



Study on Rights over Natural Resource and Benefit Sharing in Watershed in M.P.

Submitted to ITC Limited



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Acknowledgement

Watershed programme has gained importance over the years with rapidly decreasing ground water and repeated droughts in many parts of the country. There is an integrated approach of natural resource preservation, promotion and sustainable use. Most of the poor survive on the common properties, including water bodies. Water has a vital role in sustainable growth and regeneration of forests and grasslands. The landless and poor in watershed programme find it hard to be in the center of the programme as water as a scarce resource is controlled and utilized by the large, medium and small farmers.

Water governance has been an area of concern in most of the watershed for equitable distribution of the benefits. The created water governance structures become exclusive properties of the farmers and many a time of the big and influential farmers. ITC projects are concerned for promotion of inclusive watershed projects for equitable sharing of benefits. This study, assigned by the ITC to Samarthan, is a result of the similar thinking to understand the current status of equity and governance in the ITC supported projects as well as to find ways to improve the situation.

Samarthan team is thankful to all the community members who shared their valuable experiences and local wisdom with the team to understand the issues and situation. We are also thankful to the ITC team at the state level as well as head office level for providing valuable inputs and support the team from study conceptualization till the end. The partner-NGOs also deserve special mention and word of appreciation for providing necessary information and helping immensely in the fieldwork. Study team worked passionately to meet all sections of the community, particularly the landless and poor women.

We are hopeful that the study findings will be useful for planning new interventions in current projects and designing new programme.

Regards,

Yogesh Kumar

Executive Director

Executive Summary

The CSR of the ITC supports initiatives of sustainable natural resource management and agriculture through integrated watershed programmes. The ITC engaged Samarthan to undertake a research study on understanding the governance and equitable benefit sharing norms under the ongoing watershed programmes in MP. The primary objective of the study is to gain insights into and understanding of the power dynamics within village communities that determine access and control over common natural resource pool like water and fodder.

To understand these issues, Samarthan conducted in-depth field work across 8 villages in 4 districts of Madhya Pradesh (2 villages from each project). Population size, governance performance and caste dynamics were considered while finalizing villages for the study. Being an exploratory research, survey tools such as Participatory Rural Appraisal (PRA) and Focused Group Discussion (FGD) were used to bring out the issues effectively.

The overall observation which the team found was that the watershed programs have improved the water situation in project villages. With improved water situation in the villages, farmers have started moving to multi-cropping system from the single crops which they used to practise earlier. At many places, landless villagers have also been benefitted as daily wages have increased. Many people have started rearing goats and are satisfied with the returns. Major findings are as follows:

- The program has been executed in a professional & transparent manner. Proper planning & regular monitoring has ensured that the watershed structures developed are of the best quality & benefits most farmers in the village. In all the villages it was observed that proper community based governance structure were established from the starting of the programs.
- Membership to these committees were open to all individuals in the village on payment of nominal membership fees. User groups, for overall governance of these structures have been established and are effectively managing them. With certain variations, all members of these management committees were found to be taking keen interest in the activities. These structures have started generating surplus in the rural economy.
- The user groups are responsible for the water sharing and overall ownership and maintenance of the structure. The water user committee are strong and take responsibility of water sharing and its maintenance. Most of the committees have water user fee as well as membership fee to build a corpus of fund for the maintenance of the assets. The records are kept properly and funds are judiciously managed.
- The project implemented by the FES in Agar over the years with the support of ITC can be showcased as a model project. The project has been able to generated significant outcomes in form of water surplus, improvement of common property like forest and

pastures, at the same time ensuring equitable distribution through community governance. It is one of the excellent example that can be showcased nationally and internationally for its significant achieves in water and forest regeneration, management and equity and social justice in benefit sharing.

The key concerns that emerged from the field visits and discussions with the community are the following:

- Traditionally, all watershed programs follow a ridge to valley approach, the same has been incorporated in the current programs. Though this approach is proven in providing water benefits to the neighbouring lands, but it has a geographic limitation due to which the benefits are not distributed equally amongst all stakeholders. Generally, the lands adjacent to the ridge are of large & medium farmers who captivate the benefits of the programs leaving small, marginal & landless completely ignored.
- During interaction with various user groups it was found that principles of equity are not being followed in its true spirit. Though equal contribution is being demanded from all farmers to be part of governance bodies, the distribution of resources (water) is seldom equal. All large farmers were found to be using large motors thus drawing more water than their peers, while paying the same amount.
- The governance structure proposed as part of the watershed program has tried to ensure participation of women in the governance on these structure. During survey it was observed that women were made members of these committees symbolically, due to the demand of the project. They were merely acting as rubber stamps and were not able to participate freely due to social inhibitions. Men, as executive members were also not sensitised towards value participation of women as equal stakeholders in the watershed programmes.
- It was observed that earlier watershed program has discounted the presence of Panchayti Raj systems already present in the village. Also no effort has been made to link various schemes like MGNREGS that supports similar earth work as proposed in ITC programme. Presently, the situation has been rectified with Sarpanch as the ex-officio President of the watershed committee however more effort is needed to promote convergance with the Panchayat programmes and integration with the village Panchayat.
- Landless have been largely missed as primary stakeholders in the program from equity and inclusion lens. Most of the irrigation benefits have flow to farmers only. It was also found that many of the watershed structures were constructed using machines, thus providing no benefit to these landless. The SHGs have been formed of the women from the landless families. Some indirect benefits like increased wages have trickled towards the landless, but their quantum is negligible. Efforts could be made to develop the village common lands so that more benefits can be reaped by the landless as demonstrated in FES Agar project.

Key recommendations emerged from the study are the following:

- Comprehensive watershed planning needs to be done from equity and gender sensitive lens. The social scientist in the team works only from the point of view of forming SHGs during the planning process. There is a need to get team a strong orientation on the equity, exclusion and gender issues before the planning begins. This will help team to look for solutions on the lands of the poor. A checklist can be developed to scrutinise the plan on the equity and gender sensitivity before it is approved by the ITC.
- There is a need for improving governance norms for inclusion of the landless. A section of the village in form of landless and marginal farmers remain unconnected with the governance system in Aam Sabha. It will be worthwhile to include the landless families in the Aam Sabha so that there is a representation of diverse stakeholders and interest. In the long run, Aam Sabha will influence functioning of the Gram Sabha for democratic, inclusive and gender sensitive functioning.
- There is an urgent need to establishing strong connections with village Panchayat. The Panchayat Sarpanch as head of Village Watershed Committee provides an opportunity to connect with the Panchayat system of the village. Over the years, village Panchayats have been receiving government funds in large proportions, particularly after enactment of MGNREGS. There is a need to integrate ITC village watershed plans with village panchayat Plans. The village Panchayat is directed to maintain a village register of the assets and develop a plan for maintenance. It will be worthwhile to get the assets endorsed in the village asset register of the Panchayat and develop a strategy of asset maintenance.
- It is recommended to build capacity of the team on decentralised governance, inclusion and gender. There is a need to hire a technical agency that can design and provide support to the field team structured capacity building support on the issues of decentralised governance, equity, inclusion and gender. The technical agency can also design handholding support or onsite support on periodic basis to strengthen team capacities to address the issues of equity, governance and gender in a holistic manner.

Study on Rights over Natural Resource and Benefit Sharing in Watershed in M.P.

1. Context

The Corporate Social Responsibility programme of the ITC Limited, in partnership with various implementing agencies, has been promoting watershed development in various states, including MP with the participation of village institutions. It is expected that benefits accruing from these initiatives/projects will be distributed equitably to improve livelihoods of all the sections including marginalised groups like Women, Dalits, Tribals and Marginal farmers.

Company's sustainability strategy states that –

“ITC's vision to sub-serve larger national priorities and create enduring societal value is the inspiration behind its multi-dimensional sustainability initiatives. The Company's sustainability strategy is premised on the belief that the transformational capacity of business can be very effectively leveraged to create significant societal value through a spirit of innovation and enterprise. The sustainability strategy aims to significantly enhance value creation for the nation through superior 'Triple Bottom Line' performance that builds and enriches the country's economic, environmental and societal capital.”

Based on this strategy, the company has focused to develop innovative business models that embed social and environmental benefits in its multiple value chains to ensure long-term business competitiveness while contributing to the national goal of inclusive and equitable growth.

In order to improve the overall program implementation, ITC engaged Samarthan, a strategic support organisation on governance and development, as an expert agency to undertake a research study on understanding the power dynamics within village communities that determine access to common pool resources like water and fodder within village communities, with special focus on how certain groups are able to establish control over such resources and hegemonies rights over its usufructs.

Water is an essential natural resource for sustaining life, livelihood and to conserve the biodiversity and environment and for maintaining healthy ecosystems. However, the country's water situation is precarious. Uneven spread of normal monsoon creates drought-like conditions in some part of the country. Water scarcity is directly linked to poverty as it directly hits the food security, rural livelihood and general economy of the region. Depletion of the water resource base has diminished the capabilities of poor farmers to earn more and increases their vulnerabilities to drought and other natural disasters.

In most dry land regions, lack of technological progress and increasing population pressure are taking heavy toll on the productive natural resource base. Water scarcity, land degradation along with other technological and socioeconomic constraints are leading to lower productivity and income. For such areas, government of India along with several other organizations and agencies have adopted integrated watershed management for improving the livelihoods of the community and conserving natural resources.

To tide over the problem, Ministry of Rural Development, GoI initiated the Integrated Watershed Management Programme to improve economic conditions of villagers by improving the natural resource base like land and water and thereby, enhancing their employment opportunities in their village. ITC Limited has been instrumental in augmenting natural resource base through GoI's IWMP water conservation and its replenishment initiatives since more than a decade to address water scarcity. The company's watershed development programme promoted local management of water resources by community mobilization and setting up village-level institutional mechanisms. In partnership with various implementing agencies, it is promoting watershed development in Rajasthan, Madhya Pradesh and Maharashtra with participation of village institutions. All the three states are marked with high tribal population, deficiency of water and lower agricultural productivity in most of its districts.

The Company's watershed programme was implemented with the expectation that the benefits accruing from the programme would be distributed equitably among all the sections of the community including marginalized group like marginal farmers, Women, Dalits and Tribal. The present study is an attempt to understand the power dynamics within the village communities that determine access to common pool resources like water and fodder, with special focus on how certain groups are able to establish control over such resources and hegemonies rights over its usufructs.

In Madhya Pradesh, various watershed programs in recent years. Most of these activities have been undertaken under the Rajiv Gandhi Watershed Management Mission (RGWMM) which was incorporated in 1994 with the sole aim of improving the land and water resources in water scarce villages of the state.

Since its inception, the watershed mission has been successful in positively impacting lives of thousands of villagers through strong intervention amongst the target villages. The mission has been able to shape peoples movement trying to improve the water scenario in the state.

The specific objective of the programme was as follows:

- Environmental regeneration and improvement of environmental resource base as a source of labour-intensive growth, while augmenting productive capacities, increasing resource-use efficiency and correcting regional and rural-urban imbalances.

- Integration of poverty reduction and environmental regeneration through participatory watershed management
- Provision of livelihood security to resource-poor households through just and sustainable access to basic needs such as food, fodder, fuel and water
- Location-specific interventions, given the diverse natural resource and socio-economic conditions across the state

The mission was implemented with active involvement of communities and with the support of various NGO's. The program was also successful in bringing corporates like ITC on board who helped in bringing result oriented management practices to the mission.

Looking into this the watershed development programme was included in the sustainability activities in 2001 in Andhra Pradesh and now it is being implemented in seven different states; Madhya Pradesh being one of them. The objectives of the project are as follows:

- Water conservation and soil enrichment,
- Community-based management of water and other natural resources
- Optimisation of the benefits of water resources created by the watershed development projects to build a more vibrant farm portfolio

In Madhya Pradesh, the watershed program has been implemented in multiple stages across various districts in the state. The ITC supported programmes being implemented in MP are given in the table below. These projects are considered for the study.

Table 1 Details of different watershed programs

S.No	District	Block	Project	Project Implementing Agency (PIA)	Total No. of Village	Year of Inception
1	Sehore	Ichhawar	SMC-Exclusive ITC	Vibhavari/Srijan ¹	18	2010
2	Agar	Agar	SMC-Exclusive ITC	FES	48	2006
3	Ujjain	Khachrod	IWMP PPP	GVT-NLRI	7	2010
4	Chhindwara	Junnardeo	SMC-Exclusive ITC	IDYDC (PRAYAS)	34	2012

¹ The project was initially led by SRIJAN but was later transferred to Vibhavari

2. Study Methodology

The study methodology was designed in consultation with the ITC team as well as the Terms of Reference. The following sections deal with different components of study methodology.

2.1 Objectives

The primary objective of the study is to gain insights into and understanding of the power dynamics within village communities that determine access to common pool resources like water and fodder, with special focus on how certain groups are able to establish control over such resources and hegemonies rights over its usufructs. The specific objectives of the study were the following:

- Understanding the governance system within village communities with respect to access and control of common pool resources before, during and after intervention.
- Assessing the distribution of usufructs over common pool resources.
- Assess participation of marginalized and poor households in local institution.

2.2 Scope of the study

The scope of the study was clearly focused around the issues of governance, equity and inclusion that the project could influence with its interventions (Table 2). It was suggested that the 'situation before the project', 'during the project' and 'after the project' need to be reviewed to understand the difference that the project could bring though effective governance on equity and inclusion of the marginalized and the poor.

Table 2 Study Scope

SCOPE OF THE STUDY
Key study Questions
Before Intervention
1. Did a specific economic class or social group control access to water?
2. In what way was this manifested on the ground?
3. If yes, in what manner were such groups able to control usufruct rights over this resource and deny access and control to other groups, which also had equal and legitimate rights over this resource?
During Intervention
1. Did the project put in place a system for community governance of water resources? Did the project ensure that all economic classes or social groups were represented in such institutions?
2. Were robust systems put in place to ensure that the concerns and needs of the poor and marginalized were heard and taken on board? What were the specific areas of conflicts and congruence in access to water/fodder that surfaced during discussions?
3. Did the decision-making process factor in the needs and concerns of the poor and marginalized to ensure fair and equitable sharing of water/fodder? If not, how did the dominant class or social groups manage to perpetuate their hegemony? If yes, what was the nature of the compromise solution reached? Who were the relative gainers and losers? What was the reaction of the erstwhile gainers to such a change in power dynamics?

