Bundelkhand Rural Poverty Alleviation Program (BRPAP), Tikamgarh

Supported by Sir Dorabji Tata Trust (SDTT), Mumbai

Endline Report (November 2014)

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1. Introduction

Sir Dorabji Tata Trust (SDTT), Mumbai, has embarked on a Bundelkhand Initiative to address poverty and inequity in the region through multi-sectoral civil society projects based on a clear strategy.

The Initiative is being rolled out through projects in two contiguous districts – Lalitpur in UP and Tikamgarh in MP—which will be in the form of demonstration models that can be scaled or replicated in the rest of the region. The civil society organizations (CSOs) invited to work in these two districts are reputed NGOs of the region that have worked with SDTT in the past. Akhil Bhartiya Samaj Sewa Sansthan (ABSSS) was one of the invitees and responded positively to the opportunity offered by SDTT.

The ABSSS Project, entitled Bundelkhand Rural Poverty Alleviation Program (BRPAP), was implemented from March 2011 to August 2014 in 40 villages of Tikamgarh block of Tikamgarh district, MP[1]. Of the 40 villages, 20 villages were selected for intensive intervention, while the remaining 20 were extension villages. Basic details of the 40 villages are provided in Appendix 1.

The main objectives of the ABSSS Project were as follows:

- To form and build capacity of community organizations especially of women and marginalized social groups for democratic realization of entitlements.
- To enhance participation, savings, role and decision-making power of women in household and community development.
- To enhance income & living standards of the people of target group from land and agriculture through scientific natural resource management and improved agricultural practices & animal husbandry.
- To strengthen capacity of NGO and community in MGNREGA, RTF, etc
- To leverage available public funding (government) resources for optimum realization of above objectives

The major activities of the Project were:

- Establishing community based organizations (CBOs) on common platform with focus on women
- Watershed development
- Agriculture development
- Horticulture, forestation, other new livelihood opportunities
- Improve livestock productivity
- Build target group capacity to claim entitlements
- Capacity building of NGO and community.

[1] FY 2013-14 was the 3rd and final year of the Project, and an extension was granted for specific objectives and activities. This report is confined to the main Project period (excluding extension period).

The target group of the Project was poor households (HHs), particularly those belonging to SC/ST groups.

Scope of this report

To provide an overview of the Project's achievements and impact, this report describes the baseline and endline conditions under the above-mentioned objectives and activity heads, against the background of the geographical, demographical and socioeconomic profile of the Project area.

Sources of information

Baseline information of 20 villages selected for intensive intervention was gathered through a survey conducted with the help of a detailed questionnaire in all 20 villages in 2011-12. The questionnaire was administered through focused group discussions in each village. Supplementary information was obtained from secondary sources. All the data was validated, collated and analysed in March 2012.

More detailed baseline data was obtained from a separately done in-depth study of 95 households. The study involved a questionnaire that was administered through focused group discussions in each of the 20 villages village in May-June 2012. The distribution of HHs covered under the study per village/hamlet was such that (i) Only target group HHs were covered (ii) Total number of HHs per village/hamlet was roughly 5.

Endline information was obtained through surveys conducted by the Project staff. For each objective and activity head, surveys were conducted every year and the data for three years was consolidated in August-October 2014.

2. Profile of Project Area

Geographical profile

The 20 Project villages selected for intensive intervention are located in Tikamgarh block of Tikamgarh district, MP, at a distance of 20 to 40 km from Tikamgarh town, which is the headquarters of the district.

Tikamgarh district lies in the northern part of MP, and is bounded by of Sagar district in the south, Chhattarpur district in the east, Lalitpur district of UP in the east and Jhansi district of UP in the north.

The northern part of the district is at height of about 200m above the mean sea level (amsl), while the southern part is at a height of around 300m. Thus, the district's topography is marked by a gentle slope from south towards north.

According to geological formations, the district can be classified into two broad regions:

- Hill ranges rising to height of 200-400m amsl.
- Inter-hill valleys.

The hill ranges are made up of hard compact and resistant granite masses intruded by quartz reef. The valleys are covered by colluvial and detrital of parent rock along with organic material. The thickness of alluvial fill varies from 10-16 meters.

Soils derived from parent rocks are of four types:

- Coarse-grained reddish brown soils known locally as Rakar
- Coarse-grained grey to greyish brown soils known as Parua
- Clay loam black soils known as Kabar
- Clayey-black soils known as Mar

Table 2.1: Soil status

Parameter	Value	Rating
pH	7-7.6	Normal
EC	0.10-0.20	Normal
Organic carbon	0.27-0.70%	Low to Medium
Available phosphorous	2-12kg/ha	Low
Available potash	50 to 200kg/ha	Low to Medium

Soil parameters, as obtained from soil tests conducted in the Project villages, are generally as shown in Table 2.1

Climate and rainfall

The climate of Tikamgarh district is characterized by a hot summer and general dryness except during the southwest monsoon season. The normal maximum temperature during the month of May is 41.8° C and minimum during the month of January is 7.0°C. The mean maximum and minimum temperatures are 32.4°C and 17.5°C respectively.

The normal annual rainfall received by Tikamgarh district is 1057.1 mm. Maximum rainfall (about 90%) is received during southwest monsoon period from June to September. During the southwest monsoon season the relative humidity generally exceeds 87% in August. The driest part of the year is the summer season, when relative humidity is less than 35%. May is the driest month of the year.

Data on rainfall (Table 2.2) for 12 years shows that in 7 years before the start of the Project, rainfall was much below normal, and in one year (2007), it was 50% below normal. In 2 years, rainfall was much above normal. Highest rainfall generally falls in June-July. Due to the sloping topography, and the granite substratum, most of the water is lost in runoff.

