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Reducing hunger and vulnerabilities in Hamirpur, Uttar Pradesh



June 2016 to July 2017

Implementation partner: Parmarth Samaj Sevi Sansthan

Supported by: PwC India Foundation



Message from Jaivir Singh



India has faced severe droughts over the years, which have drastically impacted the lives of many communities. As a Foundation, we initiated a baseline study in partnership with Parmarth Samaj Sevi Sansthan (Parmarth) to understand the issue in deeper detail, as well as to identify the needs of the affected communities within these regions who are constantly faced with drought.

A drought mitigation programme was initiated in the Hamirpur district of Uttar Pradesh. Ten villages which had experienced significant decline in groundwater levels, as identified by the Ground Water Department, Government of Uttar Pradesh, and declared semi critical were selected for intervention. In addition to the environmental challenges, these villages were also plagued by social issues such as caste discrimination and violence against women, especially among SCs, and hence there was a need for a programme which was more participatory and community driven but addressed the fundamental needs of a largely agriculture-based community.

A dedicated team from Parmarth reached out to the inhabitants of the selected villages and encouraged them to join and strengthen the local community-based organisations also called Pani Panchayats (PPs). This set the ball rolling for the villagers to participate in the welfare of their community and embed themselves in the interventions.

I'm pleased to acknowledge the efforts of Parmarth and PPs who worked together towards the welfare of the villages through initiatives such as the establishment of seed banks, cleaning the water bodies in the villages and interfacing with government officials for citizen rights. Parmarth conducted several on-ground trainings for farmers on different agricultural practices and also helped with the construction of check dams to hold water received during the monsoons. With continuous support to adopt more effective agricultural practices, many women initiated kitchen gardens in their houses; the produce from these gardens is being consumed in their own homes and is also being sold locally, thereby facilitating additional incomes for their households.

I had the opportunity to visit some of the seed banks and check dams in these villages, interact with PPs, and meet the farmers and the Parmarth team. I was deeply moved by the intensity of the Parmarth team and also by the willingness of local communities to look at solutions from a different lens.

Observing the positive impact created by the project at the ground level, we decided to initiate another intervention in the same block to address the water, sanitation and hygiene needs of the village. The commendable work of the members of the PPs has encouraged us to address the needs of the villages and showcase one village as a model village which can be replicated by other regions with similar issues.

We at the foundation will continue to look at regions which have limited interventions from the private sector so we are able to bring in best-in-class thought processes and partnerships to address some of our country's most challenging issues.

Regards,

Jaivir Singh Vice Chairman, PwC India Foundation

Message from Sanjay Singh



Parmarth, in collaboration with PwCIF, implemented a one-year project in the Sarila block of Hamirpur, Uttar Pradesh, with the aim of reducing hunger and vulnerabilities of drought-affected communities through water conservation and management. The mission of the project was to contribute towards achieving water and food security for vulnerable communities by creating models of groundwater recharge and advocating with government agencies for the setting up of drought mitigation programmes.

During the course of the project implementation, Parmarth played a key role in creating several best practice models that have influenced the lives of members of the community in terms of economic and social enhancement. Parmarth has brought about social change and has encouraged women and SCs, who displayed exceptional leadership qualities in the running of the community welfare initiatives, to participate in decision-making processes.

PwCIF has been consistently involved at every stage of this project. It has been an enriching experience to work with the Foundation's team, which has good experience and has shown timely support to ensure smooth implementation of the project.

Over the last year, we witnessed positive impacts of the work undertaken in all the 10 villages with support from PwCIF. With the intention to multiply the good work undertaken by our teams, another project in the Dharaupur village has been initiated. This project focuses on creating an open defecation-free model village. We are happy to see the commitment of the Foundation towards the welfare of the community living in Hamirpur.

I would like to express my gratitude to the Parmarth and PwCIF teams for their continuous support, making this project successful. I believe that together we have made a difference in the lives of the farmers. We will continue to invest our efforts in this direction.

Regards, Sanjay Singh Founder, Parmarth Samaj Sevi Sansthan Hamirpur is a district that falls in the **Bundelkhand** region of Uttar Pradesh and is surrounded by the districts of Kanpur and Fatehpur in the north, Banda in the east, Mahoba in the south and Jhansi and Jalaun in the west. Bundelkhand falls under the semi-arid region and experiences a minimum temperature of about 11.7 °C and a maximum temperature of about 43 °C.

Hamirpur district receives annual rainfall of 864 mm.¹ The Ministry of Panchayati Raj, Government of India, named Hamirpur as one of the country's 250 most backward districts (out of a total of 640). Hamirpur is also one of the 34 districts in Uttar Pradesh currently receiving funds from BRGF.²

Sarila is one of the seven blocks in Hamirpur district in Uttar Pradesh. This block has 84 villages and a total of 20,077 homes. The total population of the Sarila block is 108,780 and its overall literacy rate is 55%. The male and female literacy rates are 66% and 41% respectively.

A majority of the population living in Sarila block belongs to SCs and OBCs who practice agriculture, livestock rearing and forestry. However, over the last 15 years, the region has been experiencing frequent droughts, which has led to low or no agricultural yield adversely affecting household incomes. Further, the communities in the Sarila block also face social discrimination due to feudalism and caste structure prevalent in the villages.

The farmers of the identified villages have not had a stable life and income in the last two years. This has tempted many members of the community to seek work in urban areas and only a handful of the elderly of the villages have stayed back. Due to two consecutive drought seasons, three crop failures and large-scale migration, a majority of the agricultural land in this region remains unsown. With a majority of the men migrating, the women and children have been affected to a great extent. Wells and tube wells have dried up, causing women to walk more than one kilometre to collect drinking water. Women from these villages wait in queues for more than three hours to fill just one big jar of water. After a need assessment and baseline survey was conducted, PwCIF and Parmarth initiated a project in 10 villages of the Sarila block. The purpose of the intervention was to reduce hunger and vulnerabilities of the drought-affected poor and marginalised families. These 10 villages were selected based on the high needs and vulnerabilities experienced by the farmers. Since it was initiated, the project has focused on marginalised groups within the villages, with a primary emphasis on women.

Within one year, the project has achieved its objectives by involving the village community in PPs.³ The community members were mobilised to join and strengthen the PPs and take the lead in community welfare initiatives. A total of 10 PPs were revitalised in 10 villages with a total of **272 members**, including **233 women members**. These PPs played

a crucial role in the formation of seed banks across all 10 villages. The 10 seed banks set up in these villages ensured the availability of quality, improved and less water-intensive seeds, especially to small farmers. These banks preserved traditional seeds and also minimised the risk of drought-related vulnerabilities among small and marginal farmers in project areas. Over the last one year, **5,300 kg** of seeds were distributed to 323 small and marginal farmers and **5,967 kg** of seeds were returned by them, as per the by-law⁴ defined by the PPs to ensure the sustainability of seed banks.

The project created awareness on the importance of adopting improved agricultural practices by organising training cum on-field exposure and demonstrations. Behavioural change amongst farmers is reflected in the adoption of new agricultural practices such as the SWI, SVI and the LEISA methods of farming. Around 70% of the farmers adopted SWI and SVI techniques and LEISA, resulting in increased yield and reduction in the cost of production, which led to higher income levels among small and marginal farmers.

On receiving training, the farmers started using Jeevamrit and Amrit Pani in place of chemical fertiliser and pesticides in their farming practices. Many farmers also constructed vermicompost pits, which were supported by the District Agriculture Department under the district Jaivik Village Promotion Scheme. The same was used in their farm land. Small and marginal farmers also started **kitchen gardening** to grow **vegetables**, which enhanced their households' income and addressed the nutrition needs of their family members.

