its role being the planning, execution and overall post-treatment management of watershed initiatives
- o 6 Water resources Users Groups of 95 members (to manage maintenance of individual structures and potentially use of water)
- o 1 JFM Committee for Common land (to be resurrected 2002).

Summary of situation - September 2002

As part of the appraisal, the researchers undertook a participatory transect walk around the three hamlets to assess the current situation with regards to natural resource management. It was very apparent that the good rains of 2002 were making a difference. The following was observed:

- o The nallas were flowing with water

- Out of the 8 dug wells observed, all were more than half full of water. The wells are built in a sequence downstream, and also benefit from the recharge created by the watershed treatment works in the upper catchment
- The talav was full of water and was being used for cattle drinking and will be for irrigation
- The area of forestland that was under social protection the previous year had been grazed. The drought had left the villagers no option: a do-or-die situation for their cattle. However
- 2 farmers were growing healthy plantations (wadis) of papaya and amla
- Farmers were growing bamboo and teak plantations along their field bunds which were also in a good condition because of the rain
- 2 farmers were trialling new varieties of Bt Cotton (genetically modified cotton),
- A number of farmers were undertaking vegetable cultivation.

2. Kalakhoont village, Jhabua

The village of Kalakhoont is located in Jhabua district, a few kilometres from the Gujarat border. It has a population of just over 1100 spread over 3 falias (hamlets). The population is divided into 131 households. The area coverage of the village is 405 Ha. The village is 100% tribal (Bhil and Bhilalas, as above).

Block:	Jhabua
Panchayat:	Kalakhoont
Population:	1114 (100% tribal)
Literates:	30 male, 8 female
Anganwadi (Pre-school):	1
Health Centre:	At Pitol – 3 kms
School:	1 (Govt. primary)
Bank:	RRB, at Pitol – 3 kms
Market:	At Pitol – 3 kms

Current status of NRM activities in village

	Activity	Unit	Physical	Salient Features
1	Private Land Field Bunding	Ha	60	50% community contribution
2	Talavs	Nos	2	One was rehabilitated through ASA with 60% community contribution
3	Well rehabilitation	Nos	19	50-60% cost sharing by beneficiaries
4	Private Land Plantation	Nos	4744	
5	Wadi (horticulture orchard) Programme with Drip Irrigation	Nos	6	Papaya, aonla (Indian gooseberry) and mango trees being grown
6	Vegetable Gardening	Nos	40	
7	Improved Seed Distribution	Kg	464	
8	Cattle Camp	Nos	1	Treated animals 538

Community Organisation

Type of Institution	No.	Members	Savings in Rs	Loan circulated in Rs
Self Help Groups	Male – 4	50	80400	383000
	Female – 3	53	61250	143300
Lift Irrigation Society	1	14	NA	NA

Summary of situation - September 2002

As part of the appraisal, the researchers undertook a participatory transect walk around the three hamlets to assess the current situation with regards to natural resource management. It was apparent that the good rains of 2002 were making a difference. The following was observed:

- The 2 talavs in the village were full
- All nallas viewed were flowing with water
- The wells viewed were full
- Healthy crops of paddy were being grown in the nallah beds
- Well water was being used to grow wadi (papaya, mango, aonla, tomatoes) on the nallah sides.

The village has a Lift Irrigation scheme covering just over 100 ha. This is detailed in Annex E below.

3. Dhabla village, Mandsaur

Dhabla village has about 500 hh. with approximate population of 3000. This village is about 25 kms from the district town. Caste groups like Rajpoot and Patidar dominate the village; the other groups are Harijan and Tribal. The incidence of landlessness is not that high as it is seen in the case of Dhar villages, although the land distribution is uneven. Government's recent move of redistributing common land to the landless has benefited a number of landless families of the village. The village has the basic amenities like approach road, electricity, school, health center (Ayurvedic), etc. Mandsaur is the main market place for the villagers for its agriculture produce. Purdah (veil) for women is very much observed in the village. This is more with the Rajpoot and Patidar caste group.