Table 2.2: Rainfall data for 12 years

No	Year	Rainfall in mm in month (1-12)												Total
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	mm
1	2002	0	0	0	0.4	8	101	1	602.9	67.3	0	4.5	0	785.1
2	2003	0	24.2	0	0	0	98.8	213.8	172.4	444	0	0	5	958.2
3	2004	2.5	0	0	0	14	119	114.2	424	53	35	0	0	761.7
4	2005	0	0	27.4	0	0	38	556	74	111	0	0	0	806.4
5	2006	0	0	80	0	12	8.4	516.6	160.6	45	19.4	0	0	842
6	2007	0	44	10	0	6	12.1	64.9	134	60	0	0	2	333
7	2008	0	0	0	0	2	754	262	313	57	13	5	0	1406
8	2009	31	0	0	0	17	49	238	205	117	152	52	4	865
9	2010	0	34	0	0	0	15	201	191	157.01	16	13	0	627
10	2011	0	4	0	0	8	606	299	305	207	0	0	0	1429
11	2012	7	0	0	9	0	27	461	404	69	0	0	0	977
12	2013	0	86	7	0	0	170	620	476	5	81	NA	NA	1445

Land Use

Tikamgarh is a predominantly rural district with urban population restricted to 30% of total population. According to 2006-07 data from District Statistical Handbook, nearly 60% of the land is cultivated, and of this, over 50% is under double cropping. Only 5% of the land is under different categories of forestland. However, in one of the Adivasi villages covered by the Project (Sapon), the forestland is much in excess of the cultivated land.

Peoplescape

A total of 2565 families live in the 20 villages/hamlets covered intensively by the Project. Of these:

- 30% belong to SC groups
- 14% belong to ST groups and
- 56% belong to OBC groups.

The main SC groups are Ahirwar, Vanshkar, Chadar and Khangar. The main ST groups are Saur and Gond. The general population (less than 1% of total) consists of a few Thakur, Jain and Brahmin families.

A total of 16 of the 20 villages have a significant SC population, and in 5 villages (Madnikhera, Satyanagar, Gopalpura, Bhagalpura and Matapur), the SC population is

predominant. Half the villages have a significant ST population, and in 3 villages (Sapon, Sauryana, and Basiyan Khera) and Haidarpur adivasi basti, the ST population is predominant.

Livelihood pattern

The in-depth socio-economic survey of 95 target group HHs in 20 Project villages revealed that:

- Agriculture and wage labour were the main sources of livelihood of target group HHs, engaging over 80% of the HHs.
- Around 18% of HHs had at least one member who migrates annually to distant locations for 8-12 months.
- Around 50% the HHs got income from fruit and forest species trees, growing on their own lands or in forestlands, but quantum of income from this source was low.
- Only 25% of HHs got income from animal husbandry.
- Around 20% of HHs had small businesses, usually in trading.
- The number of HHs with at least one person having a salaried job was negligible.

Average gross income of surveyed HHs was Rs 56,000 per annum, which means that excluding cost of production in agriculture, average net income was less than Rs 40,000. This was reflected in living-standard indicators:

- While most target-group HHs lived in semi-pukka houses made of mud and stones, only 17% HHs owned motorcycles.
- Only 13% owned TV sets, and
- Only 14% used a \kerosene or gas stove for cooking.

Land ownership

Barring 6% of the total families, all HHs in the 20 villages owned some agricultural land. However, 44% of HHs owned less than 2.5 acres (1 ha) and another 38% owned between 2.5 to 5 acres (1 to 2 ha). Thus, 80% of the population comprised marginal and small farmers.

Water & irrigation status

In all villages, there were functioning handpumps. However, in 13 villages there were only 2 or less than 2 handpumps, and shortage of drinking water was experienced in summer months. In 10 villages, there were a total of 15 ponds, used mainly for washing and feeding water to animals. In all but 3 of the 20 villages, there were public wells. The water was used mainly for domestic consumption.

Groundwater tapped through private dug wells was the main source of irrigation in the entire Tikamgarh district, and the situation is the same in the 20 Project villages. Of the total 6823 acres of cultivable land, around 60% (4037 acres) was irrigated, and of this, around 67% was irrigated by dug wells. Three villages are near a river and in 15 villages there is a nalla nearby, and in 10 villages a total of 18 checkdams have been built by the government across these nallas or rivers. There is no canal irrigation in the selected villages.

It was seen that normally 80% of wells had water in kharif and rabi, and some amount of water in summer.

Cropping pattern

The 20 villages have a total of 6823 acres of cultivable land, of which around 80% (5485 acres) was sown in the kharif season, and around 70% (4919 acres) was sown in the rabi season. However, including around 7% of the sown area under different vegetables, only around 38% of the cultivable land was double-cropped, compared to the district average of 50%. A tiny part of the land was under cultivation in summer under some vegetable crops.

Wheat, soyabean, and urad were the major crops, accounting for 60% of the gross cropped area (10925 acres), with wheat occupying 26% of the area, followed by soyabean (19%) and urad (17%). The important minor crops accounting for over 5% of cultivated area were mustard, til and paddy.

Around one-fourth of households cultivated vegetables in kitchen gardens and/or parts of their land. The major kitchen garden vegetables were tomato, brinjal, bottle gourd, pumpkin and bhendi (lady's finger). The only vegetable grown on a large scale was onion, which was grown by a few farmers in areas over 1 acre.

Livestock

There were around 2700 heads of cattle owned by HHs in 20 villages. The productivity of the animals was quite low, with average daily milk production per cow being only 0.8 litres. Average milk production per buffalo was 2.7 litres. Only around a third of all HHs owned bulls. Most HHs depended on use of tractors for ploughing. Goat ownership was largely seen only in SC/ST HHs.