After Intervention
1. What were the tangible benefits to those who were not able to exercise usufruct rights over water/fodder earlier as a result of newly established institutional process, compared to the earlier regime?
2. Were there groups that continue to feel left out of the process or who feel that their concerns were not addressed? What were the reasons, according to them, that they were left out?
3. What are the suggestions from various stakeholder groups on how the negotiation process could be improved further for greater impact?
4. In the assessment of the stakeholder groups, is the process put in place sustainable and viable over time? What, in their view, are the major fault lines that could lead to its collapse?
5. If there were governance systems framed for regulating access to water/fodder:
a. Did all categories/classes of households remain faithful to these processes? If not, who flouted these rules the most? Did the village institution taken any action against such households/groups?
b. Did external political pressure or powerful outsiders breach the local institution governance system and exploit village resources including water and fodder?

2.3 Sample villages

Villages for the study were selected in consultation with ITC officials. A total of 4 projects were identified and two villages from each project were selected. Attempt was made to have equal representation from small and big villages. Caste dynamics were also considered while finalizing villages for the study. It was also informed to the team that one of the village should be the best performing village and the other should be a low performing village. The names of the different villages selected for the study are as follows:

Table 3 Details of selected villages

Districts	Blocks	Villages
Ujjain	Khachord	Kanchankhedi
		Ladhodiya Tonk
Agar	Agar	Bagrikheda
		Nipania Bejnath
Chhindwada	Jamai	Simariya
		Madni
Sehore	Ichhawar	Barkhedakurmi
		Dehkhedi

2.4 Survey tools

Being a qualitative research, survey tools were drawn from Participatory Rural Appraisal (PRA) methods. The Focused Group Discussion (FGD) format was designed to generate data from different set of stakeholders to address the study questions. Schedules to conduct PRA & FGD were pre- tested in field conditions. The field-testing of these tools was done in one of the micro watershed at Bilkisganj, part of IWMP-7. The study team was trained to facilitate discussions in Samarthan office as well as on the ground.

The schedules/tools were aimed at capturing information related to form of governance, power dynamics between different formal, informal institution in relation to various committees created under watershed project. This study also covered institution like Panchayati Raj Institutions (PRI), Self Help Groups (SHGs) and in some case individual like frontline workers at village level.

Information on families having land and landless families has been captured through the survey. Families having land have been divided into three categories i.e. large farmers, medium farmers and small farmers. This categorization was based on the local understanding of villagers as they can clearly distinguish between these three types of farmers. All the land in villages has been classified through this categorization in PRA's. This categorization helped in linking the watershed benefits with the correct beneficiaries and also helped in understanding the process of distribution of excess water amongst various farmers in respective villages.

There are many project areas where the villages are socially more homogenous due to



Figure 1 PRA being conducted in village

high proportion of tribal families like in Agar. There are other project areas like Icchawar and Ujjain where there is a mix of predominantly OBCs and upper caste with a minority of Scheduled Caste. It is also realized that the land size is an indicator of economic status of the family. The quality of land is also related to position of the family in caste hierarchy.

The study captured information related to governance and democratic function

of the watershed committees formed under the projects funded by the ITC. An attempt was also made to look at the interventions from gender landless point of view, wherever it was possible.

The study also captured information related to irrigation, fodder, grazing land, livestock and barren land. This helped in understanding what was being followed and what is the current situation. This exercise helped in understanding the trend 'before-project', 'during-project' and 'after-project' completion. This helped in addressing the question of access and control and how it has evolved after

During PRA (Figure 1), multiple formats like village resource map, village time line, transect walk etc. were used were used, to gain holistic information about the villages.

In continuation to PRA, FGD's were conducted amongst various groups at project villages. The groups were classified based on socio-economic profiles & registered beneficiaries

of watershed interventions. Group formation for FGD was done on the following classifications –

- i. Watershed Committee Members
- ii. Women members of SHG
- iii. Village Panchayat Members including Sarpanch and Secretary
- iv. Farmers having productive land
- v. Farmer having low productive land
- vi. Landless families
- vii. Women, who are not member of SHG

These groups were assembled for discussion based on the condition of project villages (Figure 2). During these FGD's, information was collected using different formats from watershed committee, SHGs, user groups and other works undertaken under watershed project.



Figure 2 FGD being conducted in village

During these interactions, at times it was observed that weaker section were not comfortable talking in front of influential people. In such cases Samarthan team interacted with such individuals in person at their respective houses. An attempt was utilized these tools in an effective way so that the true picture for the project can be established.

3. Village-wise interventions and outcomes

Currently most of the areas in the country are water-stressed. Reasons for this water depletion range from forest degradation, erratic rainfall, degradation of ponds & reservoirs etc. The villages in which the present watershed projects were implemented were classified as water-stressed. Multiple approaches of water conservation were implemented as part of the project. The activities were decided based on local conditions in consultation with the villagers. The activities ranged from plantation activities in the watershed, development of small structure to increase soil & moisture conservation, erecting large check-dams etc.

The following section provides details on the interventions and its effect on improving irrigation facilities in the agricultural field. The details are based on the information received from the villagers during the resource map preparation as well as FGDs and use of other participatory tools.

3.1. Ujjain District

The project is situated in the Khachrod Block of Ujjain District. In consultation with ITC, two villages, Lekhodiya Tonk & Kanchankhedi were selected to be covered. The resource map and the time line prepared for the village provide the following details.

3.1.1. Lekhodiya Tonk

Lekhodiya Tonk is a village falling under the Chambal watershed region. The village has a population of 1550 individuals from 450 families. About 17 percent of the house hold is under BPL category and 89 families are landless. The total fertile cultivable land is 529.53 hectare which is cultivated in Kharif and only 243.74 hectare is available in Rabi for cultivation (Figure 3). 24% of the village population was from SC/ST communities.

The total Geographical area of micro-watershed Ladhokiya Tonk is 685 hectares. The terrain is undulated and the soil composition is mainly black cotton soil with an average depth of 1.5 meters and rocky land having depth of 80 cms. There is no adjoining forest area near the village. At present there is no pasture land available in the village.

The villagers depend on agriculture and animal husbandry as a major source of income. The agriculture was mostly rainfed before the start of the project. During the rabi season the main source of irrigation was tube wells. Due to large scale dependence on tubewell for irrigation the ground water level had gone down drastically in the last decade. Many tubewells have dried in the last 3-4 years. Due to erratic rains and raising input costs agriculture has become a loss making venture.

With the introduction of watershed program, situation in the village has started improving. Farmers of the village told that the water availability in the Rabi season has increased as now it is available for 15-20 additional days. A major intervention has been the 8 stop dams has been constructed on the nalah situated in the southern end of the village. Most of the farm bunding work has been done at the farms situated at the southern and eastern edges of the village. With improved water situation, cultivation of ginger and horticulture crop like marigold is also being taken up by some progressive farmers.

3.1.2. Kanchankhedi

Kanchankhedi village has a total population of 1130 individuals from 304 families. 17 percent of the households fall under BPL category and 78 families are landless. 40% of the households belonged to SC/ST communities.

The total Geographical area of micro-watershed Kanchankhedi is 510 hectares. The terrain is undulated and the soil composition is mainly black cotton soil with an average depth of 1.0 meters and rocky land having depth of 85 cms. Out of the total fertile cultivable land of 433.91 only 360.58 hectare which is cultivated in Kharif and only 73.33 hectare is available in Rabi for cultivation (Figure 4). There are 89 cows, 69 buffaloes, 57 bullocks, 107 goats, 200 hens in the village as per last census.

The villagers depend on agriculture and animal husbandry as a major source of income. The income level of this village is in medium category. The agriculture was mostly rainfed before the start of the project. During the rabi season the main source of irrigation was tube wells. Due to large scale dependence on tubewell for irrigation the ground water level has gone down drastically in the last decade. The major crops cultivated in the kharif season is Soyabean, maize, Urad and during Rabi season is Wheat, Gram, pea, coriander.

The villagers in the village have had over dependence on ground water to fulfill their irrigation needs this has led to depletion of ground water over the years. Various watershed

activities like construction of 7 on the nalah situated in the southern end of the village, farm bunding on various farms has helped improve the water situation in the village.

After the implementation of watershed program in the village, the situation has started to improve. Water level in the tubewell have started to improve and the farmers are able to harvest second crops. Farm bunding activities have also started to provide benefits. A lot of farmers have diversified by cultivating various floriculture & horticulture crops.



Figure 3 Resource map of Lekhodiya Tonk village



Figure 4 Resource map of Kanchankhedi village

3.2. Agar Malwa District

The project is situated in the Agar Malwa block of Agar Malwa District. Two villages; Bagrikheda & Nipania Bejnath were selected from this project area.

3.2.1. Bagrikheda

Bagrikheda village in Agar Tehsil of Agar supports a population of eighty households of which thirty-three are below poverty line. The villagers mainly are from the Bagri caste, 60 out of 80 household are from Bagri, there are Goswami, Jaiswal, Dalits in the village. The total Geographical area of micro-watershed at Bagrikheda is 100 hectares. The terrain is undulated and the area is volcanic terrain and surrounded by Central Indian Suture, Vindhyan and Aravali in east, north and west respectively (Figure 5).

Due to the geographical situation in the village, the situation was poor in terms of surface and sub surface water. This was due to the undulation of the terrain, hard rock types, less vegetation cover, low recharging capacity, high evaporation rate, surface runoff is high and therefore surface availability of water is poor. Due to all such negative situation the water scenario in the village was bleak. With increasing population, trees were felled to fulfil the need of fuel-wood & timber as well as to bring more land under agriculture cultivation. This has led to complete disappearance of nearby forests

The village was brought under the Mission Sunehra Kal project in the year 2009. The community came together and organized Watershed Development Committee (WDC) as a village level institution with the responsibility of implementation of the project. As on today 235 members are enrolled in the WDC. To start the work around 72 ha area was covered for soil & water conservation and rejuvenation activities.

Currently the villagers depend on agriculture and animal husbandry as a major source of income. Agriculture was mostly rainfed before the start of the project. Before the beginning of the programme there was shortage of water due to which average daily wages were low & farmers were able to harvest only single crop.

Before the beginning of the programme there were shortage of water, wages were less & single cropping was practiced. After the project the forest cover has increased, water level raised. Stop dam is used for irrigation & the wells are also getting recharged.

With the successful implementation of the project, migration from the village has stopped. Most of the landless have started rearing goats and are happy with the economic returns. Most of the farmers in the village were satisfied with the water condition that has improved because of the watershed program.

3.2.2. Nipania Bejnath

In Nipaniya the communities (572 household including 155 BPL) with a population of 2875. 58% of the population is from the SC/ST communities. 60% of the population is landless in the village. Among landowners 3% of the farmers are large farmers, 14% are medium farmers & 24% are small farmers. Most of the farmers depend on bore wells to meet their irrigation needs.

Before starting of the project the natural resource base inter-regional was deteriorating at a fast pace. Wells started to dry due to over exploitation of ground water for irrigation purpose. Forest in the vicinity of the village had been severely degraded due to uncontrolled harvesting of wood by locals. The cropping intensity was also low, due to limited sources of irrigation (Figure 6). The wages were less & lot of people used to migrate in search of livelihood.

Through support from ITC, watershed activities were started in the village. The villagers have established a successful case of effective watershed management in the area. At the start of the watershed program, the villagers came forward to organize themselves &

established Tree Growers' Cooperative Society (TGCS) comprising of all adult residents of the village following universal franchise.

Through TGCS, villagers have taken up plantation across the village on common & private lands. The main signature is to facilitate the community organization to plan, implement, monitor for overall village development including natural resource, livestock, agriculture and their own skill and capacities.

This watershed approach has been followed to treat the common and private land undertaking various catchment area and drainage line treatment activities like contour trenches, loose boulder checks, earthen and masonry water harvesting structures, plantation and seeding of trees and grass species, enhancement of natural regeneration of root stocks, installation of improved wood stoves, Biogas, etc. This has been further supported by various capacity building and institution development programme which led to good governance of institutions with the help of framing its own byelaws, transparent decision-making process and strong but implementable systems and procedures.

A total of 146 Ha common land has been restored which Government of Madhya Pradesh has leased to the TGCS for 30 years. Later looking to the progress and impact the communities and the village institutions expanded the work to other common land as well.

All these activities have had a positive impact on the water situation in the village. Today the drinking water problem has been resolved, the fodder production has been increased, wheat cultivation has been started, and more area has been brought under cultivation. The crop area has been increased by 1020 bigha in Nipaniya and major share of this increase due to start of wheat cultivation as a result of assured irrigation from recharged wells.

The poorest of the poor families not only earned work opportunity in their own village with the dignity (as they all are members of the institutions and part of decision making process), few of them even are earning livelihood from free grazing in the area where the vegetation has attended a particular height and also collecting sitaphal, Jaali ber and Karonda from the protected area.



Figure 5 Resource map of Bagrikheda village

Patidars, Rathodes, Paliwal 17 percent of the house hold is under BPL category and 78 families are landless.

The village has about 1100 acres of land. 960 acres is irrigated and 60 acres is not irrigated. About 45 acres is barren land and 35 acres is government land (Figure 7). In Kharif season mainly soybean and maize is cultivated. In Rabi season mainly wheat and gram is cultivated. Some of the families have livestock. The village is primarily dependent on agriculture.

Before starting of the project the water situation in the village was in shambles. Many old water conservation structures like stop dams were dysfunctional. Villagers were not aware about the techniques of watershed conservation.

Various activities were undertaken in the village with the support of watershed program. 20-22 Farm ponds, 2 Old stop dams were repaired, 2 new stop dams were erected, 9 wells were repaired, 20 bio gas plants were commissioned, 18 vermi compost pits were established, 10 nadeph, 125 sprinklers were distributed, 1 nursery was established, 7 ponds. Fruit orchards were established in 25-30 acres of land while field bunding activities were taken up in lands of 50 farmers.

The project appeared to have brought major changes in the village. Collection of water has soared through improvement of old broken river dams, farm ponds and wells made in private farms providing irrigation to more than 200 acres farms. Biogas is composed of families whose house they are using it to prepare food. Vermi Compost has been helpful for the people as they are using that fertilizer for their lands. 25-30 acre of orchards, established with support of the project have finally begun to bear fruits.