Through this project, the 10 villages were encouraged to prepare WUMPs. The focus was on the promotion of efficient water use measures in the villages. Active involvement of local communities was ensured during the preparation of these WUMPs to fetch out a comprehensive demand that would help with village development.

Though it is too early to assess the impact of the project in the lives of the targeted families, there is a clear indication that 2,025 families are experiencing improved sustainable means of livelihood. Through seed banks, 323 families became resilient towards drought as seed security created sustainability. Due to the construction of water structures as well as awareness on the implementation of WUMPs, along with the availability of irrigation facilities, the resilience of the communities has been enhanced. Additionally, adoption of vegetable production, kitchen gardens and other improved agricultural practices have led to an increase in the incomes of households in the villages. This has led PP members to begin advocating for the effective implementation of the PDS, ICDS, MGNREGA, MDM Scheme, NRLM and other government schemes in favour of eligible families or individuals in the project areas.

^{1.}U.B. Singh. (A.A.P: 2012-2013). Ground water brochure of Hamirpur District, UP. Retrieved from http://www.cgwb.gov.in/District_Profile/UP/ Hamirpur.pdf

^{2.} Planning Commission. (11 December 2014). Backward Regions Grant Fund for development of 272 districts in the country [Press release]. Retrieved from http://pib.nic.in/newsite/PrintRelease.aspx?relid=113113

^{3.}PP is a community-based village level organisation, which comprises a group of women and men who take up water conservation and management. PPs have evolved and become stronger during the course of project implementation as they have taken up the agenda of water management, improved agricultural practices and drought mitigation.

^{4.} Beneficiaries of seed banks will return the principle quantities of seed with an additional 25% for making it sustainable, as per the by-laws of the seed bank.

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About the report

Documentation process

The document highlights the best practices emanating from the project and the recommendations for future interventions in the region and similar terrains. This report has been prepared post completion of the project and consists of the major processes adopted by Parmarth and PwCIF towards achieving the desired objectives. The report will be shared with the representatives of PPs and government functionaries as a community-based drought resilience model to reduce hunger, promote drought risk reduction measures and enhance the livelihood status of the community members.

Introduction

Water conservation, management and adoption of improved and sustainable agricultural practices are important for not only meeting environmental goals but also reducing hunger and enhancing food security, especially in drought-affected regions where water levels have critically reduced. It is also important to promote mechanisms that efficiently use water in agriculture and allied activities and help in coping with challenges due to drought. The partnership with PwCIF encouraged Parmarth to demonstrate a successful model of water conservation and management, as well as improved and sustainable agricultural practices with the objectives to increase the livelihood status and year-long food security of the targeted poor and marginalised community groups in 10 villages of the Sarila block. The intervention helped in reaching **2,025 families** of the 10 villages selected for the project. As villages became aware about climate variability and change, the villagers enhanced their understanding of resilience and communitycoping mechanisms in drought situations.

Gefore the initiative undertaken by Parmarth, I faced a huge problem of insects and diseases in my crop, which affected the crop production. Parmarth introduced the method to prepare Amrit Pani and it has benefited the yield. Once I adopted the practice, I observed that my crop was no longer infected by insects. Chemical insecticide was also no longer required. I am happy that this also resulted in a greater yield of crops. 99

– Rampal Sriwas, Beelpur village

⁶⁶ My family and I used to repair our damaged bund, but it would further get damaged during the rainy season. This year the bund was constructed with the support of Parmarth and PwCIF. Now my agricultural land is much better as irrigation has improved. Now I will ensure that the needs of my family are fulfilled. I am happy with the work of the project in my village. 99

– Ramlal Ahirwar, Mamna village

In the development context, Bundelkhand is evidently backward and receives funds under BRGF.⁵ Nearly a quarter of the region's population are SCs and 82% of them live in rural areas. This region is also feudal till date and has high levels of social and gender discrimination. In economic terms, nearly 75% of the population is dependent on agriculture, a majority (more than 80%) of whom are small and marginal farmers. They are primarily dependent on rains for their small land holdings; 60% of the gross cropped area remains rain fed and is devoid of proper irrigation facilities.⁶

Historically, Bundelkhand is known for its lakes, ponds, tanks and wells that were critical for replenishing ground water reserves and preserving moisture in the soil. Today, deforestation, catchment area encroachment and consequent soil erosion (resulting in silting) have immensely affected all of the region's major reservoirs, lakes and ponds. The region has become a water-starved terrain and has been experiencing drought over the past several years—a situation that has further exacerbated the already hindered development of the region and its overall economy.

A look at the region's workforce statistics reveals that women are dominant among marginal workers. Of the total workforce, cultivators and agricultural labour comprise around 74.5% of the total workforce. The non-availability of regular wage work combined with low productivity from agriculture have led to high levels of migration. Most often, it is the men who migrate leaving the women behind, thus compelling them to not only look after their families' land holdings but also take care of their homes, young children and old parents.⁷

The region is infamous for drought since decades. Due to this, the entire region of Bundelkhand has been declared the most undeveloped and deprived part of our country. Despite many special packages from the government such as the Bundelkhand package and BRGF, the situation has not improved much. The key challenges that the region faces are water scarcity and drought, high rate of migration, risky and vulnerable agriculture, high rate of incidences of social discrimination, violence against lower castes and women, and continued feudal system. Sarila is one of the seven blocks of Hamirpur district in Uttar Pradesh which has been severely impacted by drought over the last eight years, out of which three were consecutive. Through support from PwCIF, Parmarth conducted a baseline assessment, which led to the identification of villages where most of the farmers were small and marginal and were struggling to cope with the consequences of drought. The assessment also indicated that the farmers were in dire need of support and guidance. The district profile of Hamirpur and details of 10 project villages are presented in **Annexure 1**.

In the villages selected under the project, there were approximately 3,694 households in which 19,755 people live. Out of this 5,109 people belong to SCs. They subsist on farming and when the harvest is poor or the crop fails, as is often the case because Sarila block falls in a severely droughthit region, majority of families migrate to nearby towns in search of work.

There are constant challenges faced by the community members on different issues. However, water is one issue to which most of their misfortunes are linked—a scarcity that manifests itself in a myriad ways, ranging from ill health of the community and livestock to failed crops.

While finalising the 10 villages for the project, it was identified that out of 2,500 families, there are 1,127 households with an annual income less than 60,000 INR. Out of these, 14% of the households have agriculture as their main source of livelihood, 66% of households earn money from livestock rearing, agricultural wage labour and daily wage labour work. Further, 20% are employed for labour work on others' fields or nearby industries. Due to drought conditions and the lack of employment opportunities, 42% of households opt for migration in search of livelihood, out of which 27% migrate for a period of 6–9 months. Further, with resultant crop loss and poor crop yield, only 30% of households had food security while 70% were not able to secure food throughout the year.

5.BRGF of the Government of India was launched in 2006. The fund covers 250 districts in 27 States and is designed to redress regional imbalances in development.6.Women's Feature Service and Parmarth, 2012

7.Women's Feature Service and Parmarth, 2012

Project objectives

Parmarth conceptualised the project towards reducing hunger and vulnerabilities in drought-affected areas through water harvesting and management in 10 villages of the Sarila block. The selected area in Sarila block has been declared semi-critical, which means that ground water exploitation is more than 70%. The 10 villages were selected due to their remoteness, high concentration of SC population, high level of soil erosion, lack of irrigation facilities and continuous drought for three years.