The area receives about 1000 mm of rainfall. The nature of rainfall is erratic. This year being the second consecutive year of drought the severity of drought is much higher than the last year. Villagers expecting a shortage of drinking water during the summer months. The topography of the village consists of both undulating land on the ridge and plain land on the valley. Agriculture is largely done on the plain land while the upland is kept for grass cultivation and grazing. Farmers, who have less land, mainly from the Harijan or tribal group, do cultivation on the upland like maize, sorghum, etc. The major Kharif (monsoon) crop in the village is Soybean, about 95% of the area, and in rest 5% crops like maize, sorghum, and black gram are grown. In Rabi (winter), mainly wheat and chickpeas are grown. In Kharif (monsoon) some vegetables are also grown like Bindi, Brinjal, etc.

The village forms part of the irrigation command of Jothkheri Minor Irrigation scheme of WRD sub-division of Mandsaur. There is one more village under the command called Sindhpan. Dhabla is situated at the head of the command. The total irrigation command is about 325ha. however, the WRD officials claim that nearly 100 ha. more is being irrigated by the upstream farmers by directly lifting water from the tank, or by digging wells on the tank bed. This additional irrigated area is not being calculated since this is out of the command. The scheme started functioning since 1985.

The village has good amount of wasteland. The Panchayat took initiatives of protecting these patches and grow grasses over them. As a result one can see vast tract of grassland on the ridge. The Panchayat sells the grasses and earns revenue. The culture of stall-feeding of cattle in the village has made this initiative easy. However, from soil and moisture conservation point of view this initiative is helping for gathering biomass and recharging sub-surface water.

Soybean has been the main monsoon crop and important cash crop too. The villagers reported fetching a good price for soybean. The soybean was introduced about 15 years ago and since then it has swept through the area including this village. The farmers seem to be using the latest high yielding varieties of soybean seed. However, they are concerned by the continuous decreasing of productivity of soybean over the last 4-5 years. There is reported to be at least 15-20% decrease in the productivity and this is going down further. While asked about the reason the

farmers attributed mono cropping of soybean as the main cause. As a result the nutritive value of soil has gone down.

Dairy farming seems to an important activity adding impetus to the village economy. Approximately 200 liters of milk is being produced every day in the village for the local markets and Mandsaur. There is no milk cooperative as such in the village but there are few individuals who collect from the producers and sell in the market. The price they receive is Rs.6-7 per litre (about 20% will be water). The villagers think that milk cooperative would not have made things better, reasons being a) cumbersome procedure to form cooperatives, one has to buy shares, etc. b) price is calculated on the basis of fat content and since all of them here rear buffalo (milk of buffalo has low fat content) therefore price would have been less, c) delay in payment, etc. Almost every farming household grows green grass (Rajka, Warsim) for the cattle.

4. Sundrel, Bagripura and Shala villages, Dhar

The study villages namely Sundrel, Bagripura and Shala come under the Dharampuri block of Dhar district of M.P. The villages are within a radius of 5-7 kms. from Dhamnod, a relatively large business center on the situated on the Agra-Bombay Highway. Except Bagripura, two other villages are part of the irrigation command of Kunda Minor Irrigation project of Dhamnod sub-division coming under Dhar division of Water Resources Department (WRD) under Dhar division. Sundrel has about 50 ha. of irrigation command under Kunda Irrigation project, while Shala has about 70-80 ha. of designed command area. Both the villages are in the tail end of the irrigation command.

Shala is one of the tail end villages of the irrigation command and it was originally thought of visiting only Shala. However, while discussing with the WRD staff and Kunda Water Users' Association members who were assembled in the SDO's (WRD) office, they insisted that I must also look at the villages of Sundrel for its commendable job in implementing concept on the ground and Bagripura for its pioneering work in organic farming. Since both the initiatives fall within the larger scope of the study therefore I decided to capitalize on this opportunity of visiting them and have a first hand understanding of what's happening there.

Kunda Minor Irrigation project – at a glance

- Year of completion including canal system: 1963
- Gross Command Area : 1658 (designed)
- Catchment area : 32.1 Sq. km
- Full Tank Level : 206 mt.
- Live storage : 8.1 mcmt
- Length of Main Canal : 12.84 km
- No. of Minors: 4
- No. of benefited villages : 14
- Water Users' Association : 1 for entire system, formed in 2001

The average annual rainfall in the area is about 1000 mm. The villages are part of the agriculturally prosperous Nimar valley of western M.P. The topography is with rich black cotton soil. The villages form part of the catchment of river Narmada that is flowing in a range of 2-5 kms. from the villages. Three local nallahs (rivulets) on which two minor irrigation tanks (Kunda and Semalda are built) and river Karam are also passing through the area and meeting Narmada finally. The catchment (the hills of Mandu on the south) area of river Karam is about 500 Sq.km and with good vegetative cover. In a normal rainfall year or even in a scanty year the flow in the river continues for the whole year.

