

CSR initiative

Umang Dairies | JK Paper |
LVP Foods | SPARSH

Creating Shared Value Impact Evaluation of Dairy based women livelihood project



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Abbreviations

ABY	Ayushman Bharat Yojana
CSR	Corporate Social Responsibility
DAC	Development Assistance Committee
DID	Difference-in-Differences
DIG	Dairy Interest Group
EMI	Equated Monthly Instalment
FGD	Focus Group Discussion
HH	Household
LEDP	Livelihood and Enterprise Development Programme
LVPFPL	LVP Foods Private Limited
MEDP	Micro Enterprise Development Programme
MFI	Micro Finance Institutions
NABARD	National Bank for Agriculture and Rural Development
NDA	National Defence Academy
OECD	Organisation for Economic Co-operation and Development
OTS	One-Time Settlement
PBY	Pashudhan Bima Yojana
PDS	Public Distribution System
PMJJBY	Pradhan Mantri Jeevan Jyoti Bima Yojana
PMUY	Pradhan Mantri Ujjwala Yojana
SAARC	South Asian Association for Regional Cooperation
SBA	Swachh Bharat Abhiyan
SC	Scheduled Caste
SDGs	Sustainable Development Goals
SHG	Self-Help Group
SHPI	Self-Help Promoting Institutes
ST	Scheduled Tribe
ToC	Theory of Change
UDL	Umang Dairies Limited
VLC	Village Level Collection Centre

Key figures



184

Villages



6130

Beneficiaries



94

Percent women in DIGs making regular saving



83

Percent women in DIGs feel confident to deal with any financial crisis



1892

Mean increase in annual savings of HHs in DIG compared to non-participants



4800

Mean increase in annual income of HHs in DIG compared to non-participants



2397

Mean increase in annual income from dairying of HHs in DIG compared to non-participants



9344

Mean increase in annual income of minorities HHs in DIG compared to non-participants minorities HHs



1068

Mean increase in annual savings of a DIG member



1:2.4

Leverage ratio

Executive summary

Umang Dairies Limited (UDL) and LVP Foods Private Limited (LVP), both of JK Organization, are having dairy plants at Gajraula in Amroha district of UP. Being a good corporate citizen, these companies are keen to improve socio-economic conditions of community residing in villages near to their plants and to make them **socially harmonious and financially strong**. Guided by this concern and taking into consideration local milieu and concept of “Shared Value”, in 2016, they conceptualized a sustainable and scalable project to mobilize women into Self Help Groups who may undertake and expand dairy business in due course of time.

The primary objective of the intervention was to create a win – win situation for the community as well as for the company. The project aims to i) empowerment of women; ii) increasing their socio–economic condition and iii) bringing them into supply chain of the companies.

SPARSH, a non-government organization (NGO) entrusted with this task. Till now 613 Self-Help Groups (SHGs) of women having membership of about 6316 women have been formed and they are at different stage of maturity. As they are going to undertake dairy business, these groups are called as **Dairy Interest Groups (DIGs)**. The outreach of project has extended to 184 villages and covers 5 blocks viz. Amroha Dhanaura, Gajraula, Gangeshwari, and Hasanpur. Out of 613 DIGs, 23% DIGs have just been formed, 52% are linked with the banks and 25% have linked been bank and also availed credit facilities from banks. The detail of number of DIGs formed in each of the five blocks is given at Annexure I.

The companies decided to evaluate the impact of this intervention and identified Birla Institute of Management Technology (BIMTECH), a premier management institute to conduct the impact assessment.

The impact assessment has been done keeping in view the five criteria i.e. i) relevance, ii) effectiveness, iii) efficiency, iv) impact and v) sustainability.

Methodology

The methodology included use of qualitative and quantitative tools and methods. It included i) getting information from individual respondents through structured questionnaire ii) Focus Group Discussions (FGDs) with DIGs iii) in depth interviews iv) discussions with other stakeholders like family members, executives of banks and NABARD and office bearers of SPARSH and executives of dairy plants.