Objectives of the project:

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- Water management: Designing a water conservation, protection and management model which is sustainable and can be replicated in other marginalised communities.
- **Improved agricultural practices:** Promotion of improved agricultural practices and cropping patterns through measures such as water use efficiency in agriculture through demonstration and on-field training.
- Enhancing livelihoods and food security of target communities.
- Strengthening the community through convergence: Mobilising and strengthening the community members with knowledge and guidance to work towards sustainable solutions and enhancing the linkage of villagers with government officials and PRIs for sustainable development.

Key processes followed in due course of project implementation:

- 1. Mobilisation of community members, especially women and SCs.
- 2. Formation and strengthening of community-based PPs for preparation/facilitation of community WUMPs that address the community's water issues.
- 3. Addressing the immediate needs of the community members by reducing the risks of drought and minimising the recovery period of the affected communities.
- 4. Construction of community-based, cost-effective water harvesting structures.
- 5. Model demonstration of improved and sustainable agricultural practices towards promotion of adoption measures for climate change.
- 6. Facilitating visits of government officials to interact with PPs. Through visits from government officials, resources are mobilised via institutional linkages and convergence approaches.

Gefore the seed bank was set up in my village, I did not have access to seeds for sowing. In these adverse conditions, I got gram seeds from the seed bank which enabled me to produce 600 kg of grams in my field. I want to sincerely thank Parmarth and PwCIF, who understood our challenges and came forward to support us.

– Saddik Khan, Mamna Village

⁶⁶ Being able to demonstrate the model of drought resilience with the collective support of community members, small farmers and representatives of the PP gave me immense satisfaction. *99*

-Satish Chandra, Team Member, Parmarth.

Key project results

The project was conceptualised to meet the needs of the community. It was further mapped across different dimensions such as relevance, effectiveness, efficiency, sustainability and impact in due course of planning and implementation of the project.

Relevance of the project

The project helped in reaching poor, small and marginal farmers. Further, it had a special focus on women, the SC community, as well as members from minorities living in selected villages. These sections of society have been subjugated to social discrimination and hence are exposed to greater vulnerabilities. Through project support, final beneficiaries were selected through participatory processes. These processes are expected to address their immediate needs in a planned and organised manner. The project location along with the district, block and other neighbouring villages suffers from acute climate variability and social vulnerabilities. Hence, the project interventions were very relevant to the geographical context.

With an increase in the demand for water, the farmers experienced huge debts, which lead to extreme vulnerabilities. The excess use of chemical fertilisers, pesticides and unsustainable practices in the project areas was adding to the overall financial burden. The project introduced organic farming and LEISA practices through trainings and demonstrations. Upon experiencing the benefits of these initiatives, other farmers also adopted the improved agricultural practices. This finally contributed to reducing overall input costs.

Efficiency

The project mobilised community members and ensured inclusive planning processes at the village level to prepare the WUMP. PPs carried out the intervention and implemented action through project support, as well as mobilised resources from panchayat members and government officials. The water conservation and harvesting structures were constructed in a cost-effective manner under the ownership of PPs of respective villages. At the ground level, local labour, materials, knowledge and engineers were engaged, due to which costs were almost two to three times lesser than government estimates. The representatives of PPs showed their commitment at the ground level, as well as fully adopted the agenda of water conservation, protection and management, and improved agricultural practices.

Effectiveness

The project created awareness among community members on water conservation and management and has also made them aware of the benefits of adopting improved and sustainable agricultural practices. The construction of water structures helped in bringing more land under irrigation, provided critical irrigation during the rabi season and supported in the recharging of water sources. The introduction of the micro irrigation system (sprinkler set) has promoted water saving and environment-friendly solutions for small and marginal farmers. SWI, SVI and organic farming practices were also widely adopted by small and marginal farmers across project villages. Many farmers adopted organic farming practices like Jeevamrit, organic pesticide called Amrit Pani, vermicomposting and screening of quality seeds. The techniques on improved agricultural practices like line sowing, transplantation of seedlings instead of random sowing of seeds and other sustainable agriculture practices resulted in the reduction of input costs to an extent of 30–40% and increased yield by 25%.

Regular inputs and facilitation by the project team members during the meetings of PPs effectively contributed in boosting motivation and learning new knowledge and skills among members.

Sustainability

Since the beginning of the project, Parmarth has involved community members and formed a community-based institution. The project facilitation helped in the formation of PPs in all the project villages, which has helped taking the water management and improved agriculture agenda forward as per the action plan of WUMP. Water user groups have also been formed around the water structure for ensuring repair and maintenance of the structure. It is expected that PPs will independently carry forward the project agenda in their respective areas.

The project has facilitated the formation of a seed bank with support from the community. The seed bank was formed to make quality and improved seeds available and preserve traditional seeds for future use. Further, 5,300 kg of organic seeds were distributed among 323 farmers and 5,967 kg of seeds were returned by the beneficiaries, which is an indication towards ensuring sustainability of the seed bank. It is evident that the seed bank will be functional in the project areas and continue contributing towards resilience of the community members.

Impact

Increase in water storage capacity

Through support from PwCIF and Parmarth, a total of **4,948.707 m**³ of water has been conserved after the construction of eight water bodies. These water harvesting structures also contributed to increasing the ground water table through conserving water in water bodies. Around **96 farmers** are able to access irrigation facilities, covering 121.68 acres. This water storage would continue to serve as an irrigation source to 127 farmers and 182.07 acres of land.



Construction of water harvesting structures

Change in the cropping pattern

More than **1,250 farmers** in the project intervention areas changed their cropping patterns. These farmers initiated the sowing of low water intensive crops like gram, mustard and pulses. Additionally, 67 small and marginal farmers started using organic manure made from cow dung. Communities from target villages were sensitised through sessions on themes such as health, nutrition, water conservation and sanitation. They also established **65 kitchen** gardens to re-use domestic waste water.

Improved agriculture practices

Parmarth trained 11 farmers through field demonstrations on improved agricultural practices which impacted and resulted in 241 additional farmers adopting SWI and SVI methods in their fields. These efforts not only contributed in good crop production but also reduced input costs.

PPs

SCs and women from the target villages are able to participate in the discussions, share their concerns, engage in the repair and maintenance of water sources/structures, etc. Women and men under the leadership of PPs also contributed their labour towards cleaning of the ponds in the project areas. PP committees started putting regular efforts towards drought mitigation and water conservation in 10 villages in the project area.

At the meeting of PPs, efforts were made towards the promotion of biofarming. In this reference, demand from the community was listed out for the construction of vermicompost and the same was submitted to the respective gram panchayats and the Department of Agriculture at the block level. As a result, **140 vermicompost** pits were established through the convergence of funds from the local Agriculture Department in Atrauli, Mamna and Barahara villages. The department and the respective gram panchayats contributed towards the process of vermicompost construction.

Motivated by the outputs of the project, representatives of PPs prepared a list of 538 families who needed toilets in their homes. As a result, **400 toilets** were constructed in Mamna, Beelpur, Barahara, Neolibasa and Jalalpur villages through their respective panchayats under the Swachh Bharat Mission.



A pond cleaned with help from PP members

Seed banks and climate-based seed conservation

Under the leadership of PPs, 10 seed banks were formed with 14 members in each PP. As stated earlier, Parmarth provided 5,300 kg of seeds to the farmers and the community returned 5,979 kg. This exercise is further meant to be undertaken with 323 farmers in the coming rabi season. The farmers collecting the seeds and returning them to the seed banks ensure not only the availability of seeds for the community but also sustain the livelihood of the farmers. These less water intensive seeds have been conserved in 10 villages of the project area through established seed banks.



A farmer who used seeds acquired from the seed banks shows off his abundant yield

Food security

Through the intervention, 3**50 families were guranteed a**ccess to year-long food security. The standard of living of the target small and marginal farmers became better due to the adoption of improved and sustainable agriculture practices in the project areas. Around **13,69,290 kg** of additional production of mustard, wheat and gram was harvested by farmers due to seed support from the project. The total income generated by the beneficiaries was **19,17,006 INR**.