Public infrastructure

The 20 villages are well served by public infrastructure in terms of primary schools and electricity supply. In other respects, especially health and transport infrastructure, the villages are poorly served. However, most services are available near the village (within distance of 5 km).

Access to entitlements

A total of 2562 children were enrolled in schools in the 20 villages, but around 25% were not attending regularly. There were a number of families that saw no benefit in sending children, especially girls, to school regularly. Around 17% of HHs were not covered by PDS—they did not have any kind of card. Around 77% of HHs had MGNREGA cards. However, only a third of card-holding HHs had got work in the preceding 12 months.

Food insecurity

The in-depth study of 95 sample-HHs revealed that no HH suffered from chronic starvation. However, 48% HHs had less than 3 full meals a day, and 11% HHs reported that they sometimes cooked and ate grains of wild grasses.

3. Baseline and Endline Conditions Related to Project Objectives

This section discusses the baseline and endline conditions in the 20 villages covered intensively by the Project, in relation to the Project's objectives and activities.

Forming and building capacity of CBOs, especially of women

The in-depth HH survey revealed that the majority of women of target group HHs were already members of SHGs formed by DPIP and Tejaswani programmes. Hence, there was a limitation to formation of new women's SHGs. Despite this limitation, 95 new women's SHGs with over 1100 members could be formed. Further, while there were no other CBOs like farmer's groups and kishori mandals in the Project area, the Project staff could establish 47 farmers' groups and 21 kishori mandals.

Details of membership of CBOs formed under the Project are given in Table 3.1. As can be seen, 66% of members belonged to SC/ST groups.

Table 3.1: Details of CBOs formed

Type of CBO	Total formed	Total members	SC members	ST members
Women's SHGs	95	1179	310	384
Kishori mandals	21	159	96	63
Farmers' groups	47	372	205	87
TOTAL	**163**	**1710**	**611**	**534**

Table 3.2: CBO capacity building programmes

Head	No of Programmes	No of participants
Women's' SHG capacity building programmes	11	365
Farmer group training programmes	12	503

Much effort was made to strengthen CBOs through capacity-building and training programmes (Table 3.2). The in-depth survey had shown that around 40-50% of target group HHs have some knowledge about multicropping, optimum fertiliser use, optimum water needs and soil and water conservation methods, the number of HHs having "very good" or "good" knowledge about any improved agriculture practice was very low. Though over half the HHs knew about the benefits of organic manure, three-fourths don't know about the proper method for making it. Around three-fourths were ignorant about new seed varieties. Hence, a total of 12 training programmes, covering over 500 farmers were conducted to give knowledge on topics like scientific agriculture practices (like line sowing, and proper nutrient doses), rabi and kharif crop planning with appropriate seed varieties and organic farming.

Enhancing savings of women and role in decision-making

Women in the Project have traditionally been following 'purdah' (except in adivasi settlements) and their role in household finances and decision-making was minimal. To reverse this situation, the Project used SHGs as a platform for initiating household savings that would be controlled by women, and a platform for discussing women's rightful position in the home and the village. While some members of groups decided to save Rs 50 a week, most groups decided on a norm of Rs 10 per member per week. A total of 40 SHGs had opened bank accounts. Details of savings are shown in Table 3.3. Loans were given by the SHGs for purchase of agriculture inputs, meeting expenses on account of illness, meeting daily consumption needs and for starting a business.

Table 3.3: Details of SHG Finances till June 2014

Indicator	Amount (Rs)
Total savings	728,011
Cash in bank	352,293
Cash in hand	303,949
Inter-loaned	71,769

Scientific NRM, improved agriculture practices, & animal husbandry

Activities under this objective head included:

- soil and water conservation (SWC)
- water resource development and management (WRD &M)
- dryland agriculture development
- horticulture, livestock and alternative livelihoods development.

SWC

No SWC works like proper land bunding had been done in any of the Project villages at the time of the baseline survey. However, under the Project, till July 31, 2014, land bunding was carried out in 12 villages for the benefit of 207 HHs, on a total of 490 acres. Of the 207 beneficiary HHs, over 80% belonged to SC/ST groups (Table 3.4)

Table 3.4: Details of land bunding

Beneficiary HHs				Total area covered (acres)
SC	ST	OBC	Total	
52	123	32	207	490

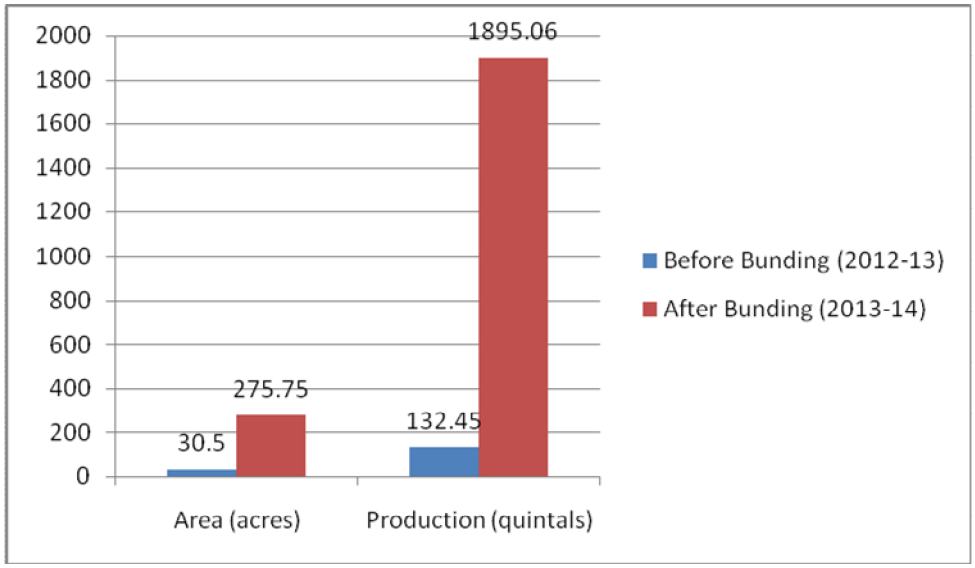
Effect of bunding

Bunding resulted in area and production under rabi cultivation, as well as increase in yields.