Demographic profile of the villages

Village	Area (ha.)	Population	Households
Sundrel	1064	4800	700
Bagripur	415	2700	250
Shala	400	5500	510

Source: Panchayat records.

The villages are mixed in terms of caste concentration. About 25-30 % are from either Patidar or Rajpoot community, 25-30% tribal (bhil), 15-20% Harijan and about 20% would be from other castes including Black smith, Barber, Naik and minority community like muslims. The land distribution pattern is very skewed. The percentage of landless households is very high ranging from 55-65% in case of Sundrel and nearly 80% for Shala. The dominant castes like Patidar and Rajpoot own the maximum land of the villages, while the other groups are largely either landless or marginal farmers who constitute a major portion of the agricultural labourers that are required during farming season by the land owners.

The villages are well connected with the approach road and the nearest bus stop is not far. The villages are fully electrified for both household and agriculture purposes. There are schools up to the higher secondary levels and other amenities like bank, hospital, market, LAMPs, etc. are very much within the reach either in the village itself or in Dhamnod. There is one higher secondary school for girls in Sundrel that is serving the need of girls' education for other neighbouring villages also. Interestingly, the villagers took the initiative of starting this school which was later on supported by the Government. This village received the award from the GoMP in 1982-83 for best village in girls' education. There is another higher secondary school in the village run by a Charitable society formed by the villagers.

The agriculture in these villages is purely for commercial purpose and cash crop dominates agriculture. The main Kharif (monsoon) crops are

- o Cotton (50-60% of the total area),
- o Soybean (15-20%),
- o Sugarcane, Banana, Pigeon pea, Sorgoum, etc. (15-20%). Sugarcane and banana are usually grown in the area adjacent to the Narmada with irrigation facility.

In Rabi (winter) wheat and chickpea are grown. chilli, papaya and other vegetables are also grown in quite a large area.

Agriculture here is quite capital intensive with large investment is made on tractors, harvesters, private lift irrigation system from bore well and from Narmada and other farm machineries. It is said that farmers of these villages imported electric motors and pumps for irrigation from far away places like Puna, Bombay in 25-30 years ago when people of other parts of Madhya Pradesh have not even thought about them. In Sundrel and Bagripura village alone there are about 350 private lift irrigation schemes either drawing water from bore well or from Narmada. Marketing of agriculture produces does not seem to be a problem for the farmers here. There is a good marketing network in the area with the proximity of some good Mandis (Grain market) like Dhamnod, Badnagar, Indore, etc. Dhamnod and the nearby areas have number of Ginning factories, which consume most of the cotton of the area.

5. Malipura village, Dewas

The village Malipura has Village Forest Protection Committee, located in Bagli tehsil of Dewas block of Madhya Pradesh, at a distance of eight kilometres from Bagli town. The Gram Van Samiti or Village Forest Committee (VFC) was formed in 02.02.1996 and registered on 11.04.96 with Registration # 197. There are 120 families in the General Body and 12 Executive Body members. The Samiti has been allotted coupe 824, 825, 828 with 303-710 hectares of forestland.

No: of Households	125
Landless households	10
Falias (hamlets):	03 (Jodia Amba Charbardi, Malipura, Bhilala hamlet)
Castes:	(i) Tribal: Korku Thakur, Bhilala, Bhil, (ii) Backward caste: Naik Scheduled caste: Chamar
Water resources	Drinking: 1 handpump, Irrigation: wells (almost every house has one), Tube well: 1, Talav:1 (for percolation and cattle drinking only)
Rainfall:	90 cms (in 2002)
Kharif (monsoon) Crops	Major: Soyabean, Maize Minor: Tuar, Surajmukhi, Jowar
Rabi (winter) Crops	Wheat, gram, vegetable- Peas on a large scale

Other development initiatives by Panchayat: Nistar Talav, Community hall, School building, Road

Migration: Is very less. The extra labour force migrates for additional income.