⁶⁶ This has truly improved our lives and the beneficiaries of the seed bank are so happy. The quality of the seeds available was very good and resulted in a total crop production of 800 kg. *99*

– Kamla Devi, Rerua Bujurg village

The project strategy targeted four specific aspects around which activities and interventions were designed.

Selection of target villages at the field level

As per the project guidelines and indicators, Parmarth had selected 10 villages from the Sarila block of Hamirpur district. Analysis of secondary information helped in the finalisation of villages. Indicators like high population of marginalised community members, severity of water scarcity and the lack of livelihood sources were considered during the selection of the project villages.

Orientation of project team members

Day-long orientation meetings of project team members were organised at the Orai office in Uttar Pradesh on 30 August 2016. The purpose of the meetings was to develop clarity about the project concept, processes, approaches and expected outcomes from team members. Mr Anil Kumar Singh, Project Director, Parmarth, facilitated the orientation meeting. He explained in detail about drought and climate change in the context of the Hamirpur district. There were 10 team members present during the meeting. The participating team members also developed project implementation plans during the meeting.

Formation and strengthening of village-level CBOs

The project has revitalised and strengthened 10 village CBOs, which are locally called PPs, across all 10 villages of the project areas. The function of PPs comprises water user groups for each water body, election of leadership in the running of PPs, ensuring decentralised decision making with the involvement of all sections of society, conducting monthly meetings to review, plan, work and resolve conflicts, ensuring equal water distribution and maintenance of water structures. The project team mobilised people from all sections, especially focusing on SCs and women. Through individual and group interactions, the community members were motivated to build associations with PPs.



A PP meeting

PPs were formed at the start of the project in July 2016. The purpose of formation of the PPs was to promote a culture of community participation in PRIs and incorporate the agenda of water and sanitation in PRI bodies. The other purpose was to promote community action and strengthen the system of demand and supply in favour of poor and marginalised groups. A total of **272 members**, including **233 women** members, were associated with PPs across the 10 selected villages.

The project team members, along with support from representatives of PPs prepared by-laws and shared them with all the members during respective meetings. The project team members helped in the internalisation of the basic principles of PPs among their members and leaders. These principles covered equity, demand management and community participation, with a focus on women and marginalised groups and the sustainability of resources. The project facilitated village-level meetings of PPs, in which discussions were held about the need for water conservation and protection, as well as promotion of water use efficiency in farming.

In addition to regular monthly meetings, need-based meetings of PPs were conducted in all 10 villages. In total, 90 meetings of PPs were held at the village level during the project period. The discussion points in these meetings revolved around village development issues such as water availability, livelihoods, agricultural practices and social security schemes implemented by the government. The members of PPs maintain a register of the people attending the meetings, decisions taken and the action points for respective members of the community. There were **780 women and 535 men** who participated in these meetings across 10 villages.

Key issues discussed during the PP meetings:

- Preparation of WUMP and related responsibilities
- Awareness about minimising drought impact through the adoption of improved agriculture practices such as SWI, SVI, LEISA and the preparation and usage of Jeevamrit and Amrit Pani
- Cost-benefit analysis between traditional and improved agriculture practices
- Awareness and benefits attached to kitchen gardens through the utilisation of waste water
- Awareness about change in cropping patterns and the adoption of vegetable farming
- Concept of a 'seed bank'
- Identification of beneficiaries such as small and marginal farmers for seed support
- Labour, water structures, cleanliness of ponds, etc.

Key outcomes of PP meetings:

- 10 WUMPs were prepared with the villagers, which included participation of SCs and women, as well as representatives of PRIs.
- PP encouraged the community members to contribute labour for the overall benefit of the community. During the project tenure, four ponds were cleaned across four villages. This developed a feeling of collective responsibility amongst the community members.

- Participatory processes were followed in the selection of project beneficiaries for key project activities such as seed banks and kitchen gardens, which is a change from the feudal system practised amongst the villagers.
- Community members, under the leadership of PPs, started voicing their demands in front of the concerned authorities. For instance, the community placed the agenda of a check dam construction in Barahara village to the representatives of the Minor Irrigation Department, Uttar Pradesh.
- 400 toilets were constructed in Mamna, Beelpur, Barahara, Neolibasa and Jalalpur villages through the respective panchayats under the Swachh Bharat Mission.
- 140 vermicompost pits were constructed by the respective gram panchayats under district Jaivik Krishi Yojna in Mamna, Atrauli and Barahara villages under the leadership of PPs.
- 22 hand pumps were repaired through gram panchayat funds in Jalapur, Mamna, Beelpur, Neolibasa and Atrauli villages under the leadership of the respective PPs.



Members of PPs discussing their issues with government officials

Baseline survey across selected villages

Under this project, a questionnaire was developed to conduct a baseline survey across the 10 selected villages. The purpose of the baseline survey was to assess the socioeconomic profile and status of ongoing practices of water and soil conservation and water use efficiency in agriculture in these villages. A survey of households was conducted on the basis of a defined set of questions. Team members of Parmarth interviewed the head of the households and collected the required information. A total of 2,193 households were interviewed by the project team members, along with four village-based local volunteers. Twenty FGDs were conducted. Separate FGDs were conducted with women and men, small and marginal farmers, and landless families. The team collated the baseline information and further analysed the data collected. The final baseline survey report helped in the identification and selection of target households. Information related to drought resilience, cropping patterns, water use efficiency measures, and soil and water conservation methods was also collated in the baseline report.

Key findings of the baseline survey

- **Population:** A total of 2,193 households were surveyed. The total population of these households was **10,079**, out of which 4,735 were women. Further, 36% of the households interviewed belonged to SCs.
- **Income status:** 1,127 households had an annual income less than 60,000 INR.

• Livelihood:

- 14% of the households earned their income through farming, while 66% of the households had multiple sources of income that included farming, livestock rearing, agri-wage labour, and daily wage labour.
- 44% of households opted for migration in search of livelihood, out of which 27% migrated for a period of 6–9 months.
- **Food security:** Only 30% of households were found to be food secure, while 70% were found to be struggling.

• Land use:

- 4,524 acres of agricultural land is being used by 2,193 households
- 35% of agricultural land was found to be un-irrigated
- 127 acres of land was found not being used for agricultural purposes
- 55% households were using traditional seeds for farming
- Agricultural practices:
 - Organic farming: Only 3% of the families were found to be practicing organic farming. The remaining 97% were dependent on the use of chemical fertilisers, which required the use of excess water. As per FGDs, it was found that the practice of using chemical fertilisers meant that farmers were unable to obtain any profit from the input costs and were only able to take 1–2 crops in a year.
 - Soil conversation: 19% of the households were using bunding as a technique to conserve soil on their land.



An FGD in session

Sukha mitao jagrukta abhiyan – a drought mitigation awareness campaign

Parmarth conducted a five-day awareness drive called 'sukha mitao jagrukta abhiyan' in the project villages. The purpose of the campaign was to create awareness amongst villagers about:

- 1. Measures related to drought resilience
- 2. Techniques to improve agriculture farming
- 3. Water-use efficiency and soil and water conservation

Learning materials such as leaflets and posters were used during the campaign. This led to intensive discussions with the villagers, both in groups as well as individually, to understand the severity of the issues. The other purpose of this campaign was to demonstrate the impact of the water conservation and management model to the villagers.