Figure 1 shows data for 126 farmers of 8 villages whose lands were bunded in 2013-14 As can be seen, there was a ten-fold increase in area and production in rabi cultivation.

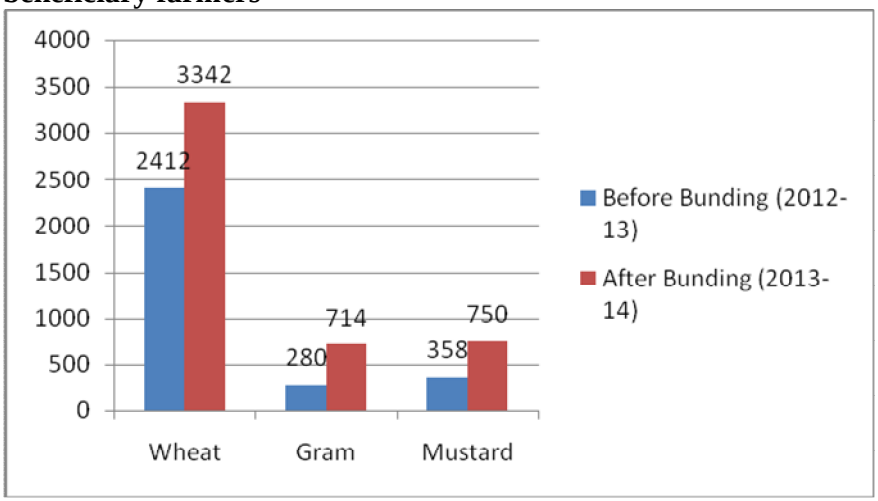
The increase in area was highest in the ST-dominated village of Sauryana, where 31 beneficiaries used to keep most of their total of 69 acres of land fallow in rabi. After bunding, they started cultivating all this land.

Figure 1: Pre- and post-bunding rabi-area cultivation and production of 126 beneficiary farmers



The increase in production was not only due to increased area under cultivation. Yields of rabi crops also increased as shown in Fig 2.

Figure 2: Pre- and post-bunding average yields (kg/ha) of rabi crops of 126 beneficiary farmers



Another notable impact of bunding was that it led to diversification of crop production, with 14 acres coming under barley (jau) production for the first time, and some HHs starting to cultivate vegetables also.

WRD&M

Under the head of WRD &M, activities to be conducted included construction of farm ponds and other structures, deepening of wells and promotion of water economization systems like drip irrigation.

New farm ponds

The baseline survey showed that there were no farm ponds in the Project area. It was also subsequently seen that farmers in the area were largely unwilling to forfeit some of their land for construction of farm ponds. However, through persistent efforts, the Project could motivate 17 farmers to construct farm ponds, with Project support, under the condition that the saved rainwater would also be used by nearby farmers. As a result of this effort, a total of 59 acres owned by 26 farmers (almost all from SC/ST groups) could be brought under irrigation. Additionally, two ponds on community lands were renovated, benefitting 31 farmers (27 of SC/ST groups) and 104 acres.

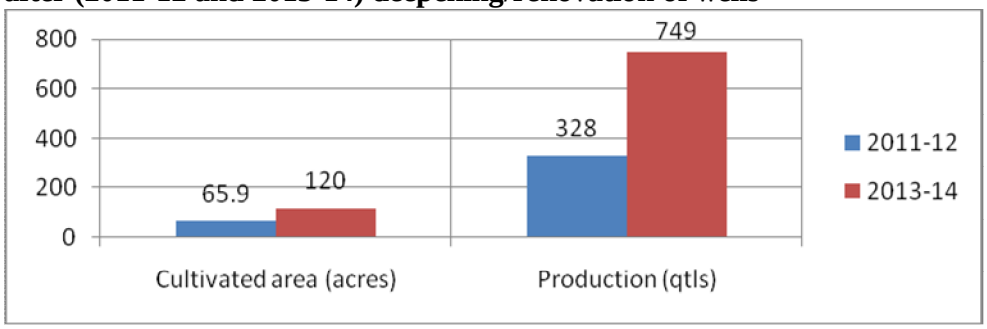
Improved well resources

While new wells could not be constructed due to Project budgetary limitations, 21 existing group wells were deepened and repaired, benefitting a total of 98 families, of whom 68 belonged to SC/ST groups. Group-well users (mostly belonging to extended families) have informally laid down rules for drawing water.

Deepening/renovation of dug group-wells more than doubled users' rabi agriculture production as seen in Fig 3, which shows rabi cultivation and production data of 62 users of 12 wells before and after deepening/ renovation of wells (in 2011-1 and 2013-14 respectively).

Increased availability of water led to increased area under cultivation as also increase in irrigation rounds, as a result of which yield increased. (Cultivated crops were wheat, gram mustard and barley).

Fig 3: Rabi cultivated area and production of 62 users of 12 group wells before and after (2011-12 and 2013-14) deepening/renovation of wells



Introduction of drip irrigation

Before the Project, farmers were not using any water economization systems like drip irrigation. But, responding to potential for vegetable cultivation in the area (with proximity to weekly markets), the Project introduced drip irrigation for vegetable-cultivation in a significant way, encouraging 38 families to HHs to use this technique for taking up vegetable production in a sustainable way.