Treatment in Forestland: Contour trenching, dressing of pollards, Plantations of bamboo, Khair, grass and aonla plants.

Formation of VFC: A meeting was organised at the instance of the Forest Department. Almost all the households attended the meeting and registered their membership into the VFC, formed later. The Forest department introduced them to the concept of Joint Forest Management (JFM). The meeting deliberated on the issue of formation of a VFC and the duties and benefits it would mean for the members. Finally, it took a unanimous decision in favour of formation of a VFC. The Sarpanch was elected as the president of this committee. People say that every body that attended this meeting, as also a few women from their families, in spite of their absence at the site, were listed as General body members (as per the JFM regulation each house hold of the village is to be represented in the General body of VFC).

Membership to the VFC: As per the JFM constitution, one male and one female from each household are members of the VFC. Now all voters of the village are members (as per the revised JFM constitution). The executive committee has been elected from the members. The maximum limit is 21 and minimum 11 members. This VFC has 12 EB members. 56 are women representatives. The local forest guard is the ex-officio secretary of the VFC. Sarpanch is the president.

The formation of the committee was not an easy job. The idea was to invoke consensus and develop community involvement in the programme. There has been good efforts from the FD side with long standing involvement in every single issue pertaining to the VFC functioning, the skills and capacity building of the VFC members still has a long way to go.

Management: A lumpsum has been transferred to the VFC account. This money was expended on the physical works undertaken as mentioned above. The works were done under the direct supervision of the Ranger. However the action plan was discussed in the VFC meetings and decisions what so ever were mutually agreed upon. Payments are done by the President in the presence of the FD representative mostly the Range Officer. The committee meets regularly every 15 days or every once in a month at the instance of EB, who informs the forest department too. Such meetings are held for making decisions like starting the grass harvests, works to be undertaken, Protection of forest, activities of Bunkar Samiti (is explained in the later part). All decisions are made with consensus agreement of GB members and FD representative. There is a general satisfaction from the villagers about the functioning of the EB. Therefore the same EB has been elected once again which is 8 years old. 3 chaukidars have been appointed by the VFC, each is paid Rs 600/month by the VFC. One is from Bagli-who looks after the forest area close to Bagli and two are from Malipura hamlet.

There is a relatively good forest cover in village Malipura. After the formation of the VFC about 300 hac of forestland has been allotted to the VFC for protection, which was done in phases- 30 hac treated every season and closed from grazing. Primarily natural regeneration was allowed to take place from the available rootstock. Coppicing operation was also carried on simultaneously to improve the quality of plants. Grazing has been effectively stopped.

Other interventions:

- 2 women SHGs, save Rs 50 each a month, have been linked with the Nabard SHG refinance programme
- Bunkar Vikas samiti (weaver's group) formed in December 2000 has been registered in Dewas with 24 members. The members were given a 6 months training at the village itself from a master craftsmen from Khargone, who also helped in the installation of the 6 looms. Raw material are purchased by the members itself from Indore. The products range from Towels, Durries, Chadders, Tat-patti. A loan of Rs 30000/ has been taken from the VFC by the Bunkar vikas samiti as a seed capital. The production has fetched good market so far, however the FD has been taking the complete responsibility of marketing aspect and also getting orders for production.

ANNEX D – NGO Consultation Workshop Participants**Action for Social Advancement (ASA)****Workshop for community Appraisal of Integrated Water Resources Management (IWRM)**