Prior to the awareness campaign, the villagers had requested gram panchayats to clean and revive the ponds. In the absence of positive support from PRIs and government officials, PPs decided to come together to revive the ponds. The Pukri pond was cleaned and revived through the support of 26 women and men who contributed one day of labour to clean the surrounding areas of the pond. This improved access to water for animals and domestic purposes. It also helped to assure irrigation of the agricultural land in the upcoming rabi crop season.



Village members participating in the sukha mitao jagrukta abhiyan awareness session

Preparation of WUMPs

The project created awareness on WUMPs across the villages. The PRA method was used for planning action steps in which women and SCs were also actively engaged. The exercise of creating WUMPs was useful in designing various interventions in the village and for galvanising the community to conserve water and improve agricultural techniques. The WUMP process enabled the village community members to **identify**, **prioritise** and focus on **implementation**. WUMPs comprise holistic, participatory and inclusive planning processes that take an integrated approach to the management of water resources and ensures adequate water usage at the village level. WUMPs have empowered the marginalised groups to claim their rights to an equitable share of water within the community. These plans also helped local governance bodies such as PRIs to better identify and prioritise the needs of the community.



Preparation of a WUMP

Seed support for poor and marginal farmers

The project assessed the local needs and demands of the community members across all the project villages. One issue that arose was the farmers' inability to store seeds due to drought. In this situation, the organisation under the leadership of PPs established 'seed banks' at the village level. Detailed by-laws of the seed banks were prepared in consultation with representatives from PPs. Accordingly, the project has provided 5,300 kg of seeds to 323 of the most vulnerable and deprived farmers as immediate drought relief support.



Seeds being distributed to farmers

Creation and revival of the water harvesting structures/bodies

Under the project, feasibility and technical assessments were conducted in the project villages, with the support of representatives from PPs. The focus was on the creation and revival of water harvesting structures with active participation of the local community. PwCIF and Parmarth extended their support towards the construction of four water outlets (two outlets in Mamna, one in Harsundi and one in Rerua Bujurg) and four earthen dams (two in Rerua Bujurg and two in Barahara village). The project has supported the development of a 'community monitoring system' led by PPs towards proper management, utilisation and maintenance of these structures. It is expected that the creation of these water bodies will contribute to increasing the ground water table as well as recharging existing water resources in the area. It will also help to ensure better access to safe drinking water and improving irrigation facilities for farming. This effort will ensure irrigation of 121.68 acres of agricultural land, belonging to 96 farmers in the target villages.



A water harvesting structure constructed with support from PwCIF and Parmarth

Repair and maintenance of drinking water sources

As the project area is a drought-prone region, there is a tremendous lack of drinking water. To ensure availability of drinking water to the target community, the PPs prepared a plan to repair and maintain the non-functional hand pumps in their respective areas. Furthermore, the project supported the repair and maintenance of nine pumps in five villages in the project area—that is, Kariyari, Neolibasa, Barahara, Beelpur and Mamna. Through this effort, a total of **171 households** now have access to drinking water.



Repair work of a hand pump

Name of the village and site of construction	Total number of farmers benefited	Assured irrigation areas (in acres)
1. Outlet construction at the field site of Shri Gangadeen in Mamna village	20 farmers	23.87
2. Outlet construction at the field site of Shri Jasram Lodhi in Harsundi village	15 farmers	19.09
 Outlet construction at the field site of Shri Dhanu in Rerua Bujurg village 	9 farmers	8.75
 Outlet construction at the field site of Shri Kalaa in Mamna village 	18 farmers	19.47
5. Earthen bund construction at the field site of Shri Jamuna Das in Rerua Bujurg village	09 farmers	12.73
6. Earthen bund construction at the field site of Shri Shivdas Kewat in Rerua Bujurg village	08 farmers	11.52
 Earthen bund construction at the field site of Shri Khajju Ahirwal in Barahara village 	10 farmers	18.29
8. Earthen bund construction at the field site of Shri Dasrath Yadav in Barahara village	7 farmers	7.96
Total	96 farmers	121.68 acres



Promotion of the micro irrigation system

Due to successive droughts, the project area has witnessed decreasing ground water tables. Moreover, there has been a dominant practice of flood irrigation in agricultural farming. In many areas, farmers are hesitant to use micro irrigation practices as they believe that access to water would result in a better yield. Through continuous discussion, the farmers from Neolibasa expressed their willingness to try MIS. The programme introduced a new intervention, a 'sprinkler system', which can irrigate the entire soil surface. Through support from the project, two sprinkler sets were used on 16 acres of land belonging to 13 farmers from Neolibasa village. The total yield was approximately **14,000 kg** of wheat. The farmers expressed that **40% of their water** was saved, which in turn reduced their cost of irrigation.



Promotion of the micro irrigation system

Demonstration and on-field training

The project created awareness on sustainable and improved agricultural practices among villagers in the project areas through meetings, trainings, exposure visits as well as demonstrations by the Parmarth team. The farmers learned about sustainable agricultural practices such as efficient use of water.

The project provided on-field demonstration support to 11 small and marginal farmers on LEISA. Through this, eight demonstrations of SVI and three demonstrations of SWI were conducted in six villages of the project area. The beneficiaries for these demonstrations were selected through the PPs. A PoP was agreed upon and shared with the farmers to improve upon their capabilities. The PoP included advice on nutrient management through crop rotation, composting, cover cropping, farm diversity, intercropping, green manuring, use of panchgavya, bio-fertilisers. Additionally, advice on pest, disease and weed management through mulching, biological pest control, botanical extracts, neem and cow urine was also provided.

- Eight SVI demonstrations were conducted with the support of farmers in Rerua Bujurg, Harsundi, Barahara, Jalalpur, Kariyari and Neolibasa villages. Seventy farmers attended the eight demonstrations to gain a better understanding of and to receive training on adopting improved agricultural practices. Each training was demonstrated on one bigha of agricultural land. In the vegetable demonstrations, these farmers sowed ridge gourd, bitter gourd, tomato and brinjal in their respective fields. These farmers had received quality seeds from the seed banks and applied the knowledge of Jeevamrit and organic manure for plant protection. As an outcome, these farmers experienced a 1.5 times increase in vegetable production, which not only met their domestic needs but also managed to give them additional income through the sale of these vegetables. Further, **277 additional** farmers adopted the SVI method, causing their vegetable production to increase by 40%.
- Three SWI demonstrations were conducted with the support of farmers in Mamna and Barahara villages. Through these demonstrations, three farmers increased their wheat production and yielded **1,000 kg wheat per bigha** as compared to 400–500 kg in previous production cycles.

These benefits were further shared amongst **241 farmers** in the project area. It was reported that nearly 50% of farmers adopted the improved agriculture methods, which saved 20–40% of water. The total crop production was a whopping **13,69,290 kg** which provided enhanced food security to the farmers.



A farmer on his flourishing field

District-level convergence meeting with PRIs and other government functionaries and beneficiaries

The project conducted a district-level convergence meeting on 13 May 2017 in Beelpur village of Sarila block. The project included PRI representatives and other government functionaries. The purpose of the meeting was to implement a **WUMP** in Beelpur village. The project provided a platform for community members to voice their concerns related to water issues and other village developmental needs in the presence of government functionaries and representatives of PRI bodies. Those present included Shri Gajendra Pratap Singh, Block Development Officer, Sarila, Shri Baladeen, Gram Pradhan of Beelpur, Shri Sudama, Gram Pradhan of Bargua and Smt Rajkumari, Gram Pradhan of Mamna village.

A district-level convergence meeting

The PwCIF and Parmarth team members were also present at the meeting. Community members mainly showcased the benefits of the seed bank, kitchen garden, SWI and SVI, Jeevamrit, etc. The community members shared their views on the success of the project intervention. Representatives of PPs also presented their roles, contribution and learnings in preparation of the WUMPs. More than **200 community members** witnessed the benefits of the project interventions and its success in the interest of poor small and marginal farmers.