Introduction of diversion-based irrigation

Another pioneering and innovative activity undertaken by the Project was installation of a diversion based irrigation (DBI) system in the Adivasi village of Sauryana, with labour contribution from the beneficiaries. The investment benefitted 40 Adivasi HHs owning a total of around 40 acres of land.

Dryland agriculture development

Agriculture development was done through three activities:

- farmer training programmes
- promotion of PoPs with input support, and promotion of Jeevamrut
- scaling up.

A number of farmer training programmes were organized as discussed earlier. For the first time, community members also got the opportunity to go on exposure visits to see development work:

- In October and December 2011, a total of 14 Project participants visited the Srijan site at Jatara.
- In February 2012, 6 participants visited the Pradan site at Kesla.
- In October 2012, 15 Project participants visited ABSSS's integrated watershed development programme sites in Chitrakoot, over 3 days.
- In December 2012, 30 participants visited sites of Bundelkhand Sewa Samiti (BSS) and Pradan at Lalitpur.
- In January 2013, 27 participants visited ABSSS's integrated watershed development programme sites in Chitrakoot and Banda, over 3 days.

- In July 2014, 212 participants made a 2-day visit to the KVK campus at Tikamgarh, to get exposure to improved practices in fruit and vegetable cultivation.

Use of PoPs

The in-depth HH survey done at baseline status had shown that around 75% of target group HHs were ignorant about appropriate and recommended seed varieties and around 50% had no knowledge of optimum nutrient doses. No farmer had knowledge of seed treatment or Jeevamrut. Farmers used poor agricultural practices like broadcast sowing, excessive use of seed quantity and sowing without seed treatment.

Hence, under the Project, 587 farmers, of whom 66% were from SC/ST groups, were encouraged to follow KVK-recommended PoPs for main kharif and rabi crops (Table 3.5), with line sowing.

Table 3.5: No. of farmers using PoPs by season/year and social group

Season/Year	No of farmers by social group				
	SC	ST	OBC	GEN	TOTAL
Rabi 2011-12	16	9	8	2	35
Kharif 2012	20	24	19	1	64
Rabi 2012-13	92	109	110	8	319
Rabi 2013-14	62	24	33	1	120
Kharif 2013	15	19	14	1	49
TOTAL	205	185	184	13	587

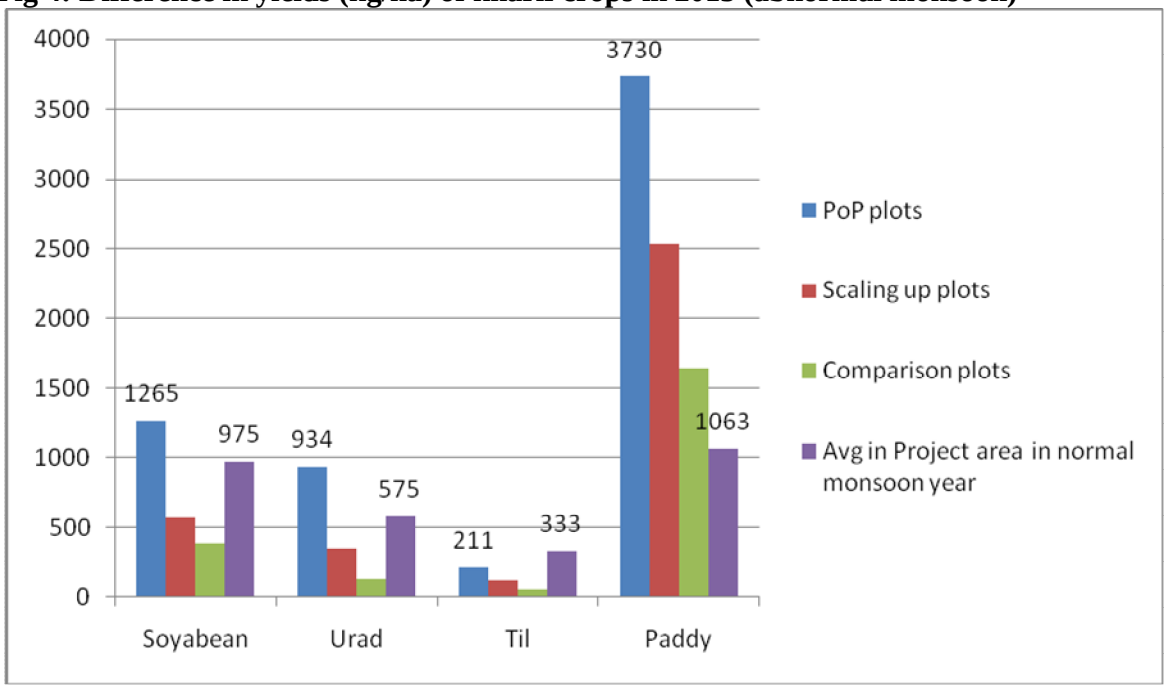
Input support was given in the form of certified seeds of recommended and locally available varieties, optimum quantifies of fertilizers (DAP, urea, MOP, zinc sulphate, sulphur), and cultures (Rhizobium, Azotobacter, PSB) and Trichoderma. Further, farmers were motivated and trained to use Jeevamrut.

Further, under scaling up activity, improved seeds and/or materials for seed treatment were provided, with related guidance, to a total of 3047 farmers, of whom over 66% of beneficiary farmers were from SC/ST groups (Table 3.6).