3.3.2. Dedkhedi

Dedkhedi is located in the Icchawar block of Sehore district. In Dedkhedi there are 92 families and out of this there are 54 BPL families. The total population of the village is 395. The total land in this village is about 222 hectares. In kharif season mainly soybean and maize is cultivated. In rabi season mainly wheat and gram is cultivated. Some of the families are having livestock. Mainly the village is dependent on agriculture. The number of livestock has decreased in last 20 years.

The quantity of livestock and their specie mix has also changed over the years. Earlier there were around 400 cattle, most on them of the local variety. With change in agriculture pattern, the villagers have reduced dependence on bullocks, through increased use of tractors. Villagers have started replacing mulching animals with high capacity species of jersy cow & murrah buffaloes. Goatery is practiced on a small scale with 10-20 goats in the village

Previously, only 30 to 35 acres was irrigated with the help of traditional practices like bull, bucket wheel etc. But now, with the advent of modern technology, irrigation through

diesel & electric motors has become a common practice. With unregulated & unplanned usage of these motors, the water situation started to deteriorate.

As part of the ITC project, dams were erected on the river flowing from the edge of the village. 32 farm ponds were also established as part of the project. Since implementation of watershed conservation activities the area under irrigation has increased to 400 acres from the earlier coverage of 30-35 acres. With improvement in agriculture migration from the village has also reduced as now people have stopped going outside the village in search of work.

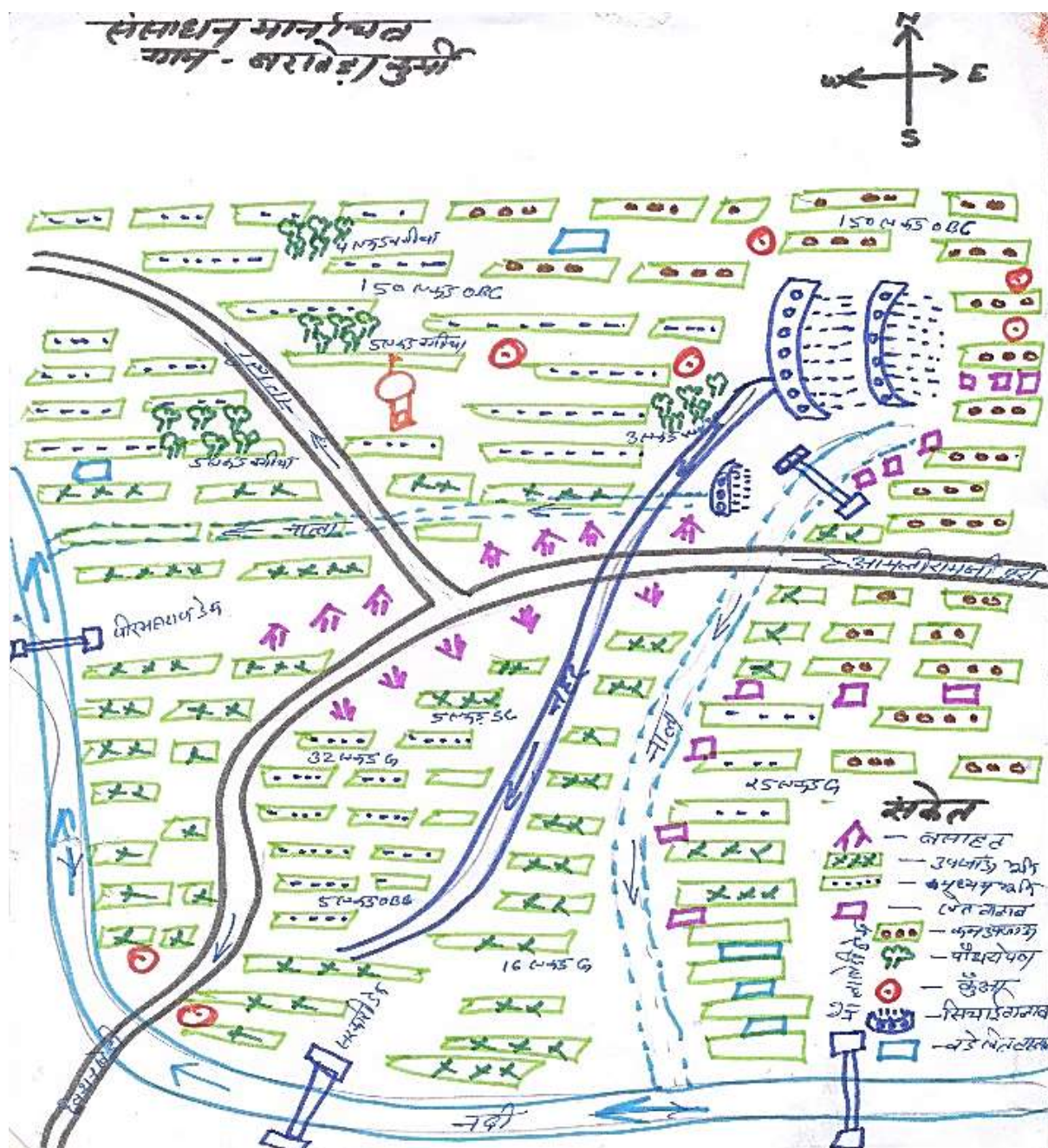


Figure 7 Resource map of Barkheda Kurmi village



Figure 8 Resource map of Dedkhedi village

3.4. Chhindwada District

The project is situated in situ in Jamai block of Chhindwada district. Two villages were selected from this project area and the socio economic profiles of the villages are as follows:

3.4.1. Simariya

This village is located in Bhutiya Khurd panchayat. The total population of the village is 473 and there are 77 house hold. Out of the total population 35%, 15% and 50% belonged to the SC, ST and OBC categories respectively. There are 233 males and 240

males in the village. The residents of the village are majorly involved in agriculture, dairy production etc. There is dam about 3 km from the village which is called Nawagao jalasay. There is about 300 acres of land in village which is used for agriculture. As per the villagers 15 % of the land is not fertile, 50% land is medium fertile and 35 % land is high fertile land (Figure 9).

About 10% of families is landless, 5 % are big farmers having more than 10 acres, 25 % are medium farmers having land of 5 to 10 acres and 60 % are small farmers who are having less than 5 acres of land. The forest near the village is a depleted forest. People go to this forest for collection of woods.

There are about 600 animals and 50% of this goat, 20% is bull, 155 is cow and 15 % is buffalo. There is at least one animal in every family. 95% of goat is with the land less families and 5 % is with other families. The milk from cow and buffalo is sold in ear by market.

In the past, water was found 30 to 40 feet below the ground level. But due to over exploitation (presence of more than 60 tubewells in the village), there is decrease in the ground water level.

A stop dap in the village has been constructed as part of ITC project, this has provided direct irrigation benefits to 10 acres of farm land. Villagers are able to irrigate their summer vegetable crops by the water from this stop dam. Villagers have also been benefitted largely through the farm ponds constructed in the project. Other activities like fruit plantations, field bunding, vermi-compost pits etc. have been constructed. A SHG with the financial support of the project have been established through which landless families are able to earn their livelihood by trading in vegetables.

3.4.2. Madni

This village is located in Khumkhar panchayat. The village is inhabited by 497 people. Madni is a fully tribal village i.e all the residents belong to the Scheduled Tribe category. There are 87 households in the village. Out of the total population there are 257 males and 240 females. The residents of the village are majorly in agricultural activities, NTFP collection, goat rearing etc.

There is about 450 acres of land and agriculture is done on only 300 acres of land and that too only one crop is grown. As per the villagers Out of the total land for agriculture 50 % of the land is not fertile, 25% land is medium fertile and 25% land is high fertile land. They informed that all most all families have some animal but the number of animals has decreased from the past (Figure 10).

The water resources in the village are limited. Due to the undulated terrain water retention and agriculture are a big challenge for the residents. The major source of irrigation before the project were rains and in some cases tube wells

There has been a noticeable increment in the availability of water resources due to the project interventions. Through the stop dam constructed in the village almost 10-12 farmers; 20-25 acres of land is getting irrigated while also providing drinking water to livestock. 3 farm ponds have also been constructed along with field bunding of farmlands of 35 farmers. Small fruit orchards have been established by two farmers through support from ITC project.

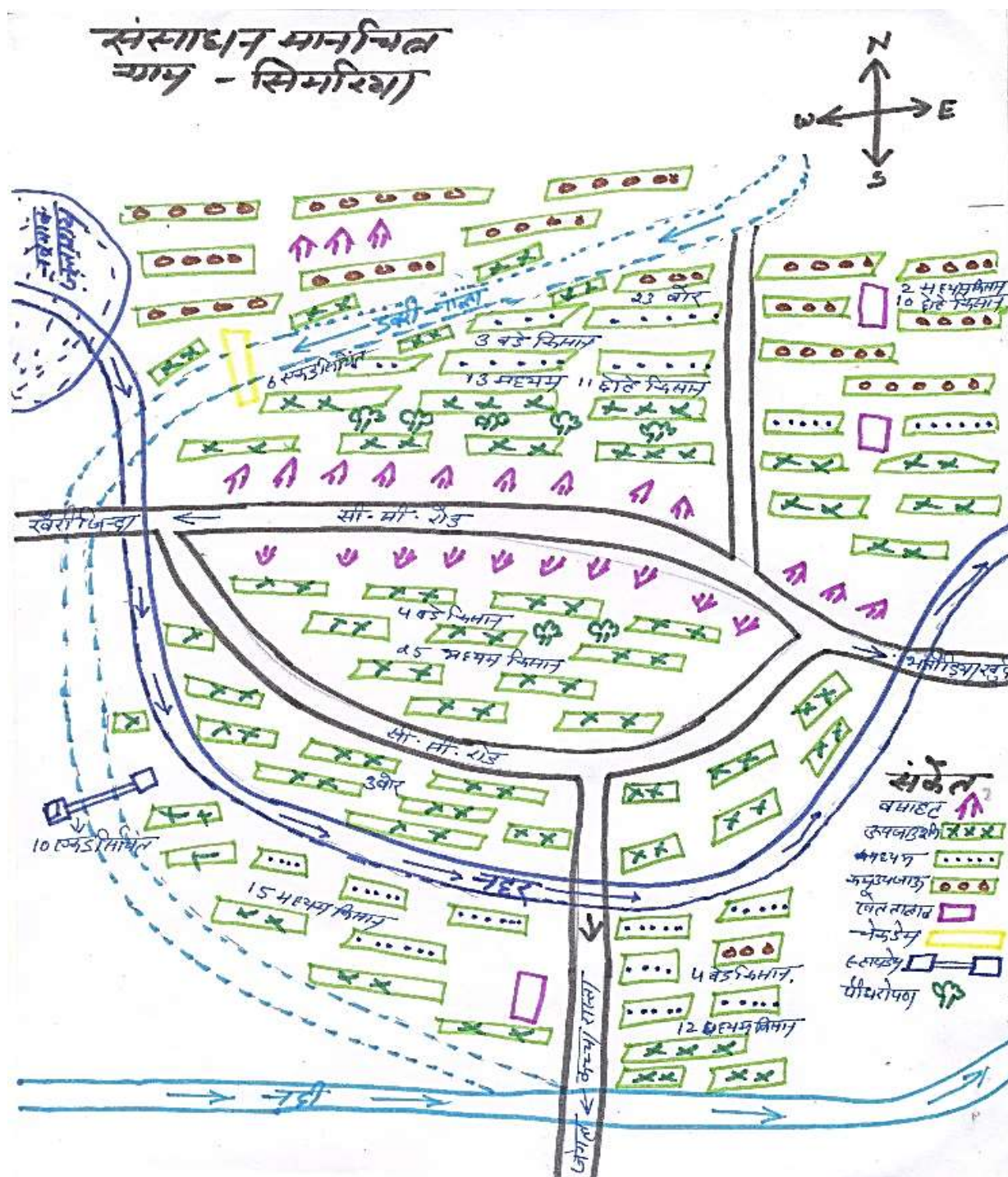


Figure 9 Resource map of Simariya village

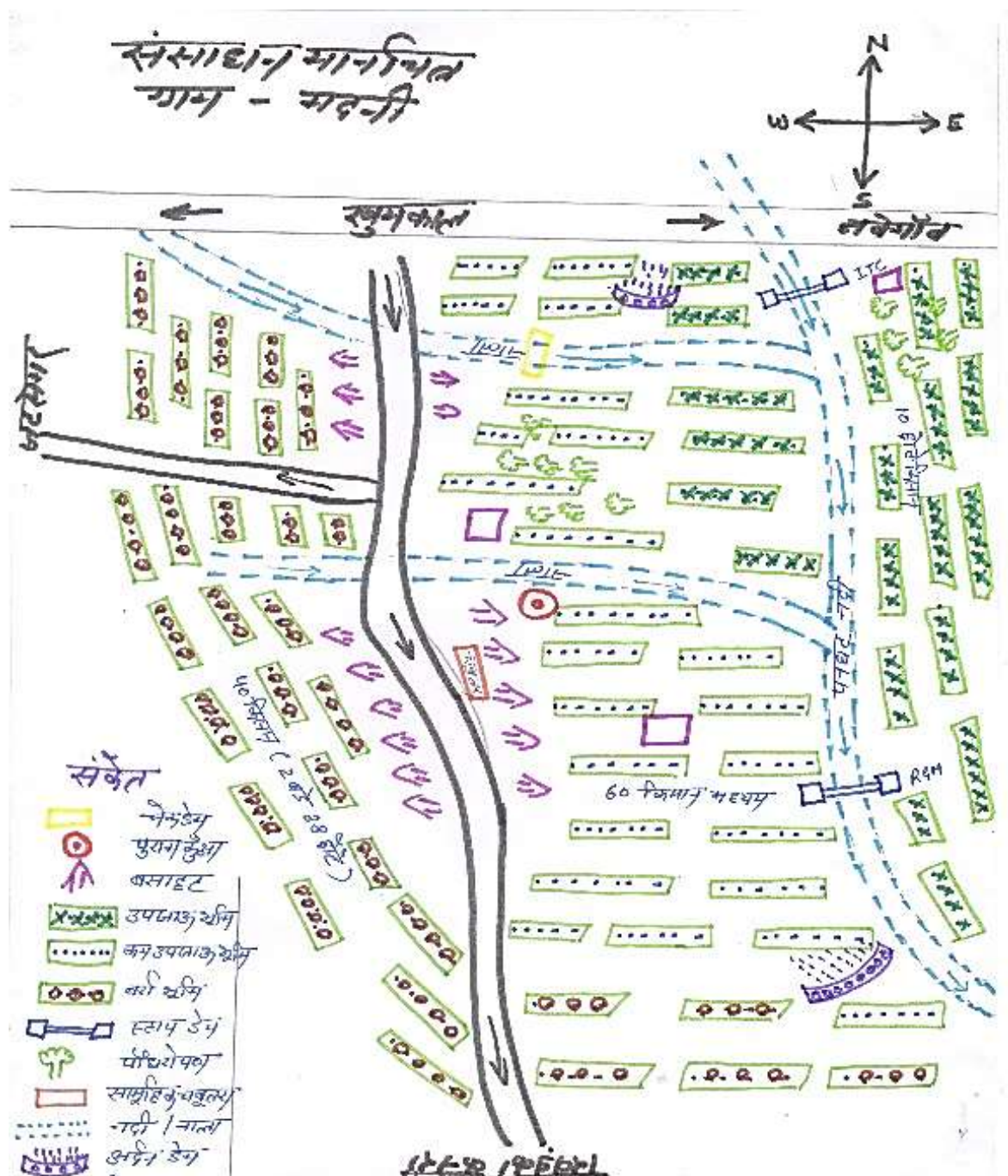


Figure 10 Resource map of Madni village

4. Water Resource Generation and Associated Benefits

The chapter provides an understanding on water resources generation by different structure constructed under the project and its benefits to different sections of the society. We have separately provided information related to it usage and benefit to small, medium, large farmers and landless family.