After learning the benefits of seed banks and water outlets, Mr Jaivir Singh handed over the seed bank and water outlet unit of Mamna village to the community members. This ceremony also acknowledged the adoption of good practices and training and support received by Parmarth and PwCIF. During the closing ceremony, plantations were carried out in the surroundings of the Panchayat Bhawan by **members** of PPs and Parmarth's representatives.

Participating members observed the project's successful intervention in minimising the risk of drought through increasing the resilience power of the communities, as well as through the adoption of improved agricultural practices. Mr Gajendra Pratap Singh assured the representatives of PPs of the implementation of WUMPs in different villages.

Solar lantern distribution

With support from PwCIF, Parmarth distributed **1,000 solar lanterns** to members of PPs and other families in need to assist them in their lighting needs. The selection of beneficiaries was done during a meeting with the respective PP. During distribution, Parmarth and PwCIF members explained the use, maintenance and benefit of solar lanterns. The solar lantern distribution largely helped women and differently abled people in carrying out their chores smoothly. It also saved households the cost of purchasing kerosene oil.

Use of solar lamps in households

⁶⁶ Parmarth, with the support of PwCIF, provided solar lanterns in my village to the poor and needy families. The lights enabled children to study at night and delighted the women in the villages.*99*

> – Arun Kumar Diwedi, Village Pradhan, Jalalpur

Review meetings

The Parmarth team conducted review meetings with key leaders of PPs and assessed the progress of the project against the defined plan. This enabled the implementation plan to be carefully monitored and tracked. The planning and review meetings also provided scope for changing the implementation strategy, if needed, to better attain the project's aims and objectives. Review meetings were also conducted at the villagelevel, which helped to gauge the progress for the beneficiaries. The PwCIF team visited the project sites twice in a year to monitor the progress of the project and interact with the team, key stakeholders and beneficiaries at the ground level.

⁶⁶ The support of the seed bank ensured food security amongst beneficiaries. The difference in the lives of these farmers is visible and I am happy that I contribute to it. **99**

> – Manmohan, Team Member, Community facilitator, Parmarth

Seed support through communityled seed banks

Challenge: Parmarth and PwCIF worked with small and marginal farmers in 10 villages of Sarila block towards achieving drought resilience. During initial observations and discussions, it was learnt that small and marginal farmers were facing problems in accessing improved and quality seeds during appropriate times of farming. During the last three years, the region faced droughts which affected the productivity of the region.

Previously, farmers used to store crops that would be used in the next season. However, due to losses in agricultural yield or reduced productivity, these farmers were not able to store crops for future purposes. These farmers did not have access to government schemes and loans as many had already defaulted on bank loans.

Solution: Observing these circumstances in the project areas, the seed banks were created at the village level with the help of PPs. Selection of beneficiaries was done on the basis of their socioeconomic conditions in a meeting of the PPs. It was agreed during the meeting that the beneficiaries will return the principal amount of seed received, with an additional 25% after crop harvesting, to their respective seed banks. All of the above was recorded and formed part of the by-laws of the seed banks, which were prepared collectively during the meeting of the PPs.

Organic seeds used by the farmers

Outcome: There were **5,300 kg** of different types of seeds that were distributed to 323 small and marginal farmers from 10 project villages. A total of 5,967 kg of seeds were sent back by the beneficiaries to their respective seed banks. Seed banks are operational under the leadership of PPs in all 10 project villages and are expected to meet the requirements of in-need farmers in the upcoming rabi season.

Improved agriculture practices – SWI, SVI and LEISA

Challenge: Earlier, the villagers experienced huge scarcity of water due to unsustainable agricultural practices and an over-use of chemical fertilisers and pesticides. This resulted in the reduction of land fertility and also increased the costs the farmers had to pay for a better yield.

Solution: The project educated farmers and encouraged them to adopt new, improved and sustainable agricultural practices. To achieve the change, the project conducted trainings and on-field demonstrations as well as provided handholding support to the farmers. These practices included line sowing, seed treatment before sowing, SWI and SVI.

A farmer showing his fertile agricultural land

Outcome: Previously, the farmers used to sow wheat seeds randomly, which required more seeds, but now the seeds are first sown in the nursery and later transplanted in a line using a rope with an eight centimetre spacing marked out. By adopting the line sowing technique, **10–15 kg of seeds were saved** while the yield increased **by 30–40%**.

Interventions such as SWI, SVI and seed distribution were cost effective and much appreciated by the farmers. The benefits from improved agricultural practices, as reported by the identified farmers, have been quite remarkable. There is a noticeable saving in terms of seeds, fertilisers, pesticides and irrigation water due to organic farming and intensification methods.

Cost-effective water harvesting structures

Challenge: Due to successive droughts in this region, a huge crisis of drinking water as well as water for agriculture existed. Further, soil erosion prevented rain water from percolating into the ground. The lack of irrigation sources caused poor crop productivity, which led to food insecurity in the community.

Solution: During the project, local expertise and resources were deployed to establish water harvesting structures in a cost-efficient manner and for ease in maintenance. The villagers in Mamna reported that these water harvesting models were efficient, well designed and had the potential to store a lot of rain water. Under the project, a total of eight such water structures were constructed.

Construction of a water harvesting structure

Outcome: These water structures will not only save 4,948.707 m³ of water but will also support in replenishing the surrounding water sources and improve retention of soil moisture in fields.

Organic farming – a boon for water efficiency and better yield

Challenge: In the Hamirpur region, due to the lack of irrigation facilities, only rain-fed agricultural practices had been prevalent. Additionally, most farmers used chemical fertilisers which reduced the soil capacity and required excessive amount of water. Through the baseline assessment, it was observed that 97% of the families used chemical fertilisers.

Solution: The project created awareness about organic farming during meetings conducted by the PPs. The project trained the farmers on various methods of organic farming such as vermicomposting, Jeevamrit, Amrit Pani, seed pre-treatment, screening of quality seeds and organic pesticides.

Kitchen garden

Outcome: A total of 250 small and marginal farmers started using organic manure (Jeevamrit) and organic pesticides (Amrit Pani) in their kitchen gardens for vegetable production, and in gram and wheat crops. It not only contributed in reducing input costs but also increased crop yield and maintained soil fertility.

Organic farming encouraged good soil biology as earthworms and micro-organisms help in improving soil nutrients, soil aeration, soil texture and retaining of soil moisture. Instead of flood irrigation in paddy fields, block and canal irrigation was promoted. The SVI and SWI methods need less water and can be used as summer crops as well. Less water-intensive crops such as green peas (*matar* in Hindi) and cluster beans (*guar* in Hindi) were also promoted as intercrops. Farmers were guided to shift their cropping patterns from high water intensive to low water-intensive crops like vegetables. It was reported that chemical-based farming needed water six times for a period of 20 days, while organic-based farming required watering only three times for eight days. Additionally, farmers reported that water was also saved during and post harvest of organic crops.

Various demonstrations, on-field trainings and exposure visits have resulted in changing the practices of farmers. As a result, **450 farmers** have adopted climate smart agricultural practices such as organic farming, kitchen gardening and also use low water-intensive seeds.