Table 3.6: No. of farmers using improved seeds/seed treatment, by season/year and social group

Season/Year	No of farmers by social group				
	SC	ST	OBC	GEN	TOTAL
Rabi 2011-12	1	20	7	0	28
Rabi 2012-13	385	441	290	84	1200
Rabi 2013-14	429	294	360	9	1092
Kharif 2013	255	195	275	2	727
TOTAL	1070	950	932	95	3047

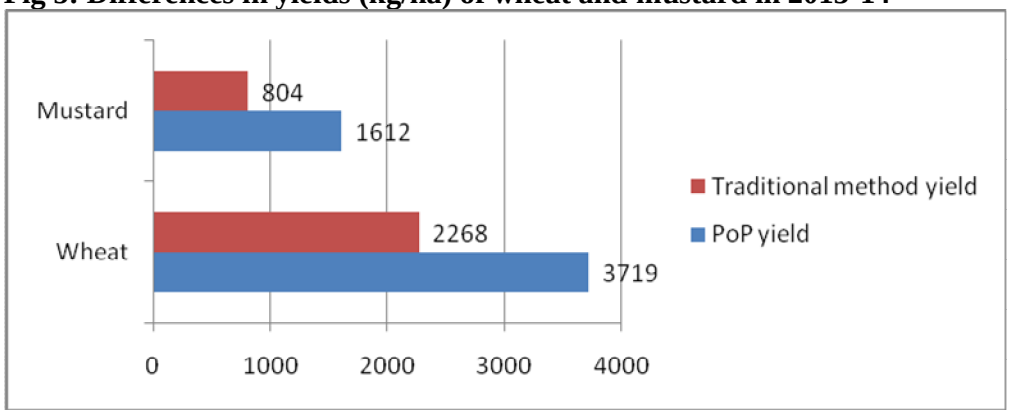
Fig 4: Difference in yields (kg/ha) of kharif crops in 2013 (abnormal monsoon)



Use of PoPs and improved seeds/seed treatment, along with line sowing, led to significant increases in yield, as can be seen in Figure 4 which shows 2013 crop-wise kharif yield data of (i) 49 sample PoP farmers (ii) 727 farmers covered under scaling up, (iii) 45 comparison farmers and (iv) average yield in Project area in a normal monsoon year.

It must be noted that there was excessive and untimely rains in 2013, leading to flooding of fields when crop was standing. As a result, the comparison farmers suffered heavy crop loss. But under guidance of Project staff, PoP farmers took measures to ensure that excess water was drained away and got very good yield. Even farmers covered under scaling up, who did not all take measures to drain excess water, got better yields than the comparison farmers. Except in case of til, which does not respond well to excess rain, the PoPs with use of Jeevamrut demonstrated huge yield benefits compared to average non-PoP yields in abnormal as well as normal monsoon conditions.

Fig 5: Differences in yields (kg/ha) of wheat and mustard in 2013-14



Likewise huge increases in yield were demonstrated for rabi crops like wheat and mustard as shown in Fig 5, which shows average yields obtained in 2013-14 by 33 PoP wheat farmers and 12 PoP mustard farmers, along with average yields obtained by farmers in comparison plots, using traditional methods. (PoPs were also promoted for gram and field pea in the year, but much of the crop was destroyed by untimely rains).

Introduction of SRI

While most of the Project area is unsuitable for paddy cultivation, paddy has been traditionally grown in a few low-lying areas with dark soils. However, yields were very low and farmers barely recovered cost of cultivation. None of the paddy cultivating farmers knew about SRI.

Hence, under the Project, 9 farmers (6 from SC/ST groups) from 6 villages were motivated to practice SRI on a pilot scale, and get first-hand experience of the benefits. Cultivation was done on plots ranging from 500sqm to 3200sqm. Recommended doses of urea, DAP and potash were given. Farmers also received training and used Jeevamrut and Agneyastra. The result was a record yield of paddy in the area, with average yield of 3730kg/ha.

Village Resource Persons tests

While there were no trained village resource persons at the time of the baseline survey, 13 farmers were given training to perform this role by the end of the Project period.

Soil tests

While no farmer had conducted soil tests before the Project period, a total of 70 soil tests were conducted by the end of the Project period.

Horticulture, livestock and alternative livelihood development

Vegetable cultivation as a source of income for SC/ST HHs

While small-scale vegetable cultivation was done in the Project area, many SC/ST HHs had never grown vegetables due to lack of knowledge and confidence. Also, use of good vegetable-seed varieties was uncommon. Hence, yields were low, cash returns from sale of produce were marginal, and no SC/ST HH was engaged in vegetable cultivation as an income-generating activity.

However, considering the prevalence of dug wells in the Project area, and its proximity to Tikamgarh town, the Project encouraged nearly 100 HHs, particularly SC/ST farmers, to take up cultivation of chilli, brinjal, tomato and other vegetables on a small but commercial scale, with help of Project support, in the form of quality seeds, fertilizers and guidance. These families were encouraged and trained to use Jeevamrut. They were also encouraged to grow fruit trees with the Project providing saplings of pomegranate (5320 nos), lemon (700), karonda (750), guava (675), amla (275) and mango (155).

As already mentioned, 38 HHs, of whom 30 belonged to SC/ST groups, were encouraged to install drip irrigation systems for vegetable cultivation, by availing generous 80% subsidy offered by the government, for installing drip irrigation in area up to 0.5ha.

Most of the drip-irrigation beneficiaries started vegetable cultivation in October-November 2013, and therefore they had only a few production months till end of March 2014. All the beneficiaries were doing commercial-scale vegetable cultivation for the first time. Crops were damaged in December 2013, due to unseasonal rains. But even with these limitations, the net income from vegetable cultivation with drip irrigation was attractive. Farmers got average net income of around Rs 13,000, from an average area of only 1400sqm, or one-sixth of a hectare, which was 8 times the average net returns from cultivation of wheat (Rs 11,000/ha) obtained in the Project area.