21 September, 2002

REGISTRATION

Sr #	Name	Designation	Organisation	Address
1	Sanyal Tapas	Social Worker	Adivasi Sewashram Trust	10/21 Basant Colony Jhabua
2	Mathew Rajan	Social Worker	Adivasi Sewashram Trust	10/21 Basant Colony Jhabua
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5	Shiv Shankar Santra	Zonal Officer	Grasim Ltd.	BC 7/1, Grasim Staff Colony, Birlagram, Nagada, Ujjain
6	Sunil Srivastava	Sr. Project Officer (Spearhead Team)	Foundation for Ecological Security (FES), formerly NTGCF	70, New Vivekanand Nagar, Agar-Malia, Shajapur
7	Shibu Joseph	Secretary	ASRA	130, Gopal Colony, Jhabua
8	Sadhana Strembel	Director	Kalyani Institute	Dhyana Road, Kavchhe Kathiwada, Jhabua
9	Nikhil Mathur	Pro. Co.or	ASA	Thakkur Ke Havli Bori, Jhabua
10	Ashish Yadav	Prog. Co.od	VASPS	171, Anuradha Nagar, Po: Kasturbagarm Indore
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14	Fr. John Kennedy	Director	Indore Diocese for Social Service Society (IDSSS)	Catholic Church PO-3, Jhabua
15	Jahid Ali	Chief. Co.od	IDSSS	10, Vishva House, Red House Indore
16	Raj Kumar Bhandari	Prog. Co.od	IDSSS,	Mission School Jhabua
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20	Devendra Pawar	Project Officer	BAIF	Kanvan Road, Petlawad Jhabua
21	Neeraj Mandloi	Collector	Jhabua	Jhabua
22	R.K.Gupta	Ad.CEO	Zilla Panch ayat, Jhabua	Zilla Panchayat Jhabua
23	Abhradeep Das	Prog., Officer	ASA	Near RTO Pitol, Jhabua
24	Manoj Agrawal	I/C (SWC/WRD)	Gramin Vikas Trust (GVT)	44, Gulsan Bhavan , T.I.T Road Ratlam
25	Hansraj Gupta	Engineer (SWC/WRD)	GVT	44, Gulsan Bhavan , T.I.T Road Ratlam
26	Benedict Damor	Secretary	Adivasi Chetna Shikshan	Seva Samiti Bus Stand Jhabua
27	Anant Singh	Prog. Offer	ASA	Thakkur Ki Haveli Bori, Jhabua
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31	Bhupendra singh Gautam	Secretary	MVPCS	Vivekanand Colony Thandla, Jhabua
32	Ashish Bhatt	Director	Mahatma Gandhi Sangh	Bhraman Mohalla Thandla, Jhabua
33	Samkit Taleta	Member	R.S.Utpadan Sangh	Jawahar Marg, Thandla, Jhabua

ANNEX E – Examples of Water Resources Management from the Western Region

1. The impact of Keram river diversion, Dhar

The hydrology of the area includes a network of three rivulets and the Keram river, all of which finally drain into the Narmada. Two minor tanks, namely Kunda and Semalda were built on these three nallahs during the 1960s. The seepage water from these two tanks flow through these nallahs, although not much, thus making impact in the sub-surface water level downstream. Since they were built, it is reported that these tanks have never attained FTL (Full Tank Level), mainly due to less rainfall (irrigation officials say that these tanks are designed with high rainfall estimate and the rainfall has reduced substantially over the years). This has not only lowered the irrigation potential in the command area but also has reduced the flow of seepage in the downstream. This problem had been recognised by the WRD and the Irrigation sub-division of Dhamnod had subsequently prepared a scheme for diverting water from Keram river (which is a perennial river due to large 500 sq. km. catchment area with reasonably good vegetative cover) to feed into these two tanks. The scheme was implemented in 2001 with a concrete weir on the river and diversion channel of 3 kms. from the river to Kunda tank first and then to the Semalda tank through another channel of 3 kms (as shown in the text in Figure 13). The total investment was about Rs 5 crore. As a result, both the tanks were filled in the beginning of the monsoon this year (for the first time as claimed by the irrigation officials). There is huge amount of water flowing through these three nallahs in the downstream of these tanks as a result of the waste weir discharge.

People in the area are very happy about this new initiative of government and think that flowing of these nallahs will rejuvenate the sub-surface water table of the entire area, meaning that for example, the dug wells will be positively impacted. Also, there is now an opportunity to stop this water in different places by concrete check dams or by temporary weirs (which is already happening) before it drains into Narmada. This makes an interesting case for inter sub-basin transfer of water, within the overall context of a basin. In western M.P. especially in the hilly marginal areas there are hundreds of such opportunity exists and one needs to look at this potential taking into account the over all scenario of sub-basins and basins.