> • My agricultural field suffered drastically due to soil erosion. Six bigha of agricultural field was being wasted. The construction of the outlet, which was supported by PwCIF, helped to make my agricultural production more effective. The outlet will check and reduce soil erosion, ensuring availability of water for irrigation. This has made me and my family very happy. **99**

> > – Kalla Ahirwar, Mamna village

Objectives and results

Objective	Key result
Objective 1 Models of improved water conservation, protection and management practices are established and replicated amongst marginalised communities	 90% of the members and leaders of PPs became aware about drought-resilient and environment-friendly agricultural practices. The project sensitised 280 PP members from four villages towards management of their water sources. Approximately 4,948.707 m³ of water was saved by eight water harvesting structures. This water will be utilised for irrigation on 121.68 acres of agricultural land and also to recharge the groundwater. More than 650 community members expressed an interest and willingness towards farm bunding and other measures of soil and water conservation. These members developed methods of equal distribution of water usage and also defined who would take on the role of maintenance of water bodies.
Objective 2 Promotion of improved agricultural practices and cropping patterns through measures of agri water use efficiency	 More than 1,560 villagers became aware of improved and drought-resilient cropping practices such as less water-intensive crops, SWI, SVI, LEISA, use of bio-fertilisers and organic manure and pesticides. 250 farmers adopted improved agricultural practices. 10 seed banks were established in the project villages. 323 farmers were provided good quality seeds as per local climate conditions. This increased productivity by 30–40% in their 130 acres of agriculture land. To recycle domestic waste water, 71 families established kitchen gardens in the project villages. These families will be able to continue to grow seasonal vegetables and improve the nutrition level of their family members.
Objective 3 Increased livelihood status and food security of target communities	 10 seed banks in 10 villages were formed whereby 5,300 kg of seeds (wheat, gram, green pea and masoor) were distributed amongst 323 small and marginal farmers. 13,69,290 kg additional production of lentil, wheat and gram was reported by farmers who received seed support from the project. This ensured food security to 350 families. An income of 19,17,006 INR was generated by 323 beneficiaries. 10 PPs have been involved in the smooth implementation of government schemes in their respective villages. As a result, more than 850 community members are now able to access the benefits of these schemes. Through SVI demonstration, eight farmers earned between 15,000–20,000 INR additional income by selling vegetable production.

Challenges of the project

Construction of water structures

Due to a ban by the government and the judiciary on sand mining and boulders, it was difficult to construct water structures, leading to a delay in the completion of all water structures.

Crop damage

Post the distribution of seeds, initial crops sown were washed away due to heavy rain in the month of June 2016. This caused a minor, temporary setback in the collective spirit of the farmers.

Traditional feudal system

Due to the prevalent feudal system, the participation of women and SC members was a big challenge; however, consistent mobilisation and discussion with families in the villages helped women and other SC members to come out and participate.

Behavioural change

Initially, mobilising the community to explain the benefits of agricultural practices and water conservation was difficult. Many individual meetings and discussions were held. Despite the limited willingness to participate, a few villagers who were motivated came on board and experienced the difference. The others were then instantly inspired to adopt new practices.

Convergence meetings

It was difficult to facilitate convergence meetings due to elections in the state of Uttar Pradesh and large distances between the offices of government officials and villages. In addition, it was also difficult to facilitate dialogues between officials of different government departments.

⁶⁶ It has been an enriching journey finding solutions to the challenges together. Through the participatory approach, the women were allowed to share their ideas which led to an overall change in the lives of these farmers. I am overwhelmed each time I visit and talk to the community members and farmers who are so grateful for the support received by them. ⁹⁹

– Aakritee Kapoor, PwCIF

Learnings from the project

- A women-centric approach was adopted to empower women who take the lead to ensure water conservation. This also ensured acceptance of the increased level of participation of women in the decision-making processes.
- **Seed banks** were created to ensure the availability of quality seeds for small and marginal farmers. This was found to be effective in increasing the productivity of crops.
- The WUMP was found to be an effective tool for maintaining the demand and supply of water in the villages.
- Handholding support was crucial in helping the community members to understand the by-laws, agricultural practices and realise the benefits of working together as a community. This included both theoretical knowledge as well as practical demonstrations on the methods used to conserve water.
- The experience and expertise of the Parmarth team in the area of **indigenous and traditional knowledge** on agricultural practices helped in the promotion of improved and sustainable agriculture practices like SWI, SVI and LEISA.

Limitations

- As the water harvesting structure usually gives results after multiple fillings, the impact will be visible by 2019 as the process normally takes at least two years.
- Similarly, outcomes of this project will be visible on a large scale in two to three years from now.

Future endeavours

The convergence meeting, which was held on 13 May 2017, resulted in the coming together of different members of the villages and key stakeholders such as Shri Gajendra Pratap Singh and Jaivir Singh, who noted the determination and zeal among the farmers and women members of the PPs. These members expressed the challenges they face and also spoke about their desire towards improving their standard of living by addressing issues around water, sanitation and hygiene facilities.

This encouraged PwCIF to develop another programme to uplift the spirit of making a difference in the village by creating a model village which can be declared as open defecation-free. In addition to the infrastructure support towards construction, repairing and refurbishing toilet facilities, the project aims to ensure supply of clean drinking water through installation of matka filters for every household of this village.

The project will also reach out to marginal farmers through seed support and facilitate the adoption of improved agricultural practices that aim to better the yield. Water harvesting structures would be constructed to hold water during the monsoon season and will become a source of irrigation to agricultural land.

The project aims to improve water security and sanitation practices of 51 households of the Dharaupur village.

Case studies

Case study 1

Subhas Rajpoot

Subhas Rajpoot from Barahara village owns two acres of land and had practiced SWI on 1 bigha of land. He reported that with just half the quantity of seeds (15 kg/bigha), he harvested double the yield (1,000 kg) using organic manure. The farmyard manure and bio-pesticides are accessible as they can be prepared at home and lead to a higher impact with fewer incidences of pests. The yield of wheat also had a better taste compared to the crop cultivated using chemical fertilisers.

- Subhas Rajpoot, Barhara village

Case study 3

Smt Shivkanti belongs to the SC community and has been living in Mamna village. She came to know about the PP from the Parmarth team members during the mobilisation period. She not only joined the PP but also regularly attended all of the monthly meetings. During these meetings, she learnt about the concept of a seed bank and its benefits to small and marginal farmers. She expressed her need for seeds, and after the list of beneficiaries was finalised, her name was considered for seed distribution. She received 8 kg of masoor seeds at the appropriate time of sowing. Smt Shivkanti expressed her happiness about using the seeds and obtaining a better yield. She thanked the Parmarth and PwCIF teams for extending their support. She felt that the yield was better due to improved, good quality and less water-intensive seeds received through the seed bank.

- Shivkanti Ahirwar, Mamna village

Case study 2

Devi Prajapat

Smt Devi Prajapat had been struggling with regular drought and zero production of vegetables was narrowing her source of income. This was pushing the family into extreme vulnerabilities. She was in dire need of support from the gram panchayat and the government department, especially for the construction of a bund. In the meantime, she joined the PP initiated by Parmarth. She began participating in the meetings of the PP where she learnt about the importance of water and soil conservation. Representatives of the PP suggested that she use bunding in her fields, which would not only check soil erosion but also increase the fertility due to moisture retention in the field. As a result of these suggestions, she constructed bunding and is now experiencing better crop productivity.

- Devi Prajapat, Harsundi village

Case study 4

Kaushalaya Devi

Kaushalya Devi, who lives in Barahara village, joined the PP during the mobilisation drive. As a result, she came to know about kitchen gardening. Receiving support in the form of vegetable seeds, she started carrying out kitchen gardening using Amrit Pani. By doing so, Kaushalaya was able to grow vegetables that she not only consumes but also sells in the market. With an additional income of 1,000–1,500 INR per month for a period of eight months in the year, she feels satisfied. This additional income is used to educate her children and also save for the future. On noting the increase in income, family members have also started supporting her.