The resource maps of different villages as well as data of FGDs provided details on the nature of interventions and its benefits to different set of farmers. The overall observation is that with improved water situation in the villages, farmers have started

moving to multi-cropping system from the single crops, which they used to practice earlier. Landless villagers have also been benefitted as the wages have also improved. Many people have started rearing goats and are satisfied with the returns.

If we classify the interventions and benefits under the category of big, medium & small and landless families, it is evident that most of the structures benefit large farmers either due to nature of land situation near water structure or the project team could not foresee sufficient possibility of benefiting the medium and small farmers. In Agar particularly, there is sufficient attention paid to benefit the poor. In Ujjain and Chindwara, less attention has been paid to reach out the marginal and small farmers. The landless families have been benefitted by the labour work and income generation activities viz. goat rearing and plantation etc. In Chindwara, the work was done through machines, which deprived opportunity for the landless for labour.

The **Table 1**Table 4 captures the pattern of interventions and its benefits to different sections of the village.

Table 4 Benefits from watershed interventions

Name of village	Large farmers	Medium and small farmers	Landless
1. Barkheda Kurmi (Sehore)	It was observed that about 300 acres of land is irrigated in northern part from earthen dam. Mainly the large farmers have benefited in northern part of village. The plantation was also done in 13 acres of land which was of big farmers.	The small farmers informed that as they had less land so they were not give priority for farm pond or plantation. Most of the land in southern part of village is of medium and small farmers. Small farmer were not able to take benefit as they did not have money to contribute.	They got labor during the construction work for stop dam. Some of the women from landless families are in SHG group and engaged in nursery (6 members) and vermin compost (6 members). They have earned about Rs. 10000/-
2. Dedkhedi (Sehore)	Gaoghat stop dam is constructed on river and this has mainly benefited the large farmer. About 100 acres of land is irrigated through this.	The farm ponds have been constructed on medium and small farmers land. In two case VDC has provided loan of Rs. 10000/- to small farmer for community contribution for farm pond	They have got labor work during construction. There was no SHG group in the village.
3. Simariya (Chhindwara)	Irrigation is done by <i>nawagaon nahar</i> in the village. In the northern part of the village recently check dam has been constructed which would help in irrigating six acres of land and	In the northern part of the village a check dam has been constructed recently which would help in irrigating six acres of land and 13 medium	The landless have not benefited from the work done in village. They informed that even the farm pond work was done by machine. Beside this

	<p>3 big farmers would be benefited. This has resulted in increase in bore recharge also.</p> <p>In the south western region of village one stop dam has been constructed which is used for irrigating 10 acres of land.</p>	<p>and 11 small farmers would be benefited.</p> <p>In the south western region one stop dam has been constructed which is used for irrigating 10 acres of land and is benefiting 15 medium farmers. This is used for one time irrigation and remaining water is left for drinking water for animals in summer.</p>	<p>there were 3 SHG groups in the village. Two group were involved in vegetable cultivation and one group in goat rearing. One group which took loan of Rs. 26000/- has returned Rs. 10000/- which was used by vegetable cultivation. One group took 36000/- has returned Rs. 10000/- which was used for goat rearing. Every member of SHG has planted two mango plants and bamboo plantation on their land. All the women of the village are now interested in getting associated with the SHG group as they can observe the benefit of being part of SHG.</p>
4. Madni (Chhindwara)	<p>There are only three large farmer but no structure has been built near their land</p>	<p>In the north part of village there are about 10 farmers who have benefited from the one stop dam that was built recently. The center part of the village which has about 60 medium farmers don't have any structure except for 2 farm pond</p>	<p>Landless has benefited as they got labor in stone and earthen bunding work. There is one SHG group which is doing goat rearing and are slowly returning the money also.</p>
5. Lekhodiya Tonk (Ujjain)	<p>In the southern part of village there were seven stop dam which were constructed on nala. About 20% of large farmers have land adjacent to nala and they will be mostly benefitted from the SMC work. Though the structure is only about one year old, in the rainy season due to heavy rain their fields got flooded ruining their</p>	<p>The land of medium and small farmers' i.e about 80% are after the land of big farmers whose lands are just adjacent to nala on which stop dams were constructed. In the coming years they might get benefit from this structure. During the collective meeting of three SHG the members informed that within their</p>	<p>The landless were indirectly benefitted in the form of wages which were paid during the construction of the structures.</p>

	<p>crops. Most of the farm ponds are on the southern side of the village.</p>	<p>family 6 have benefited from field bunding. In the northern part of village there was nistari talab and most of land of SC, ST community and patta holders were near this talab. They demanded for deepening of pond but it was not taken under the construction work. The various issues raised by the member of these groups were related to conflict between the farmers for demarcation of boundaries to carry out the farm bunding work. Some of the farmers have also raised their grievances in the Gram Panchayat, but due to lack of proper grievance redressal mechanism the issue could not be resolved. The farmers took the route of court case then.</p>	
<p>6. Kanchankhedi (Ujjain)</p>	<p>The influential farmers had control over decisions of watershed committee and are active members of WSC and mostly they have benefitted from SMC work because the stop dams were built on the nala which passes through their fields. The decisions to shift the structures to benefit a few had come up during FGD. The equity factor is a big question mark in the context of this project.</p>	<p>The medium farmers are still dependent on bore wells for irrigation. Majority of medium farmers (about 80%) had not benefited from the watershed work. Farm bunding could have been an alternative treatment method which was not given much priority as major part of the budget went for masonry stop dams. The level of ground water is receding even after the interventions.</p>	<p>The water is taken by influential farmers and ground water recharging. The weeds are available as green fodder. The landless were indirectly benefitted due to high wages for floriculture and garlic cultivation and they do not have to migrate to town</p>
<p>7. Bagrikheda (Agar Malwa)</p>	<p>The community watershed approach for contour trenches, loose bolder check dams etc were done in panchayat land on hilly regions (in the northern</p>	<p>Treatment was done in valley in the northern part of village. The land near the valley is of bagri community who are ST and they are small farmers. All</p>	<p>All the work like contour trenches has helped in providing labour wage to the villagers thus the migration for work to Agar</p>

	part of village) which has helped to recharge the local ground water level thus benefitting all. These kind of treatment method are low cost and hence easy to adopt. The land of 12 big farmers is on the southern side of village near sarangpur road. No activities was done on that land.	these families have benefited from 14 wells which were recharged due to treatment at valley level.	was checked. Pear pressure avoids the exploitation of generated resources. The indirect benefits like NTFP like selling of 'sita phal' is going mainly to the weaker section.
8. Nepania Baijnath (Agar Malwa)	Mostly non masonry earthen and bolder work along with plantation and seeding of trees and grass species, enhancement of natural regeneration of root stocks was done in eastern and western part of the village which is government land. This has helped to recharge the local ground water level as well development of pasture etc thus benefitting all. Beside this different water harvesting structure like pond renovation and construction was taken in different part of village which has benefited community.	There are different ponds which were constructed/repared in central part of the village which has helped in recharging tubewell and wells and it has benefited about 150 bigha (2.49 bigha =1 acres) of land. On this land two crops are taken. The lands of small farmers are in the central part of the village and they have benefited due to this intervention.	The benefits to the weaker section is abundant as preference was given to them. The old and widow were given preference for labour and wages and were involved in less manual work like collecting small stones etc. The NTFP and forest related benefits are going to the weaker section. In the central part of the village grazing land has been developed which has benefited the landless families as fodder is available for animals

The field visit and PRA exercises clearly reflected that the situation of water due to interventions has improved. Due to societal pattern of rich and upper caste possess large size land in water availability area. Over the years, the rich and upper caste/class consolidate their land in relatively water surplus areas pushing the poor and lower caste to move to the less fertile and water deficient areas.

Watershed typically follow a ridge to valley approach by identifying possible suitable locations for bunding and storage of water. As a result, the land of the rich and big farmers get advantage over the poor. Therefore, the table given above also shows a pattern that the maximum benefits have gone in favor of the large farmers followed by the medium and small farmers. Wherever the organization concerned eg. FES in Agar, which was implementing the project was conscious of the fact that the project should balance

benefits from the perspective of the poor and landless, there is greater investment in community assets related to NRM so that common resources are equitably shared by the poor and landless. The landless have been benefitted by the labour work that got generated during the watershed civil works. There are other kind of benefits that have accrued to the landless with better access of water has been in form of availability of fodder and NTFP produce as the rich and the medium size farmers need not to depend on it due to improved agriculture. Some of the village-wise benefits have been described as below:

- i. In Barkheda Kurmi, Dedhkhedi and Simariya it was seen that the major beneficiary of structures such as stop dams are the bigger and influential farmers. The medium farmers are benefitted from the farm pond work. The landless were benefitted mostly through the SHG work. The farm equipment were are distributed to those who had land.
- ii. In Madni we see that stop dam has been constructed near the farm of both big and medium farmer. The labour got benefitted due to the wages during the construction of the stop dams.
- iii. Due to availability of water the farmers have started growing flowers and garlic. This is fetching them higher returns. Flower and garlic are labor oriented activity and hence the demand of labor is growing in the village. The wages have also increased by 33 to 40 percent. Thus the landless are indirectly benefitting from the project.
- iv. In Bagrikheda and Nipania Bejnath a more conventional and holistic approach of watershed i.e. ridge to valley and forest and ecological conservation approach has resulted into recharging of the common resource pools like the water table and wells.

5. Other common resources and benefits

There are many other benefits associated with the SMC work undertaken. The water table has definitely has some positive impacts due to the SMC work and hence the other resources closely associated with the availability of water also shown some positive trends in some villages.

The other resources which could have an impact due to availability of water could be listed as follows:

IWMP project expectations

- a) Forest – The forests and ecology conservation also forms a major part of water shed management plan. The villages where forests are available in the vicinity could adopt this approach of water shed management. The plantation and silvipasture development are twomajor activities which is usually adopted for forest regeneration. The protection of forest is also an important aspect and it is here, where the major role of institutionalization of the plan is required.

- b) Pasture Development – In most of the villages we found that cattle formed an integral part of villager's life and their economy. The various cattle like goats, sheep, cow and buffalo are kept by the villagers. The cattle are usually helpful in milk and cowdung and also for meat and manual work. People make dung cakes which is a good source of fuel. Milk is either for self-consumption and the excess is sold off. Goats are kept for milk and meat. The green fodder is a useful resource for increasing milk production. Some villages have realised this fact and had taken plan to develop pasture either on Panchayat land or forest areas.
- c) Animal Husbandry – The good species of ox, cows, buffaloes and goats might fetch better production of milk, meat and manual work. The protection of these animals from disease and insurance of the animals to mitigate losses in case of an epidemic spread out is also an important aspect of the plan.
- d) Milk production – The more availability of green fodder and better species of cattle will always help in higher production of milk. The villages which are in the vicinity of the towns or near the co-operative milk collection center has helped the milk production as an important livelihood option by providing good rates.
- e) Biogas – Cowdung is an important resource which is available in ample in most of the villages. The use of biogas as cooking fuel and lighting provides cleaner energy options to the villagers.
- f) Vermi compost – The ample availability of cowdung and biomass in the villages could be used to produce good quality vermi compost. The demand for organic farming and organic products are high especially in the big metros. Instead of using synthetic and chemical fertilizer and pesticides, the vermin compost provides an alternate and reliable source of fertilizer.
- g) Nutrition & Kitchen Gardens – The weaker section of the society has the most malnourished children. The nutrition garden option can be a good option for ensuring timely availability of vegetables at least cost / investment.

Observations

Apart from the resources mentioned above there could be many more resources which could be enhanced to ensure sustainable livelihood. Every project has an option for Entry Point Activity. The project planning helps to introduce these EPAs and sometime successful EPAs have resulted into complete change in trends in many villages. The solar light options, solar dual pump for water etc are some of the example which when introduced in villages, people have adopted them.