2. Small is beautiful – a tale of 2 lift irrigation schemes – a case study

a. Pipaldagarhi LI, Dhar

Pipaldagarhi Lift Irrigation scheme comes under the Dhamnod WRD sub-division of Dhar district. The scheme is huge in terms of its capacity: about 700 ha is under the command area involving 6 villages. Pumping of water is done in two phases: with three 75 horsepower motors each for the first phase, and by three 200 horsepower motors each for the second phase. The scheme was built in mid-1980s. The scheme is connected with High Tension electric line (which guarantees 18 hrs. a day assured power supply, as said by the WRD official). So far, till WUA came into existence in 2000, the WRD managed the scheme and paid the MP Electricity Board charges. The farmers paid little higher water charges than the irrigators supplied by canal. Even though the scheme was under utilised in terms of its filling the irrigation potential and the reasons were not very different than what usually happens in any large irrigation system. Since the scheme was handed over to WUA, the pending electric bill to MPEB is reported to be Rs 55 lakh. It is now doubt full whether scheme will continue to function. The WUA does not seem to be knowing what to do.

b. Kalakhoont LI, Jhabua

The village of Kalakhoont covers approximately 405 Ha, of which 101 ha. is irrigated .

In 1989 the NM Sadguru Water and Development Foundation initiated a lift irrigation (LI) system in Bagat hamlet. Prior to this the farmers in Kalakhoont were reliant upon rainfall to cultivate crops. Thus they were able

to cultivate only during the monsoon season and with only one crop were forced to migrate in order to find wage labour and thus be able to support their families.

The cost of the LI set up by Sadguru was Rs 8.67 Lac with nearly 100 ha. of command involving about 75 farming households.

The LI was managed by a committee of 10 farmers who elected a chairperson and operator. Irrigation water was provided to farmers who paid a fee to the committee and within two years the committee had saved Rs 15, 000 and the village farmers were growing enough crops to enable them to sell the surplus at the market.

However two years after this successful beginning the committee ran into problems. Goursingh, who as the son of the village Sarpanch was himself a powerful figure in the village, had initially been elected as the group secretary. The chairperson and operator were themselves less interested in the operation and gradually Goursingh took on more responsibilities and gained control of the LI. From 1991 Goursingh began managing the LI with his own rules and although farmers had paid the money required for irrigation he failed to supply them with water after the initial sowing of crop seeds. Goursingh made many excuses, such as that the electricity voltage was too low. In the same year many of the crops failed and farmers were forced to take loans from the moneylenders in order to support their families. Furthermore, they found that Goursingh had not deposited the money in the bank account that he collected as water fees. This continued for another year and finally the farmers revolted against the leadership of Goursingh. They fought and matter went to the court ultimately. The scheme was closed for about 5 years.

In 1997 ASA intervened in the village and facilitated a process of dialogue with the stakeholders and reached a solution. The irrigators chose a different leader to manage the scheme. The scheme has been since then being managed by the group of irrigators successfully. The institution built around the scheme is very vibrant: they prepare roster for irrigation, charge Rs.250/per acre/irrigation (the rate for farmers with black soil is higher than the normal) and employ two people during irrigation season for distribution of water. ASA provides them support for accounts keeping and annual audit of its account. The scheme has been running in profit with about Rs.40,000 of bank reserve.

3. Innovative water conservation works in Mandsaur

Under Pani Roko Campaign, the Collector of Mandsaur - who is also the district coordinator of the campaign - took special initiative for mobilizing people. The river Sibna which is a tributary of the Chambal is literally the lifeline of Mandsaur district, especially for the district town for drinking water. The 54 km. long Sibna is largely a seasonal river carrying most of the runoff from the area to Chambal during monsoons. The Collector gave a special emphasis to damming this river as much as possible, so that maximum storage can be obtained. There were already 8 dams on the river of which 3 required major renovation. A plan was made by the engineers in consultation with the people at large for 12 more new dams and repairing 3 damaged ones. The total cost was nearly Rs.192 lakh. The scheme was completed in 2002 with nearly Rs.130 lakhs. Contribution from the community and rest came in from the different sources within the government schemes which are not very much tied up like M.P. or MLA funds. This scheme is expected to fill at least 1058.30 ha. metres of water. Or in other words, it will fill water up to 51 kilometres of the length of the river (total length is 54 km.). This will have irrigation capacity of nearly 5000 ha, with farmers lifting water at the different dam sites. The drinking water problem will be reduced substantially as reported by the people. With the monsoon of 2002, the dams which are complete in full respect, are full with water.