Similarly attractive returns were also obtained by other farmers who did not install drip irrigation systems and did vegetable cultivation on a commercial scale for the first time.

As a result of the attractive returns obtained from small-plot vegetable cultivation:

- Around 40 SC/ST HHs have decided to concentrate on vegetable-cultivation on plots of 1000-2000sqm, leaving aside wage-labour opportunities.
- Some HHs have also decided to invest in construction of a hut near their vegetable plot, so that they could take care of the plants better.
- 14 farmers, not supported by the Project, were motivate to take advantage of the government scheme for drip irrigation, and around 17 acres have been brought under drip irrigation in the Project area for the first time.

Livestock development

To initiate livestock development activities, a study was conducted on livestock population and management practices in Project area. However no HHs could be given input or technical support for higher income through livestock, mainly due to lack of accessible veterinary services in Project area.

Alternative livelihood development

As SHGs formed by the Project are in infancy stage, Project did not think the time was ripe to give grant support for alternative livelihood activities. However, without direct Project support, 8 Adivasi HHs started brick-making as an alternative income-generating activity on degraded soils, using water made available through the diversion-based irrigation scheme implemented by the Project.

Building capacity to claim entitlements

Under the objective of strengthening the capacity of CBOs to claim entitlements, the main achievement of the Project was that in Amarpur village, ST families could get to use 18.5 acres of land, for which the Forest department had earlier given pattas but did not allow cultivation. After submission of all evidence of entitlement and many rounds of discussion with Forest department, the families could get legal possession over the lands, which are totally worth nearly Rs 28 lakhs (@ Rs 1.5 lakhs/acre) as per local market rates. In Sauryana village, 62 ST families of got homestead land titles and possession on plots with aggregate value of Rs 4.34 lakhs. These families also benefitted from PDS regularization. As shown in Table 3.7 shows, entitlements worth Rs 33.22 lakhs were realized as a result of the Project.

Table 3.7 Value of entitlements realized

Head	Value
Homestead titles to 62 tribal families	434,000
Pension for 10 families	36,000
Benefits of Karmkar Yojna for 25 families	37,500
Installation of Handpumps	40,000
Possession over 18.5 acres land	2,775,000
TOTAL	3,322,500

Leveraging public funding and other resources

The Project made successful efforts to secure community contribution and new public investment in Project area. Through the Project period, the community made a total contribution of Rs 19 lakhs for development works, for the first time.

Under various heads shown in Table 3.8, community contribution was generally in the form of labour. However, under head of water economization approach, beneficiaries also made cash contributions (refer earlier discussion on drip irrigation systems).

Table 3.8: Community contribution to development works

Head	Value of contribution (Rs)
Well deepening	1,119,567
Farm pond construction	20,683
Construction of other water sources	15,528
Land bunding	106,220
Water economization	506,661
Horticulture	132,924
TOTAL	1,901,583

Table 3.9 shows new investment from different government schemes secured by Project for the benefit of the target group.

The total amount of new government funding secured through convergence was Rs 67 lakhs, of which nearly Rs 30 lakhs was secured, for the first time in the Project area, under the head of drip-irrigation subsidy.

Table 3.9: New govt funding secured in Project area

Item	Value (Rs)
Gram Beej Yojna (quality seeds)	20,000
New water sources (checkdams)	3,690,000
Drip irrigation systems	2,997,994
TOTAL	6,707,994

For the benefit of Project communities, the Project submitted required information to NABARD for a watershed development programme in the Project area. The estimated budget of the programme is Rs 2.63 crores. NABARD officials have already made preliminary appraisal visits.

To leverage funds available under MGNREGA, Project arranged for community meetings where development works were identified. Subsequently, estimates were prepared by the Project and same were approved by gram sabhas and sent to block officials for technical and financial sanction. The total value of the works awaiting sanction is Rs 1.53 crores.

Studies and visitors

While no studies had been conducted in the Project area before the Project period, the Project conducted the following studies:

- Rapid baseline study of 20 project villages
- In-depth study of 95 HHs
- Value chain study of major and minor crops (including vegetables)
- Value chain study of income from tree produce
- Study of SC/ST households doing regular seasonal migration in Project area
- Study of livestock ownership and management practices of target groups HHs
- Study of viability of small plot vegetable production with subsidized drip irrigation

The above studies were discussed internally, disseminated to technical advisors and SDTT officials, and made available through ABSSS website.

As a result of the Project, a number of experts, top officials and farmers and staff from other NGO-project areas visited the Project area for the first time, as shown in Table 3.10.

Table 3.10: Key visitors to Project

Date	**Visitor(s)**	**No. of persons**
May 12, 2012	Ram Gopal, IIT, New Delhi	1
July 1, 2012	SK Sonkar, DDM- NABARD, Tikamgarh	1
August 1, 2012	-"-	1
December 1, 2012	Ashish Yadav, BBC, New Delhi	5
December 28 & 29, 2012	Gram Unnati Sanstha, Mahoba	20
January 1, 2013	PL Solanki, Zilla Panchayat (CEO), Tikamgarh	3
January 23, 2013	Rural Development Department (Commissioner), District Collectorate, ZP, Janpad Panchayat	15
March 1, 2013	Bundelkhand Sewa Sansthan	20
March 1, 2013	Sanjeev Kumar, Goat Trust, Lucknow	1
March 1, 2013	Sagun Qureishia, Samhit Vikas Sewa Sansthan, Chattarpur	16
August 18, 2013	SS Kushwaha, Deputy Director, Horticulture	1
August 27, 2013	Dr RK Prajapati, KVK, Tikamgarh	1
October 07 & 08, 2013	Ram Ayer, P.S Chari, NABARD, Bhopal	1
October 16, 2013	Society for Pragati Bharat, Lalitpur	60