The detail status of each village is detailed below:

Table 5 Detailed status of Other common resources and benefits in each villages

Sr. No.	Project area	Name of village	Before Project	During Project	Post Project
1	Sehore	Barkheda Kurmi	There was large green cover in 1950s. The farmer used to leave some portion of land for pastures for animals	As such beside water there is no other work taken for development of common resources as there are no free land for the same. But some attempt like plantation on private land (i.e about 25 acres) has been done in Barkheda Kurmi which is showing good result. Plantation on common land was not successful in Dedkhedi	N/A
2		Dedkhedi	There was large green cover in 1950s. The farmer used to leave some portion of land for fodder for animals		
3	Chhindwara	Simariya	Forest is near the village but it was depleted forest.	No specific effort has been done for the forest but biogas was successful in Simariya. Milk production was also high in this village. Vegetable cultivation was also adopted by some.	N/A
4		Madni	Forest is near the village		
5	Ujjain	Lekhodiya Tonk	The only alternative livelihood other than agriculture was farm labour and cattle rearing. The SC-ST had goats in more number which fetch very less income by selling meat. A community goushala was present which mostly benefit upper caste well off farmers as access to SC-ST for not given in the Goushala.	The demand was mainly for water and pastures. Due to non-availability of land pastures could not be developed but fodder is available now in ample. SHG benefitted from goatery but goats later died due to disease.	The water is taken by influential farmers and ground water recharging is minimal. The fodder is sold to the villagers. The milk production increase is minimal.
6		Kanchankhedi	The only alternative livelihood other than agriculture was farm labour and cattle rearing. The SC-ST had goats in more number which fetch low income for meat.	The demand was mainly for water and pastures. Due to non-availability of land pastures could not be developed but fodder is available now in ample. Vermi compost etc. has been built with few farmers. Goatery	The surplus water is taken by influential farmers only and ground water recharging is at very slow rate because dependency on

				and vegetable cultivation was adopted by few SHGs.	Borewell is still high for irrigation. The weeds are available as green fodder. Pear pressure avoids the exploitation of resources. The structures did not help in any way to the SC, ST but SHG work did have significant impact. The landless were indirectly benefitted due to high wages for floriculture and garlic cultivation and they do not have to migrate to town.
7	Agar Malwa	Bagrikheda	The village is dominated by SC and OBC and were mostly dependent on forest for livelihood. The nearby forest was almost degraded with heavy loss of flora and fauna. Rampant felling of trees for fuelwood resulted in denudation of forest.	The demand was mainly for water, pastures and forest regeneration. Water conservation work, CCTs, plantation work was done.	The goat rearing taken as a SHG activity helped the landless and provided an alternate source of livelihood. The pastures developed as a result of forest & water conservation efforts helped to sustain this activity.

8		Nepania Baijnath	The water level of the well has recharged and ample water is available but the pressure of population is high. The nearby forest was almost degraded with heavy loss of flora and fauna.	The demand was mainly for water, pastures and forest regeneration, fruit bearing trees, dairy development. Water conservation work, CCTs, forest regeneration work was done.	The dairy has been developed been an alternate activity and the nearby vicinity of Sanchi Milk collection center provided a good option for dairy.
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The main observation is as follows:

- Beside water there is no other work taken for development of common resources in Barkheda Kurmi and Dedkhedi, as there are no free land for the same.
- Some attempt like plantation on private land (i.e about 25 acres) has been done in Barkheda Kurmi which is showing good result. Plantation on common land was not successful in Dedkhedi.
- No specific effort has been done for the forest but biogas was successful in Simariya. In Simariya the biogas has been very successful and people are using it for cooking purpose. The availability of dung is also dependent on the other variables mentioned above.
- Milk production was also high in this village.
- In the study the two villages Bagrikheda and Nipania Bejnath has forests near the vicinity. The villagers adopted the forest conservation approach to arrest the flowing water and as a results resources has been generated. The NTFP produced has provided livelihood option especially to the women folks.
- In Lekhodiya Tonk the demand was mainly for water and pastures. Due to non-availability of land pastures could not be developed but fodder is available now in ample. SHG benefitted from goatery but goats later died due to disease.
- In Kanchankhedi the demand was mainly for water and pastures. Due to non-availability of land pastures could not be developed but fodder is available now in ample. Vermi compost etc. has been built with few farmers. Goatery and vegetable cultivation was adopted by few SHGs.
- In Bagrikheda the goat rearing taken as a SHG activity helped the landless and provided an alternate source of livelihood. The pastures developed as a result of forest & water conservation efforts helped to sustain this activity. The forest conservation work has resulted in the generation of NTFP which is cultivated by the economically backward families, widowers, women. The rules has been framed in such a manner that the weaker shall be given a larger share of the indirect benefits. The representation of the different section of the society is more

at Bagrikheda. Thus the term “Equity” has a larger and deeper perspective in this village.

- At Nepania Bejnath the dairy has been developed been an alternate activity and the nearby vicinity of Sanchi Milk collection center provided a good option for dairy.
- It may also be said that the requirement of the resources also varies from people to people. For example: - a landless labour might not be directly benefitted from the rise in the table but he may definitely be benefitted if he gets good wages for labor in construction of the structures.

Major inference

- a. It was observed that before the project the status of forest resource was not good and forest was degraded as per the FGD reports. In the past there used to be green cover which might have helped in water conservation and the ground water table was maintained. Due to population growth the pressure on the resources was immense and forest were exploited for **NTFP, fuelwood and other resources**. In the plan of the project, forest conservation was not given much importance hence the other resources could not be developed. In Barkheda Kurmi **private horticulture plantation** has been successful which is fetching good benefits.
- b. At Simariya the biogas plants has been successful (as beneficiares are using it and dependency on fuelwood reduced in these households) this is because a local contractor who is expert in biogas plant construction was a native of this village and he had been doing this work in other Govt. projects as well. The milk production is high in this village and villagers said that due to the construction of the stop dam water availability in dry season increased. Also due to the location of the village near the vicinity of market, **animals are sold at a higher cost and returns are good**.
- c. In Lekhodiya Tonk and Kanchankhedi which are villages with a more heterogeneous socio economic profile had more influential and privileged members in the committee has no forests near its vicinity. The main focus was on increasing the water table. The increase in milk production in the village is minimal in spite of small quantity of weeds available as green fodder. Due to availability of ample water in Kanchankhedi the floriculture and **garlic cultivation** has increased and hence the landless are **getting good wages for labor** in these to activities. The SHG activity of **goatery** has helped certain women folk but due to ill planning in Lekhodiya tonk the goats died. The goats were covered under insurance and the losses had been mitigated due to insurance.
- d. In Bagrikheda and Nepania Bejnath a more conventional and holistic approach of watershed i.e. ridge to valley and forest and ecological conservation approach has resulted into recharging of the common resource pools like the water table and wells.

The issue of encroachment has been addressed by forest conservation work. In Bagrikhedi the forest regeneration work has resulted into availability of **NTFP like aonla, karonda, sitafal** which has given alternate livelihood options to women folk. In Nepania Bejnath which has a heterogeneous socio economic status more than 16 community are residing and pressure of population is too high on forest resources. Strictly rules and penalty system for illegal felling of trees in treated forest show the democratization of the process. The presence of Sanchi **milk collection** center has helped to provide better returns for milk sale hence dairy gradually coming up in this village.

6. Equity, Participation and Governance in implementation and benefit sharing

Watersheds development is perceived as a technical issue, where appropriate decisions are made, based on the specific topography of the sites, with a mandate to maximize the benefit of the watershed structures/programs. The technical nature of the program tries for participatory governance in the program so that benefits of the watershed structures are accessible more equitable manner. The technical nature presents a natural challenge to equitable governance as watershed structures can be built on appropriate topographical locations. Usually such locations are closer to bigger and better off farmers. Therefore, benefitting the better-offs by default.

The purpose of governance in an intervention is aimed at participation, equity, maximizing the benefits and sustainability. Only very sensitive and proactive governance interventions can only bring greater participation and improved equity in accessing benefit. Certain norms and institutional mechanism are designed to ensure participation and equitable governance that ensure equitable impact and sustenance. The study tried to understand this governance from the perspective of four components which are as follows:

- Institutional mechanism for participatory and equitable governance
- Formation and rules to strengthen structure
- Democratic processes followed in decision making
- Accountability and transparency norms
- Collaboration with Panchayat and Gram Sabha
- Collaboration with other institutions/departments

6.1. Institutional Mechanism for Governance

The Village Development Committee/Watershed Development Committee, Aam Sabha or general body, Water User Group are the main governing institutions. The characteristics, form and their rules of each of the institution is described in the following section:

i. Aam Sabha or general assembly of the village

Any household can become the member by paying one time membership fees. The membership has been different in different project interventions ranging from Rs. 100 per household to Rs. 10 per household. It is also observed that that membership has been waived in certain cases. The Aam Sabha elects the Watershed Development Committee member, its President and Secretary. It reviews the program implementation of the watersheds including reviewing of the DPR for the proposed structures. Therefore, a strong Gram Sabha would be able to guide and supervise the implementation of watershed and ensure that the structures proposed in the program are benefitting larger community, who are also members of the Aam Sabha. It should be noted that AAM Sabha is different than the Gram Sabha. In Gram Sabha, there is a natural membership of all the voters of the village, whereas in Aam

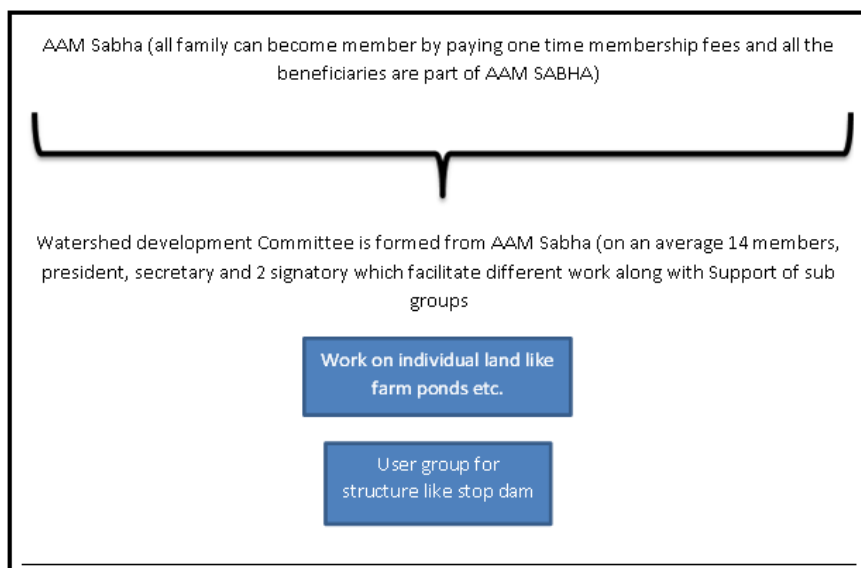


Figure 11 AAM Sambha constitution

Sabha, a membership fees has to be paid to become a member. Therefore, all the Aam Sabha members are possibly part of Gram Sabha but all Gram Sabha members are not part of Aam Sabha.

ii. Watershed Development Committee (WDC)

This is an elected body of members from the AAM Sabha. The water shed committee has a key role in execution and implementation of the watershed projects. The committee also coordinates with the implementing agency and sets the norms for benefit sharing. They are involved in site selection as well and other critical decision making. The President of the committee plays a critical role in decision making while the Secretary has responsibility of making and maintaining records. The committee plays an important role in establishing the democratic processes in project implementation and management. The committee is formed from water user groups, SHGs and other farmers, and is supposed to have representation of different caste and economic groups so that their interests can be protected. Selection and prioritization of beneficiaries and day to day operations of the project is undertaken in coordination with this committee. It is also one of the critical role of the committee to engage with Pachayati Raj Institutions (PRIs) and other relevant departments such as horticulture, Agriculture, Forests, and Revenue etc.

iii. Water User Groups

These are formed on the 'Structure basis', for instance on a particular infrastructure commissioned in project that has increased the availability of the water. The water user groups frame rules and set the norms for using water around the structure. Water User Groups (WUGs) was expected to be trained to handle record-keeping, wage payments and other financial transactions as well as to formulate regulations and fix water user charges which go towards creating a Maintenance Fund.

iv. Self-Help Groups

Credit and saving groups called Self Help Groups have been formed under the project to engage with community, by and large with the landless households and women particularly. These are also the instruments for forward linkage where the community collectives are engaged in income generation activities. It also provides a platform for providing benefit to the community that may have got direct benefit from watershed projects.

6.2. Impact of governance processes on equity and inclusion of water use

The table below present the impact of the governance processes and institutions established in the commissioned watershed projects, a comparison of before and after the commissioning of the project.

It is evident from the table that before the project most of the structures available for the farmers for the irrigation water were either traditional water bodies like tanks, river, Nala and natural reservoirs or structures created by the Government irrigation departments in form of tanks and canals. It is evident from the time line developed in each village that there were no governance mechanism on the water use and water sharing norms did not exist. Therefore, the rich and powerful farmers utilized water in their land based on their capacity to draw water and requirement. The small farmers particularly from the SC/ST community were given opportunities later.

The project interventions established the structures mentioned above. It was realized that there is a need to develop rules and guidelines for the water use, maintenance of assets created and long term sustainability of the natural resources. It was decided that the User Groups of the potential beneficiaries should partially contribute towards the cost of the new structures and ratio of contribution was differently decided in different projects. The resource generated from the contribution was formally deposited with the village institution for its future use for the maintenance of the asset.

In order to provide benefits to the small farmers, it was decided that plantation should be promoted on their land. There was also a visualization that the water use for the animals should also be planned. In villages of Agar project area, where there was a forest in the vicinity, it was decided that plantation of tree and grass land development should be promoted so that the poor can benefit from the NTFP products (Table 6).