- Kaushalaya Devi, Barhara village

District profile of Hamirpur and details of 10 project villages.

Particulars	Hamirpur
Population	Total: 11,04,021 Male: 5,93,576 Female: 5,10,445 SC: 2,51,717 (22.8%)
Literacy rate	70.16%
Sex ratio	940 females per 1,000 male
Geographical area	Area: 4,120 km ²
Annual rainfall	879.70 mm
Blocks	7
Gram panchayats	314
Drinking water sources	Hand pump, piped water supply, well
Livelihood sources	Agriculture
Major crops	Rice, soya bean, wheat, oilseeds, maize, pulses, barley, jowar

Annexure 2

The project has identified 10 villages of the Sarila block of Hamirpur district. Village-wise details are presented below.

Sr. no.	Name of village	Block	Total HHs	Total population			SC population
				Male	Female	Total	
1	Harsundi	Sarila	342	1,054	811	1,865	308
2	Kariyari	Sarila	520	1,475	1,297	2,772	1,037
3	Atrauli	Sarila	322	906	800	1,706	423
4	Rerua Bujurg	Sarila	213	617	500	1,117	255
5	Barahara	Sarila	493	1,463	1,207	2,670	551
6	Beelpur	Sarila	176	577	440	1,017	505
7	Neolibasa	Sarila	240	657	574	1,231	162
8	Jalalpur	Sarila	348	984	824	1,808	347
9	Parchha	Sarila	293	919	813	1,732	123
10	Mamna	Sarila	727	2,024	1,813	3,837	1,398
	Total		3,674	10,676	9,079	19,755	5,109

Glossary

- Amrit Pani An organic pesticide which is prepared by using water, cow urine, neem leaf powder, besan and jaggery.
- Backward Region Grant Fund (BRGF) A Government of India programme designed to address regional imbalances in development.
- **Community-based organisation (CBO)** A primary-level organisation formed at a village level in the target area. The CBO is the representative body of the men and women from the village. In this project, PP is a community-based organisation.
- Focus group discussion (FGD) A qualitative research method and data collection technique in which selected groups of people discuss a given topic or issue in depth, facilitated by a professional or external moderator.
- Household A single family is referred to as a household. A household consists of all family members. The average size of each household is 5.
- Integrated Child Development Scheme (ICDS) A flagship programme of the Government of India for all-round development (health, nutrition and education) of children under the age of six with an aim to reduce infant mortality, child malnutrition and provide pre-school education.
- Jeevamrit An organic manure which is prepared using cow dung and cow urine. This manure enriches the fertility of the soil and enhances the yield of the crop.
- Low External Input and Sustainable Agriculture (LEISA) A system of agriculture which is based on principles and options which are ecologically sound, economically feasible and culturally acceptable.
- Mahatma Gandhi National Rural Employment Guarantee (MGNREGA) A flagship programme of the Government of India under which all the adult members (at least 18 years of age) of any family in a rural area are given non-skilled work.
- Micro-irrigation System (MIS) A method of irrigation which saves water and fertiliser by exposing roots to water directly.
- Mid Day Meals Scheme (MDM) A flagship programme of the Government of India aiming at improving the nutritional status of children and reducing dropout rates.
- Minority In this project, the Muslim community is referred to as the minority.
- National Rural Livelihood Mission (NRLM) A flagship programme of the Government of India under the Ministry of Rural Development. The programme aims to reduce poverty in rural households by making skilled wage employment opportunities available to them.
- **Organic farming** An alternative agricultural system which uses fertilisers of organic origin such as compost and green manure. It does not use any pesticides, chemical fertilisers, genetically modified organisms, antibiotics and growth hormones on the agricultural field.
- **Package of practices (PoP)** This includes improved agricultural practices such as SWI, SVI, Jeevamrit and vermicompost techniques that provide higher yield while using less water and inputs. These organic farming methods such as green manure and bio pesticides, as well as techniques like integrated plant nutrient management (IPNM) to enrich the soil and integrated pest management (IPM) to repel pests come under improved agriculture practices.

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- Panchayati Raj Institutions (PRIs) A unit of local administration in the system of governance adopted by the Government of India. Currently, PRIs exist in all states of India except Nagaland, Meghalaya, Mizoram and all union territories, except New Delhi.
- Pani Panchayat (PP) PP is a village-level, community-based, water-allied committee.
- **Parmarth Samaj Sevi Sansthan (PSSS) or Parmarth** Parmarth is a non-government organisation working in Bundelkhand, India. Parmarth is the implementation partner for this project.
- **Participatory Rural Appraisal (PRA)** An approach used by NGOs and social sector development agencies involved in international development. The approach aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes.
- **Public Distribution System (PDS)** This is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of society at very cheap prices.
- **PricewaterhouseCoopers India Foundation (PwCIF)** is a charitable institution working to address gaps and needs across areas of education, environmental sustainability, water, sanitation and hygiene, social entrepreneurship, and issues related to urban children. The institution also provides humanitarian assistance in times of need.
- Schedule Castes (SCs) SCs include various officially designated groups of historically disadvantaged people in India that are recognised under the Constitution of India.
- Small and marginal farmers Small and marginal farmers include those farmers who cultivate (as owner or tenant or share cropper) agricultural land up to 1 hectare (2.5 acres).
- **Sustainable agriculture practices** These include the production of food, fibre, or other plant or animal products using farming techniques that protect the environment, public health, human communities and animal welfare.
- System of Vegetable Intensification (SVI) A new vegetable cultivation technique of root intensification for increasing productivity.
- System of Wheat Intensification (SWI) A new wheat cultivation technique of root intensification for increasing productivity.
- Vermicompost It is a product of the composting process that is prepared using various species of worms, usually red wigglers, white worms and other earthworms, to create a mixture of decomposing vegetable or food waste used as bedding materials.
- Water user master plan (WUMP) A holistic, participatory and inclusive planning process that deploys an integrated approach to the management of water resources and conjunctive water uses at the village level. This plan has empowered marginalised groups to claim their rights to an equitable share of water within and between communities. It helps the village community and community-based organisations to identify, prioritise and focus on implementation with greater efficiency.

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About Parmarth Samaj Sevi Sansthan

Parmarth Samaj Sevi Sansthan is a non-governmental and non-profit organisation, working for the weaker and deprived sections of society. The organisation has been working to bring qualitative improvement and changes in the lives of the vulnerable and deprived. The organisation was founded to engage diversified community groups and stakeholders such as women and adolescents, youth, social activists, academicians, media functionaries, lawyers, researchers, change makers, students, political forces, panchayat members in developmental processes. Parmarth strongly advocates participatory processes both within the organisation and the community. The organisation believes in demanding and displaying transparency and accountability in the interest of poor and marginalised community groups. The organisation also provides a healthy, democratic and gender-friendly working environment. It is a voluntary organisation registered under the Society Registration Act, 1860, with an FCRA certification. It has also been registered under sections 12 (A) and 80 (G). Parmarth is working in 17 blocks of seven districts of the Bundelkhand region since 1995 on the issues of natural resource management, water conservation, agriculture, livelihood development, water, sanitation and hygiene (WASH), health and education.

About PwC India Foundation

The Foundation was established in 2008 with the objective of making an impact in the areas of education and environment sustainability. The areas of focus were expanded to include interventions in water, sanitation and hygiene (WASH), urban children, and social entrepreneurship and provide humanitarian response in times of disaster. These areas will continue to be the Foundation's focus areas until FY 2020.

The Foundation's initiatives revolve around the following:

- Empowering communities: Supporting programmes run by NGOs
- Enabling participation: Involving our employees by using their expertise
- Special initiatives: Addressing some of the fundamental challenges our country

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