October 16, 2013	Sai Jyoti Pragati Sansthan, Lalitpur	30
October 20, 2013	Dr RK Prajapati, KVK, Tikamgarh	1
November 9, 2013	Dr Ram Vishal Singh, Principal Advisor, National Food Security Mission, Banda (UP)	1
November 11, 2013	Arunodaya Sansthan, Mahoba	15
November 11, 2013	Bundelkhand Sewa Sansthan, Lalitpur	20
February 3, 2014	Bundelkhand Sewa Sansthan, Lalitpur	15
February 12, 2014	Dr Himanshu Kulkarni, New Delhi	1
March 26, 2014	Yuvaraj Singh, MLC, Mahoba	1
April 13,2014	Devashish, Ashish Pandey, SRIJAN	2
May 7, 2014	Dr SS Gautam, Dr RK Prajapati, KVK Tikamgarh	2
July 18, 2014	Dr Sudam Khande, District Collector, Tikamgarh; Anay Dwivedi, CEO Zilla Panchayat, Tikamgarh; BN Singh, Dy Director Agriculture, Tikamgarh; Dr SS Kushwaha, Dy Director, Horticulture, Tikamgarh	4

As a result of the visits of District Collector, MGNREGA Commissioner, Zilla Parishad CEO and other officials, Project area received extensive coverage for the first time in local/regional newspapers like *Jan-Jan Jagran*, *Nav Bharat*, *Bundelkhand Jagran*, *Dainik Bhaskar*.

4. Summary

A summary of the baseline and endline conditions in the 20 villages covered intensively by the Project is given in Table 4.1 below under important heads.

Table 4.1: Baseline and endline status

Head	Baseline status	Endline status
Women's SHGs	Many SHGs already formed	95 new women's SHG formed
No. of farmers groups	0	47
No. of farmers trained in good agriculture practices	Negligible	> 500
No. of community members exposed to development work in other areas	Negligible	>300
No. of farm ponds	0	17
Area (acres) under drip irrigation	0	17
Area (acres) under diversion based irrigation	0	40
Area (acres) under land bunding for soil and water conservation	0	490
Soil tests done	0	70
No. of trained village resource persons	0	13
No. of farmers using PoPs, with line sowing, seed treatment	0	>500 farmers used PoPs. > 3000 farmers used improved seeds/seed treatments. Most beneficiary farmers using line sowing.
No. of farmers trained in using SRI	0	9
Overall increase in area and production under rabi cultivation	Only during years of good rainfall	In area covered by land bunding, ten-fold increase. In area covered by well deepening, nearly two-fold increase.
Overall increase in yields of major (wheat, soyabean, urad) and minor (mustard, paddy, til) crops	Only during years of good rainfall	30-80% and 100-200% increase in yields of main and minor crops respectively even in unfavourable rainfall conditions, due to use of PoPs, seed treatment, land bunding
No. of SC/ST farmers doing small-plot vegetable cultivation as an income generating activity	0	~ 40
No. of farmers producing and using Jeevamrut regularly	0	~50
Community contribution for devp works (Rs)	0	1,901,583
Value of entitlements realized through community effort (Rs)	0	3,322,500
Value of govt funding realized under a new head (drip irrigation) for the first time (Rs)	0	2,997,994

Appendix: Basic information of 40 Project villages

S. no	Panchayat	S. no	Villages	Total HHs	SC HHs	ST HHs
1	Dudatora	1	Dudatora*	330	30	40
		2	Magra*	202	10	60
		3	Gopalpura*	135	75	0
2	Parakhas	4	Parakhas	370	65	35
3	Amarpur	5	Amarpur	600	175	70
4	Darguan	6	Darguan	266	82	16
		7	Rajapur*	161	85	0
5	Antora	8	Antora	150	35	18
6	Haidarpur	9	Haidarpur*	30	0	30
7	Bhainswari	10	Veer Nagar	25	10	0
		11	Satyanagar*	45	45	0
8	Kakarwaha	12	Kakarwaha	400	220	0
		13	Madnikhera*	55	54	0
9	Umri	14	Matapur Khera*	60	12	4
10	Sapon	15	Sapon*	50	0	40
		16	Ratanganj*	60	0	30
		17	Harinagar*	40	16	0
11	Ajnor	18	Ajnor	479	114	38
12	Samarra	19	Madanpur*	42	12	0
13	Sukwaha	20	Kenwar	185	63	0
14	Laar	21	Sauryana*	64	4	59
		22	Bidiyator	30	20	5
		23	Khagrola	40	30	0
15	Dari	24	Dari	98	22	4
		25	Nagara*	400	90	0
		26	Rasoi	114	13	9
16	Ramnagar	27	Ramnagar*	305	60	0
		28	Suda Dharampura*	136	60	15
		29	Pureniya	200	50	5
17	Badmadai	30	Badmadai	500	70	8
18	Nainwari	31	Mayrikhera*	209	55	32
		32	Badi Bandhiya	180	0	63
		33	Basiyankhera*	68	0	36
		34	Nainwari khas	220	50	0
19	Sundarpur	35	Sundarpur Khas	380	160	30
		36	Saatlkhera	200	30	45
		37	Doliya Khera	120	10	90
		38	Majra*	98	41	12
20	Bakpura	39	Bhagalpur*	40	40	0
		40	Kachiyakhera	156	0	80
GRAND TOTAL				6566	1803	743

*Village selected for intensive intervention