Table 6 Impact of project

Sr. No.	village	Before Project	During Project	Post Project / Near completion
1	Barkhedakurmi/Sehore	There were dams which were constructed for irrigation on river flowing on the western side of village. It was damaged due to non-maintenance. No defined rules were framed for regulating water use. There was no institutional framework to ensure sustainability of any work.	Due to formation of WDC the institutional structure has been created and has helped to address the issue of periodic maintenance of the old and new structure. Proper rules and regulations has been documented and are being followed to varied extents. However, there are more benefits proportionately going to large farmers that had land near the water sources. Plantation work was also taken up on lands of big farmers. Field-bunding has been taken up on lands of small farmers also. Poorer families are supported through SHGs and they doing activity of vermicompost and nursery.	Project is ongoing
2	Dedkhedi/Sehore	As the village is near Barkhedakurmi and there is common river flowing through both the villages. There was one common structure Gaoghat dam which was used for irrigation for three villages' i.e Barkhedakurmi, Dedkhedi and maula khedi. This dam was damaged before the project work. There was no defined rule and regulation for operation and maintenance of water structure.	The WDC committee is active and they have defined rule and regulation. Under the project Gaoghat dam was repaired and user group consisting of three village i.e Barkhedakurmi, Dedkhedi and maula khedi was formed. All the members contribute user fees regularly and that fund is used for O&M of the dam. This has benefited the farmers and about 200 acres of land was irrigated. The participation of women was low and there was no SHG group.	Project is ongoing
3	Simariya/Chhindwara	17 year old Navegaon Dam was an important water resource. There were no defined rules and regulation or institutional structure for use of water	Noticeable increment in the water resources is observed in Simariya. The excess water is from stop dam constructed on western side of village. It is also used for drinking water by animals. VDC is having defined rules and regulation. One of the structure i.e stop dam on western side has benefited the medium farmers. Machines were used for earth work therefore landless community lost the opportunity of manual work and wages. There was an increase in milk production. Through the help of ITC 9 bio gas units have been constructed benefitting women. Horticulture plantation was done in 3.5 acres on land of 7 farmers along with SRI culture was introduced in land of 11 farmers.	Project is ongoing

4	Madni/ Chhind wara	The village was dependent on rain for agriculture. Due to the undulated terrain water retention was a big challenge. There was no defined rules and regulation for use of water.	The intervention has started in year 2013-14. There are only two structure i.e stop dam and earthen dam that was taken up along with 2 farm pond and 40 hectare of field bunding. The members were not clear about WDC and there was confusion about the role of VDC.	Project is ongoing
5	Lekhodi ya Tonk/ Ujjain	The farmers were completely dependent on groundwater for their irrigation needs, leading to overexploitation which led to drastic fall in ground water level. Many villagers had started opting for alternative livelihood options and had started migrating to cities for work.	The WDC took most of the decision regarding construction of the structures near the land of influential farmers and large farmers as they have major representation in decision making. The project is on the verge of completion. The weaker are mostly left out except for some SHG members. The agriculture practices have not adapted towards water scarce situation of the village.	Project is ongoing
6	Kancha nkhedi/ Ujjain	The water table receded very low and most of the tube well went defunct. The farmers were in completion to dug tube well to exploit ground water. The ground water table was going down every year.	Though most of the decisions were taken by WDC, but the benefits have been sized by large farmers only. The watershed interventions are yet to show results as the ground water level is still around 700 feet. Most of the direct benefits have been cornered by large farmers. Landless & SC/ST are getting benefits through improved wages due to sowing of floriculture and garlic cultivation.	Project is ongoing
7	Bagrikh eda/ Agar Malwa	The water table receded very low. The forest was severely degraded with loss of flora & fauna. Irrigation was mainly through wells and water availability war erratic resulting in single cropping by many farmers. Due to degradation of forest the land was denudated and encroachment by neighboring villagers had started.	The villagers choose to recharge the common resources instead of individual assets. The common recharge approach resulted into recharging of individual water sources at an equal level. The forest also got rejuvenated. Horticulture plantations in forest area helped production of sitafal, karonda, aonla etc. which women folk sell in nearby town. Drinking water problem has been resolved and fodder production has increased significantly.	Project is close to completion
8	Nepania Baijnath / Agar Malwa	The water table was very low & the surrounding forest were degraded. Irrigation was mainly through wells and water availability throughout the year decreased resulting in single cropping. Rampant felling of trees for fuelwood requirement and hunting had resulted in denudation of the forest resource.	They had made strict rules and penalty clauses for tree cutting. They collect user charge and have defined penalty clause for misuse of the structure created under watershed. The user fees is used for operation and maintenance of the structures. The poor families were part of decision making. They earn wages, collecting sitaphal/MFP from the protected area and have access to grazing land. The water availability in Rabi has increased and Milk production has also improved.	Project is close to completion

6.3.Review of performance of different governance structure

All the villages have formed the above institutions that is in all the sample villages there was general body, watershed development committee, SHGs and the water user groups. However, some significant observations were made with respect to formation and process.

i. General body

A General body or Aam Sabha are present in all the intervention. They select the members and watershed committee, the main decision making body of the watershed. The general assembly is supposed to be consulted for all the major decisions including at the time of DPR preparation. A one-time membership was levied to be member of general body, which ranged from Rs. 50 to 100. This was natural deterrent to joining if the household was poor and they did not perceive benefits clearly as they were also topographically isolated from the perceived watershed structures. It was observed from the data that a large proportion of families were left out in Ujjain from

Landless households did not join Aam Sabha in most of the locations, as they did not perceive the benefits of the program clearly. The membership also demotivated the poorest families. This sabotaged their chances of accessing direct benefits of the project. However not being the member did not affect their chances of benefitting through SHGs.

the general body, and efforts were inadequate to mobilize these families. This was done by large farmers to corner the watershed structures for themselves.

The proportion of the total number of households that were also the members of the general body has varied in different locations and with different implementing agency. In village Dadekhedi in Sehore district, the interview with the landless families revealed that they were aware of watershed implementation in their village. They were aware of different structures built in the program, but did not benefit from it. The landless families are not represented even in the Aam Sabha of the watershed in the village, and are not invited for quarterly meetings held in the program. Many land less families expressed that they wanted wage labour in construction of the structures but the work was done by machines. Why machines were used? Or why they could not employed, was not known to them.

However, not being a member did not debar the member from being part of SHG. Most SHGs have been formed from the poor households that were either small farmers or landless. The SHGs also received loans and other SHG related benefits. Also it was not difficult to register in the Aam Sabha, if one has not registered in the beginning. One could pay the membership charge and join it. For instance many members joined the Aam Sabha in Nipania Bijnath at a later stage by paying a membership fees of Rs. 11 . Therefore, it shows that there is an openness to include new members at any stage of the intervention of the project.

ii. Watershed Development Committees (WDC)

Watershed Development Committees (WDC) have been formed as per the prescribed norm and process and has tried to have adequate representation of the different caste and economic groups across all the interventions in different location. They have been formed from in the Aam Sabha by the members of the Aam Sabha and with adequate and prescribed representation of different caste and gender. At this stage it is important to examine the different dimensions of Watershed committees such as nature of Leadership, Understanding of the watershed mandate amongst the committee members and leadership, understanding of social and economic equity in the WDC leadership, Decisions and nature of decision making, democratic process in implementation of the project etc. Examination of these processes are critical for understanding equitable governance in Watershed projects, particularly as projects work in inherent limitation of selecting the sites on available water bodies, which are conventionally serving water. Equitable governance therefore will be seen in the context above mentioned dimensions in the management and implementation of the watershed by the watershed Development committee.

I. Leadership and democratic processes in Watershed Development Committee

The leaders were chosen by the watershed committee members as per the norms. Though members of the WDC were elected in the Aam Sabha and from amongst the different caste and economic groups, in most projects and sites, evidently the chosen leaders were often the influential and bigger farmers in most sites. Or the influential members exercised informal authority and controlled the functioning of the WDC.

II. Participation of committee members in decision making

The participation of a large number of committee members, particularly women members was a mere formality. The women were present in the committees as per the norm but did not know much about the functioning of the committee and did not participate in decision making though there were exceptions such as in both the sites in Agar Malwa where women were much more active and joined discussions.

The participation of the committee members varied across locations. For instance in Barkheda Kurmi in Ichawar block has large proportion of active WDC members. The WDC has fairly good understanding of watershed program and its implementation. They have engaged actively in the identification of structures. The leader in Bagrikheda and Nipania Baijnath in Agar Malwa were chosen with consensus, and made decisions after consulting the committee members in large meetings attended by many households. However the same was not true in both the locations in Ujjain as the decisions were taken by the WDC secretary and president and triangulated from the FGDs. The committee members were not aware of the decisions of WDC. Though they duly signed the registers and required documents. FGD with the WDC committee member in Ujjain highlighted that participation of the poorer members of WDC was merely an eyewash. There was a distinct

hierarchy amongst the members and most of the decisions related to type of work were taken by more powerful members, who were also in the position of power in the committee as well in the society. The members were not even aware of the cost and other details of the structures.

Positive leadership perspective in WDC Nipania Baijnath –Agar Malwa

Even before the project intervention in Nipania Baijnath in Agar the community had undertaken extensive planation on 1200 Bighas of land undertaken in 2004-4 with the facilitation of the FES. The interventions built very strong perspective in community that also formed the WDC consequently. The perspective on watershed and soil moisture retention work promoted development of seven ponds on the common land. Plantation of mango, jack fruit, lemon, etc. was also undertaken on the farm boundaries of small and medium farmers. Landless families were facilitated in development of the kitchen garden. The watershed approach has been followed to treat the common and private land undertaking various catchment area and drainage line treatment activities (contour trenches, loose boulder checks, earthen and masonry water harvesting structures. Besides the President, secretary, and community members were aware on the major decisions of the Watershed committee. They were aware of the works being undertaken in the watershed, and why those works were chosen. The financial issues such as the rate for labour work, cost of structure and basic bank details were known to each WDC Committee member. A practice was established in WDC that one of the member accompanied the signatory for withdrawing the money from bank. This increased transparency, control and participation of the community. The participatory decisions facilitated choice of works that benefitted smaller farmer's as much as bigger ones.

The table given below (Table 7)has tried to present the process of selection of WDC Committee members and its leaders and perceived influence, (as captured from different FGDs) of the bigger upper caste farmers in WDC functioning.

Table 7 Procedures and systems of democratic governance in Watershed Development Committees

Sites / projects	Influential members in WDC (from different FGDS)	Procedure and procedural transparency in WDC formation
Simaria and Madni (Chindwara)	Bigger farmers	WDC was formed in financial year 2013-2014 with Clearly defined rule and regulation's. The process was transparent and democratic. There is representation from each habitat in Simaria, however the community did not have good recall in Madni. The community had issues with the functioning of the WDC as information was not been shared freely.
Kanchan Khedi, Lahodia tonk, Ujjain	Bigger farmers were in position of power	A handful of villagers were aware about WDCs work. Most of the villagers were ignorant about this committee and how it got elected especially the SC ST villagers. The FGDs revealed that insignificant proportion of the community was aware on what WDC did and what decisions were taken. The land less were not even aware of the Watershed program. They perceived ITC programme to be another government program. Many committee members were unaware of the committee's

		decisions, which were mostly taken in coordination with the WDC secretary. Meetings of WDC were not regular.
Dehukhedi and Berkheda kurmi-Ichawar, Sehore	Bigger families were president and influenced the WDC Rajput were president and influenced the WDC	A large community including the small farmers and landless are aware of the WDC existence, though most landless not being part of Aam sabha did not participate in WDC selection process. Marginal farmers mentioned that the WDC has tried to have representation of all hamlets of the village. They are aware of the structures created in the watershed program. Meetings are held every month and is attended by a most community members. Expenditure details are read out in the meetings. Priority is given to the poor and small farmers for watershed structures, but many have not been able to use the same due to the specific conditions
Nipania baijnath, Bagrikheda – Agar Malwa	Nipania had a medium sized farmer as the president Bagrikheda had more or less homogenous community	The usually promoted plantation, CCT, small ponds etc. for water recharge. Therefore, the partner promoted a ‘tree growers committee’. The committee has about 150 households as members. Major decisions are taken by the committee members and most members know of the decisions. Committee meetings are attended by 40 to 60 families each time, however, most members know decisions. The choice of intervention is discussed in committee meetings though the implementing agency actively facilitates the process. The President of the committee is a medium sized farmer, who was elected unanimously by the committee for his commitment and honesty. The Aam Sabha is also held every year which is attended by a large number of households. Expenditure details are presented in the Aam Sabha

III. *Decision making hierarchy in democratically elected WDC*

Despite participation and following of the procedure, the decisions did not necessarily benefit the smaller farmers. Though the stop dams constructed were useful and served a large number of farmers, but benefitted those that owned land near the water body, usually a medium or bigger farmer. Exploration of other possibilities were not attempted as the influential leadership in the WDC usually benefitted from these conventional structures. The shades of power play or lack of thoughtfulness was evident in transect walk and PRA exercise with community during the study. The instruments validated that

Before the project commenced in Bagrikheda village in Agar Malwa the unavailability of water had led to unemployment and poor agriculture. The employment resulted in like theft, drunkenness. The illegal felling and encroachment of forest land was also growing. The Tree growers committee proposed CCTs, thus providing ample wage labour to the landless. The well has been recharged and water availability has increased. The farmers of different socio economic background proposed that more field ponds on Government land should be dug as an effective way to deal with the water crisis. The CCT trenches and ponds recharged the water table substantially.

benefits of the watershed structures were in most cases bagged by the upper castes and economic classes, though may not be by design. For instance a democratically elected and active WDC with an active community in Barkheda kurmi in Ichawar block, commissioned conventional structures in the project, benefiting the active members, usually large farmers. Stop dam constructed in Berkheda Kurmi and Dedkhedi in Sehore district benefitted the large farmers occupying land near the water bodies. Though there is a large patch of barren land on one side of the village, which belongs to small and marginal farmers. However, the mentioned land has not been explored for any activity and completely left out. Even large plantation work has been undertaken in private land of 25 acres of a big farmer. Smaller farmers in the village contested that as they could not spare land for Farm ponds or could not contribute the matching contribution, they were left out. They felt that there was need to explore more possibilities such as repair of wells, deepening of ponds etc. Similarly, the small and marginal farmers of Losodoa Tonk village in Ujjain that owned land near a big pond mentioned in the FGD that deepening of the pond would have helped them, but they were not consulted. A large number of small farmers that could have benefitted through mud bunding on their farms were left out. The decisions were taken by the WDC Secretary and President and, as found in FGD, the committee members were not aware of the decisions of WDC. Though they duly signed the registers and the required documents. The members were not even aware of the cost and other details of the structures, However Agar Malwa presented a contrasting picture, where many members actively participated in program implementation. For instance in Bgari Kheda village in Agar the situation has changed drastically after the watershed project. The table given below captures some of the features of democratic process in some specific interventions across four interventions implemented by different implementing agencies (Table).

Table 8 Impact of decision making on the poor families of the village

Project site	Observable trends
Barkheda kurmi-sehore	The FGD with small and marginal farmers revealed that a large number of families were benefitted from the watershed but for poor and landless or very small farmers were not. They did not want farm pond or plantation work due to small size of their land holding.
Lahodia tonk-Ujjain	The program benefitted bigger farmers, and there were conflicts on the sites for construction. The farm bunding too were largely benefitting the bigger and medium farmers. The small farmers from SC/ST communities that acquired land under Pattas expressed that that deeping of pond was required to benefit them, but was not undertaken. Ample land around the Goshala could be developed as Charnoi land for availability of fodder for majority of the poor community, but not done due to socio-political reasons.
Nipania Biajnath-	The recharge of water from CCT trenches benefitted the community equally. The small ponds on government land, and the plantation thereafter increased the

Agar Malwa	availability of fodder for goats and other animals. Plantation also increased the income of poor households engaging in petty selling of such produce.
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Across the different watersheds, the leadership varied in their understanding of watershed/ Soil Moisture Retention works. It was commonly seen that most of the WDC leaders across the sampled villages worked on the conventional watershed structures such as stop Dam , boulder check dams etc... Appropriate alternatives to benefit the small farmers and landless households were not appropriately explored in watershed committee meetings. For instance, water recharge through regeneration of forests in Simaria or Madni was not undertaken in Chindwara district though both villages had forests in the vicinity and the potential for the same.

Individual/Household contribution norms for the building watershed/related structures-Ichawar, Sehare

The concept of individual contribution was followed perhaps to build ownership in the infrastructure created. The percentage of contribution differed at different sites. They were as high as 30 % to 50 % in certain locations such as Ichawar. Therefore only those who could mobilise this contribution pulled the resources of the project. It was noticed that large plantation work was undertaken on the land of big farmer as he could make the necessary matching contribution. Similarly farm ponds were also built on the lands of 'able farmers' who could make contribution. The contribution was higher for structures like Bio gas plant. Therefore even these were accessed by bigger farmers capable of making contribution. This practice demotivated the small farmers from accessing the infrastructural benefit of the project.

Very few interventions such as Bagri Kheda and Nipania Baijnath in Agar Malwa adopted a different approach as per the suitability of their topography and socio- economic conditions, like recharging the land using ecological approach.

iii. Management of the Self-help Groups

Most of interventions have promoted SHGs, as per the norms. These SHGs have usually been formed with women of poor/landless families as most upper caste households did not encourage their women to participate in the SHGs. The Secretary of the WDC has the responsibility of ensuring meetings and maintaining its records. SHGs are supposed to be trained and empowered to take their decisions. It is observed during the various FGDs with the SHG members that in most of the cases, SHGs have not only gained from the intervention, but have also been empowered in the process. For instance in Barkheda Kurmi, in Sehare district, the SHG members maintain their records, and make decisions on inter-loaning. In Chindwara, the SHG members were aware about their savings, credit and other issues. However, the situation was not uniform across all the interventions. There is obvious dependence of the SHG on the secretary in Lahodia tonk. Most records are kept and maintained by the secretary (Ujjain). The decisions are made by the secretary. Goats were provided to the members but some of them lost their money as the

goat died. The capacity building and consequent empowerment of SHG varied at different locations (Table 9).

Table 9 Maturity of the SHGs and relationship with the Watershed Committee

Name of the village	Dependence on the watershed committee secretary	Level of empowerment	Relationship with WDC
Lahodia tonk And Kanchan khedi (Ichawar/Sehore)	-Complete dependence on secretary -Trainings undertaken but retention and impact not very visible	Poor, do not make decisions, do not keep and maintain pass book and records. Goats were provided and income generation was done.	No engagement with the watershed implementation
Bagrikheda and Nipania (Agar Malwa)	Only tree growers committee, however there is transparency in management of the same	Strictly rules and penalty for illegal felling of trees in treated forest show the democratization of the process.	There is no special SHG. Tree growers committee even engaged with Gram Sabha to build consensus
Barkheda kurmi-Sehore	Independent handling of records and accounts	Undertaking savings and credit, loaning etc. But not engaged in other activities	Have some idea of the watershed work , but do not about WDC, its members and decisions

iv. Water user Groups

Water user groups exists and it is supposed to form norms and mechanism for water sharing. The water sharing norms are sometimes established well in most of the interventions. Most of the members felt satisfied by the norms and followed norms. For instance in Barkheda Kurmi in Ichawar has constructed a large stop dam, which benefits not only this village but also two other adjoining villages. Each of the farmer in the water user group contributed per hectare for water usage. They also pay a fixed charge for drawing water each time. Similarly, in Madni in Chindwara, despite a recent intervention, norms are set for drawing water. The users are charged Rs.100 per season for using the water from the stop dam. The farmers with comparatively bigger land holdings and high power water pumps pay the same amount of cess as the small farmers. Though there may be

In Nipania Baijnath in Agar Malwa district, massive plantation was undertaken by the tree growers committee. There was a fear of felling of trees for the fuel wood. Therefore the members of the Tree growers committee mobilised the Gram Sabha to ensure that nobody from the village will fell trees/branches for any purpose. A 'KULADHI BAND' that is no use of axe in the village decision was taken. Similarly, the stop dam in Berkeheda in Ichawar was suddenly used by non-resident but influential person in the block who had no role in watershed. A collective gram Sabha was mobilised to stop him. The decision was enforced on this person and he had to withdraw from drawing water.

disputes on the principle, no apparent conflict was voiced during interaction. However, in some other cases such as Lasodia Tonk-Ujjain the conflicting situation has continuously prevailed. Here there are no formal rules framed by the WDC for the use of the available water and the farmers whose farms are adjoining to the structures mostly uses the water. Conflict arises many a times for overdrawing of water by a particular farmers and these conflict are addressed by mutual negotiations. No grievance redressal mechanism has been formulated by the WDC.

6.4. Convergence with the Panchayat and Gram Sabha

There has been very little or formal engagement with the Panchayats. This has been undefined area of the intervention across agencies and locations. There have been instances of engagement with the Panchayat and Gram Sabha but, that happened on the initiatives of the community and in an emergency situation. In several interventions, the Panchayats was not aware of the intervention for instance in Ujjain and Ichawar, the Panchayats were hardly aware of the watershed activities. Therefore, ITC supported program could not mobilise resources through convergence. There was no discussion planned on the watershed issue in the Gram Sabha/ Panchayat meetings. Across the interventions, the Panchayat and the Gram Sabha were at distance and had very little knowledge about the watershed project, though it is possible that the representative were elected only recently therefore could not be engaged. As the watershed plan developed by the committee shall be a part of village plan developed by the Gram Panchayat, it is critical that Panchayat are engaged and programs are converged leveraging other resources available under different schemes. The Gram Panchayat may also use its authority to multiply the benefit of the project. For instance NREGS could be used to pay wages for plantation and watershed resources could be used elsewhere. Or Panchayat can make land available for silvipasture etc.

6.5. Factor that indirectly affected the functioning of the above groups/ committees

It was apparent during the study that there were some determinant that influenced processes relating equity, participation, governance or the nature of impact in the concerning watershed projects. While undertaking PRAs and Focused Group Discussions in the sampled villages, some of these factors that were identified that influenced the paradigm of participation and equity. For instance homogeneity in the beneficiary community seemingly had positive influence on the participation and equity. Similarly, space given to traditional wisdom, or time spent in establishing processes also had facilitated equitable governance. It is also observed that time spent in the project facilitated in establishment and crystallization of good practices, however only if the process were sensitive and equitable. Apparently, skillful facilitation at the initiation of the project where the purpose of the project was transferred to the community and processes were established also influenced in establishment of the participatory and equitable process. Some of the factors and practices that influenced equitable impact are listed below and are discussed one by one. It is also important to note here that some of

these factors can be controlled and taken care off during an intervention, however certain other factors are not controllable. For instance, homogeneity in the community may not be within control of the team, but giving space to local wisdom may be accommodated. Similarly strengthening the initial processes may within the control of the implementing agency, so that there is equitable distribution of benefits while it may be beyond the control of agency site for appropriate structures fall in locations that may have more direct benefits for the bigger farmers.

This section is written with a purpose to highlight the issues of equitable and participatory governance in the watershed projects, so that these issues may be handled with greater consciousness and care.

i. Homogeneity in community

Different intervention were located in different locations and districts and therefore had different type of diversity or homogeneity in the community. The study found that homogeneity had distinct influence on participation and equitable benefit sharing. The homogenous community promoted more equitable community work as against the skewed individual work and identified those categories of work that benefitted more number of households from the common assets. For instance, the community in Bagrikheda in Agar was extremely homogenous, not only with respect to the caste, but also with respect the size of land holding, the type of land or availability of water. Nearly all were small farmers owning nearly two to two and half acre of land. And all of them owned rocky and undulated land. The homogeneity facilitated participation. The near absence of dominant elements led to improved equity and collective decision making. For instance. Economic and social homogeneity facilitated mutual peer pressure instead bending of rules to benefit the mightier farmers. Resultant was that community avoids the exploitation of generated resources. Rules are framed and followed for using natural resources. The benefits to the weaker section is abundant as preference was given to them. The indirect benefits like NTFP is going mainly to the weaker sections. The horticulture plantations in forest area helped production of sitafal, karonda, aonla etc. which the women folk sell at nearby town. Rules were made and followed equally by one and all. However, projects implemented in greater caste and geo-economic diversity, have been more favorable to bigger and influential farmers. Interestingly, it is not the norms and laid down procedures that have been tinkered, rather it has always been the informal use of status and power that facilitated the domination of some members over the others.

ii. Facilitating Traditional wisdom in projects

Community participation and traditional wisdom was given a priority along the technical soundness in most of the projects, however some of the projects capitalized on the traditional wisdom more than the others. For instance, several small ponds (dabris) were constructed, in Nipania Biajnath. However, when questioned about the utility of these structures, the community was clear that the structures definitely prevented the possible and likely encroachment on the land. The traditional wisdom was encouraged and accommodated in project implementation. The resultant was higher level of

participation. Besides the community identified their unique problems and suggested possible solution.

iii. Time line or time after the project completion

The ITC started its intervention in the sampled districts of the proposed study at different points of time, such as the Agar interventions were very old, while Sehore was relatively older than Ujjain and Chindwara interventions were rather recent, only a year old. Time allowed crystallization of good practices and filtering out of unwanted elements. Due to a very long period of investment in Agar, the project had time to demonstrate its ideology, belief and impact. However, Chindwara interventions are new, and project is still in the learning phase and in the process of winning the confidence of community. A certain time period will be necessary to establish the necessary processes.

7. Conclusions and Recommendations

Some of the **positive findings or strengths** emerged from the study are the following:

1. Strong processes for quality implementation of the watershed programme

It is evident from the field visits and review of documents that the ITC and the partner CSOs have implemented the project in the best interest of the project goals. There has been a proper planning for identification of the possible structure taking into account the principles of watershed. The quality of structure in the villages visited is remarkably sound and appropriate. The user group has been engaged in the process since the inception of the project. The benefits from the structures in terms of surplus water and its use for agricultural purposes is well evident in the field.

2. Well established systems of participation and management of water systems

In all the villages visited in different project, the community structures have been put in place right at the beginning of the project. All the farmers small and big, constitute the Aam Sabha or the general body that elects the Watershed Committee of the village. The functions of the watershed committee are well defined and known to the members. With certain variations, the members take interest in determining the priority works and participate in the implementation of the programme.

The user groups are responsible for the water sharing and overall ownership and maintenance of the structure. The water user committee are strong and take responsibility of water sharing and its maintenance.

Most of the committees have water user fee as well as membership fee to build a corpus of fund for the maintenance of the assets. The records are kept properly and funds are judiciously managed. There is a provision of joint signature in the back to ensure accountability and transparency.

3. Excellent example of watershed in Agar for wider dissemination

The project implemented by the FES in Agar over the years with the support of ITC has generated significant outcomes in form of water surplus, common property like forest and its distribution system. Over the years, the project has strengthened strong governance systems where there is an equitable distribution of common resources, there is a concern for the sustainability of the natural resources as the principles of conservation and protection are strictly adhered by all the households. It is one of the excellent example that can be showcased nationally and internationally for its significant achievements in water and forest regeneration, management and equity and social justice in benefit sharing.

4. Careful selection of partners for project implementation

The ITC projects were granted to well established and credible voluntary organizations having experience in natural resource management. In Icchawar, initially Srijan was selected which is a nationally known organization on NRM and agriculture development. Similarly, FES has a longstanding commitment to improve NRM in tribal areas using participatory tools. Similarly, in Ujjain, GVT has been working which also has a wide experience of working on watershed and NRM. The organization could bring the positive values, approaches and ethics in the ITC project, therefore, each project has different focus and supportive strategies.

The key **concerns or weaknesses** that emerged from the field visits and discussions with the community are the following:

1. Typical watershed approach neglected innovative ways to reach out the small farmers

The project teams followed ridge to valley approach as well as identified the most appropriate locations for the investment of resources to get high dividends'. However, the process could not consider the needs of many small and marginal farmers from the lower rungs of the society who own the worst land in the periphery of the village. Their land required greater attention and innovation to provide benefit of the project. In certain cases, there are interventions planned for such farmers, however, such interventions have not been taken on priority.

2. Principles of equity not sufficiently built into design

It is observed that in most of the projects, there is an equal contribution norms fixed for all kind of farmers. The water use by the big farmers is much higher than that of the small farmers. The large farmers have more powerful pumps also that uses greater volume of water. However, they also pay the same amount. Similarly, there is a relatively high membership fee that becomes a barrier for the small and marginal farmers. They do not see enough value to be a member due to steep membership fee and low benefits.

3. Participation of women in governance system is tokenistic

It is found that women have been taken as members of the watershed committees as per the norms/ bylaws of the committee. In many cases, the widows or weak women have

been taken into the system who can either attend the meeting along with the men without any social inhibitions or those who are the rubber stamps to sign on the proceedings. Many of the members do not know the processes and decisions of the committee. The men as executive members also have not been sensitized to value participation of women as equal stakeholders in the watershed programmes. It is perceived that the self-help groups and benefits provided to the women are sufficient.

4. Weak linkages with the village Panchayat and Gram Sabha

It is evident from all the projects that engagement with the Panchayat has not been in the core strategy of the project. There is a heavy dependence on the project resources and watershed committee and user groups are in the centrality of decision making and implementation of the programme. The constitutionally mandated Panchayats having a core function of water management in the village has not been adequately understood and realized. Currently, the watershed guidelines also mandates to consider Sarpanch as the ex-officio President of the watershed committee.

Large volume of MGNREGS resource which are also meant for drought proofing have not been converged. Moreover, many of the social justice functions of Panchayats viz. social security benefits, housing for the poor, identification of BPL, village roads, maintenance of village assets etc. could not be integrated with the project interventions. The village implementation plans have also not been approved in the Gram Sabha.

5. Landless have got only indirect benefits rather than direct benefits

The project has not sufficiently paid attention to develop strategy for equitable sharing of benefits of the project for the landless. It was expected that the surplus water will lead to greater irrigated area, multiple cropping and high agricultural produce. This will lead to greater wage opportunity for the landless and poor. There was no thinking of exchange of direct benefits to the poor and landless as monetizing the value of water and exchanging the value of their water share in form of grains or other goods. It is a difficult proposition, however, there is a possibility of experimentation with strong organizations like FES.

It is assumed that the women of the landless families will join the self-help group. The SHGs are expected to enhance income of the family. However, the evidences have shown that the income generation activities have been meager and insufficient. There is no interrelationship of watershed activities and income generation activities. The landless families have not been treated as integrated part of the watershed benefits except in Agar project where there was a systematic thinking on regeneration of common property resources.

8. Key recommendations and way forward

The key recommendations or way forward emerging from the study are the following:

1. Comprehensive watershed planning from equity and gender sensitive lens

The detailed village level planning, undertaken by the watershed team, primarily considers watershed principles/framework based on civil engineering and agriculture/horticulture. The points/structures which can generate maximum water with least cost/investment are the preferred choices. The social scientist in the team works only from the point of view of forming SHGs during the planning process. There is a need to get a strong orientation to the team on the equity, exclusion and gender issues before the planning begins. This will help team to look for solutions on the lands of the poor and marginalized by designing interventions that can bring more substantial improvement in promoting sustainable agriculture on their land. While determining the priority of works in the village, it is pertinent that the concerns and voices of the poor and marginalized are heard properly. A checklist can be developed to scrutinize the plan on the equity and gender lens before it is approved by the ITC.

2. Improving governance norms for inclusion of the landless

The current Aam Sabha and executive body is constituted by the water users or those families who will be potential beneficiaries of the watershed scheme. Therefore a section of the village in form of landless and marginal farmers remain unconnected with the governance system. It will be worthwhile to include the landless families in the Aam Sabha so that there is a representation of diverse stakeholders and interest. The election in the executive committee will also be influenced by their vote therefore, works that can benefit the landless and marginal farmers will gain priority. The Aam Sabha will start resembling/mirroring with the village Gram Sabha which will be more organized and effective. In the long run, Aam Sabha will influence functioning of the Gram Sabha for democratic, inclusive and gender sensitive functioning.

3. Establishing strong connections with village Panchayat

With the new guidelines issued in MP, the elected Sarpanch will be the chairperson of the watershed committee. This provides an opportunity a built –in opportunity to connect with the Panchayat system of the village. Over the years, village Panchayats have been receiving government funds in large proportions, particularly after enactment of MGNREGS. Nationally, there is a drive to promote comprehensive planning called Integrated Planning Process (IPP) for MGNREGS with convergence of other related sectors like agriculture and horticulture etc. MP Planning Commission has promoted ‘village development plan’ called master plan of the village as part of the comprehensive village planning exercise where all sectors and all schemes are converged. This exercise is taking place over the last 7-8 years in MP. There is a need to integrate ITC village watershed plans with the IPP and village Master Plans so that Government resources are leveraged for social sector improvement as well as to augment resources for natural resource management.

The 14th Finance Commission also allocated large proportion of resources to Panchayats as untied grants that Panchayats can use on their discretion. There is a provision of incentive grants for the Panchayats improving tax collection, governance system etc. The village panchayats can be encouraged to utilize such funds more effectively.

There is an office order which instructs that all the assets in the jurisdiction of village Panchayat will belong to the Panchayat. The village Panchayat is directed to maintain a village register of the assets and develop a plan for maintenance. It will be worthwhile to get the assets endorsed in the village asset register of the Panchayat and develop a strategy of long term maintenance by the users committee and the village Panchayat.

4. Capacity building of the team on decentralised governance, inclusion and gender

The watershed team of different locations receives substantial training and orientation on the watershed sectoral issues. The ITC also has strong expertise on the civil engineering, agriculture and related areas. There is a need to hire a technical agency that can design and provide support to the field team structured capacity building support on the issues of decentralized governance, equity, inclusion and gender. The technical agency can also design handholding support or on-site support on periodic basis to strengthen team capacities to address the issues of equity, governance and gender in a holistic manner. Some of the key areas of structured capacity support are the following:

Governance

- Understanding governance and its implications on the life of the common people. Building perspective on State-Citizen relationship in accountability-transparency discourse. Interrelationship of common property management and effective governance.
- Perspective on local/decentralized governance and knowledge on key provisions of 73rd Amendment and PESA in tribal areas.
- Knowledge and skills in participatory and convergence planning engaging the Government functionaries and programme resources
- Principles of community monitoring and social audits and skills to conduct social audits for watershed and MGNREGS programme resources

Equity, inclusion and gender

- Perspective on equity and inclusion- why certain sections have remained poor and deprived
- Various programmes and Acts promoting equity and gender justice
- Principles of inclusive planning and gender sensitive planning and budgeting
- Redefining monitoring system with Indicators of inclusion, gender justice and equity to monitor performance and impact of programme

The technical agency can design the capacity building strategy in a comprehensive manner so that continuous and sustained support is provided to the team.

CASE STUDY - I

Forest Conservation – A holistic approach of watershed management at Bagrikheda.

Name of the Village: -Bagrikheda, Agar Malwa District, Madhya Pradesh

Village Profile:-The village is dominated by SC and OBC and were mostly dependent on forest for livelihood. The nearby forest was almost degraded with heavy loss of flora and fauna. Rampant felling of trees for fuelwood resulted in denudation of forest.

Situation before the Project: -The water table receded very low and the forest was degraded with loss of flora & fauna. The irrigation was mainly through wells and water availability throughout the year decreased resulting in single cropping by many farmers. Due to degradation of forest the land was denudated and encroachment by neighboring villagers started.

Biggest Challenges:-The biggest challenge related to natural resource in the village was the fast depletion of the ground water levels due rampant felling of trees in the upper reaches of the forest. Due to the climate change ill effects, the rains are erratic. The water availability in Rabi season had gone down significantly.

Major intervention under the Project: - The villagers choose to recharge the common resources instead of individual assets. The common recharge approach resulted into recharging of individual water sources as well. In this villages CCT and Loose boulder check dams has been constructed and the members said trenches helped in water retention and provided wages to the landless. They said that check dams are constructed in long nalas and the work is carried out by the WSC. The forest also rejuvenated and indirect benefits from water resources generated help other community who don't own land resources. The horticulture plantations in forest area helped production of sitafal, karonda, aonla etc. which the women folk sell at nearby town.

Democratic reforms, Leadership & Village Participation:-The excesses developed is mostly provided to poor and needy. Peer pressure avoids the exploitation of generated resources. Rules are also framed for using resources. Strictly rules and penalty system for illegal felling of trees in treated forest show the democratization of the process. The benefits to the weaker section is abundant as preference was given to them. The indirect benefits like NTFP is going mainly to the weaker section. Villagers said that they have jointly took resolution to removed illegal encroachments to develop forests. The water conservation work also acts as a buffer for restricting illegal encroachments. People take their goats for rearing near the forest but there are prescribed rules to rear cattle in forest.

Major Benefits / Lessons learnt:- The cropping pattern has also changed and the farmers are able to take crop and vegetables which can fetch greater profit in the market. The landless can now has an alternate option of milk production and meat business.

Due to the plantation of horticultural crops in the forest the production of fruits like aonla, sitafal has increased and women folks collect these fruits from the forest and sell in the nearby market thus providing an alternate option for livelihood. The CCT has improved the grass production in the nearby hillock as a result there are natural pastures developed.

The farmers are also keeping buffaloes for milk and some farmers have started using cow-dung for vermi-compost and organic fertilizer. The cattle population has increase specially the goats. The number of cows and buffaloes also increased.

The level of income as also risen. Due to the watershed and forest conservation work, the availability of green fodder increased an as a result the milk production increased.

CASE STUDY - II

Gap between PRI and Water Shed Committee results into lack of community participation at LakhodiyaTonk.

Name of the Village: -LadhodiyaTonk micro watershed is situated in the Khachrod Block of Ujjain District of Madhya Pradesh which is 70 KMs from Ujjain Head Quarter.

Village Profile: -. The villagers living in this villages mainly belongs to caste such as Thakurs, Dhakad, Patidar, Balai and Bagri, Schedule Castes & Scheduled Tribes. As per the description of the elderly people of the villages this village came to existence 165 years back. The major occupation of the villagers before the project started was agriculture, animal husbandry and farm labor.

Situation before the Project: -The villagers depend on agriculture and animal husbandry as a major source of income. The agriculture was mostly rainfed before the start of the project. During the rabi season the main source of irrigation was tube wells.

Biggest Challenges:-The biggest challenge related to natural resource in the village was the large scale dependence on tubewell for irrigation the ground water level has gone down drastically in the last decade. Many tubewells have died in the last 3-4 years. Due to erratic rains and raising input costs agriculture has become a loss making venture. Due to the climate change ill effects, the rains are erratic. The water availability in Rabi season had gone down significantly.

Major intervention under the Project: -A few stop dams and check dams had been constructed under the project. The benefits have been hijacked mostly by the upper caste influential people who mostly constitute the executive members of the WSC. Most of the structures have been built near their field thus benefits are reaching a chunk of influential villagers. The field bunding work was done mostly using machines instead of manual labor and the labor of the village has not been benefitted by the work. The bunding work has also resulted into conflict situation between farmers who had adjacent fields as due to improper planning the overburden of the excavated soil was thrown on the field of the neighboring farmer without his consent. The SHG was successful in few cases but due to lack of village participation, conflicting situation keep coming.

Democratic reforms, Leadership & Village Participation:-A handful of influential villagers were actually aware about the watershed committee and its work. Most of the villagers were ignorant about this committee especially the SC - ST villagers. There were no rules framed for the use of the excess generated and a few influential villagers considers this structures as their private property. There is complete absence of sharing the excesses with the other community of the same village. The executive members of Water Shed Committee belongs of upper caste and they have complete influence on the working of the committee.

Major Benefits / Lessons learnt:- Most of the families who do not own any land belong to the SC- ST community. The major source of livelihood for the landless families is farm labor and goatery. The project had facilitated the formation of SHGs among the women of this community. Each women member was provided with Rs. 4000/- which was used to buy goats. The SHG women member contribute Rs. 100/- per month.

The socio economic condition of the women of the landless group was more or less same after the project. This is due to the lack of active involvement of this group in project activities and committees.

The water situation in the village is still critical as farmers are competing to draw ground water by boring new tubewell and going further down. The participation of the landless SC – ST community in the planning and implementation stage was absent and most of the villagers from this community were not even aware of any structure being constructed in their village. The participation of this group in the Gram Sabha is also minimal as the upper caste mainly controls the working of the Gram Sabha.

Due to lack of proper coordination and understanding between the Gram Panchayat and the Water Shed Committee the active participation of the villagers in the project could not be ensured. There is lack of ownership among the villagers regarding the project. There are some tangible and intangible benefits in form of SHG related work but the impact of the activities is significantly less than what was desired.

CASE STUDY - III

User group from three villages are successfully managing and operating a single structure for irrigation under watershed management at Icchawar.

Name of the Village: -BarkhedaKurmi, Dedkhedi, Icchawar block, Sehore District, Madhya Pradesh

Situation before the Project: -There was a river flowing near the village. There are three villages which are situated at this village. In most of the villages irrigation was done by bore well and well. It was decided to construct a stop dam at location which would provide water to the farmers which are from three different villages. As this structure constructed under water shed programme so it was decided to form user group in which members were from different village.

Biggest Challenges:-The biggest challenge was that how the user group would work in which there are members from different villages. On face value it might seem that as people are from different group then there is chances that it would lead to conflate.

Major intervention under the Project: -Under the project it was decided to construct a stop dam on the river. The construction of the stop dam would ensure that farmers from different village would be able to use the water. User group was formed for the operation and maintenance of the structure. After the construction of the stop dam the structure is managed by the user group. All the member of the user group contributes there share and they use the water as per laid down rules and regulation. At time there are some conflicts and that was resolved within the group. The members informed us that few years ago an influential person was trying to use the water by putting his motor on the structure. All the members of the user group came forward they stopped his men from using the water from that structure as he was not member of the user group. After interaction with the group it became clear that this group is very active and with time it has evolved into a strong user group.

Major Benefits / Lessons learnt:- The farmers from three villages are benefiting from this structure.

During the formation of the group if proper hand holding support regarding formation of rule and regulation for collection of user fees and distribution of water is done then it helps in strengthening the group. The group is able to take responsibility of managing the structures.

The group is empowered enough to resolve its own internal conflict as well as external conflict and is very optimist about the sustenance of the group

CASE STUDY - IV

Intervention related to livestock and bio gas at Jamai Block.

Name of the Village: -Simariya, Jamai block, Chhindwada District, Madhya Pradesh

Village Profile:-Simariya is located in BhutiyaKhurd panchayat. The total population of the village is 473 and there are 77 house hold. Out of the total population 35%, 15% and 50% belonged to the SC, ST and OBC categories respectively. The residents of the village are majorly involved in agriculture, dairy production etc.

Situation before the Project: -The villager's informed that the most of the families have livestock. During summer season the villagers faced the problem as there no drinking water for livestock. Beside this the forest near the village was also depleted and the women faced the problem of collecting fire wood for cooking.

Biggest Challenges:-The biggest challenge was that how the drinking water could be provided to livestock in summer season. How can the life of women be improved as there was lack of woods for cooking purpose. Major intervention under the Project: -During the project period a stop dam was constructed in the village. The construction of the stop did not only result in the irrigation and recharging of ground water but it was also used by the livestock for drinking water during summer season. In a way this has helped all the families of the villages and it is unique as it is not only supporting the member of user group whose families are near stop dam but also indirectly helping all the families who have livestock in their home. They villagers informed that it has helped them in supplying milk to nearby market. As the village has lot of livestock so it was decided by the project to provide bio gas to the families. During the process the enabling thing in that village was that there was a trained mason who knew how to construct bio gas. This mason has constructed bio gas in most of families. All the women during her interaction with the team was appreciating that this and informed that it has made there life easy. The mason also informed that as he was trained so he was able to deliver a good quality of bio gas. He informed that as most of the time mason are not trained so it result in ad quality of construction and hence most of the fmiles in other villages are not interested in construction of the bio gas.

Major Benefits / Lessons learnt:- All the families having live stocks have benefited due to construction of stop dam. Construction and use of bio gas has helped in improving the day to day life of women

The availability of locally trained mason /technical person really helps in promoting any new concept as can be seen for the bio gas in this case.