For quantitative analysis, individual was taken as unit of analysis. By using statistical tools, data were collected from 255 individual members of credit linked DIGs (total number of members in credit linked DIG is 2100) establishing the internal and external validity of a study at 90% confidence level and 5% margin of error. Moreover, data was collected from

91 members of newly formed DIGs who served as control group for the study. FGDs were held with 15 DIGs. This sample covered all the five blocks where intervention has taken place.

In order to bring out the impact due to intervention, this sample included two types of groups. One category of groups was such which have attained maturity and got credit linkages from banks and it was considered as Treatment Group. Another category of groups was such who have been recently formed and are not having any credit linkages and it was Control Group for analysis and comparison.

Difference-in-Differences (DID) and regression analysis was used to isolate the effect of intervention on the outcomes.

The following 13 development indicators were used to gather data from individual respondents.

1	HH savings	8	Asset creation
2	Household (HH) income	9	Awareness and access to government entitlements
3	HH expenditure	10	Perception of women towards the DIG
4	HH loans	11	Meaningful participation in DIG
5	Replacement of high cost credit with low cost loan	12	Women empowerment, mobility, decision making, ability of taking collective action
6	Livelihood including dairy farming	13	Political participation
7	Adult literacy		

Triangulation and validation were done with the findings of FGDs, in depth interviews and analysis of case studies.

Findings

1. Relevance

88% of the respondents in treatment group indicated that this initiative was needed and useful for their economic development. 74% women in treatment sample believe that DIG provides them a platform to receive important information. The project activities are also aligned with the Sustainable Development Goals (SDGs).

2. Effectiveness

FGDs and discussions with other stakeholders and review of process and monitoring system confirm that the project has enabled women to exert themselves and participate in the development issue of their respective settings.

3. Efficiency

Its operation is efficient as project has been able to leverage INR 57,50,000 for promotion of 575 DIGs from NABARD. In addition, INR 6,18,000 has also been received from NABARD for providing 'Dairy Enterprise Development' training to 150 DIGs. The intervention has also leveraged an additional INR 50,000 from NABARD for providing cutting and tailoring training to members of 30 DIGs.

4. Impact

The overall impact of the intervention on income, saving and asset creation is positive. The level of vulnerability has reduced due to easy access to money in case of emergency out of inter loaning among members of DIGs. Attitudinal changes are also visible as majority of respondents are concerned for giving best education to their children. They still have limited mobility to public spaces, limited role in decision-making on HH issues.

The effect on income, savings, consumption patterns, indebtedness, inter-loaning etc. are being given below:

i) Income

The average annual HH income of each member of treatment group has increased in comparison to the control group. Analysis shows that due to the intervention the average annual HH income of the treatment sample has increased by INR 4,800 in comparison to the treatment sample. For a member of treatment sample belonging to minority HH, the annual income has increased by INR 9,344 compared to minority HHs in control group. The project has also resulted into an increase in the average annual income from dairying of treatment HHs by INR 2,397 compared to the control group.

Positive impact on increase of income was noticeable on members of all vulnerable section of society.

ii) Savings

There is substantial impact on saving pattern of individual women impacted by the intervention. Prior to joining DIGs, 49 % were making savings. As a result of intervention and after joining DIGs 93% women are regularly making savings. Majority of members of

DIGs are saving INR 100 per month. In very few DIGs members are also saving INR 200 per month.

The HH in treatment group saves an average of INR 1892 more per year than one in the control group.

iii) Expenditure pattern

The average annual HH expenditure for the treatment sample has also increased compared to the control group.

On average a HH in treatment sample is now spending an average INR 1739 more each year. The positive trend has also been observed in average annual spending in different areas such as education and food.

iv) Status of indebtedness and loan replacement

63% of surveyed HH in treatment group and 44% in the control sample responded to having one or more outstanding loans. On average, HHs owe INR 41,644 and INR 54,321 for the treatment and control sample respectively.

HHs tend to take a major proportion of loans to finance income generating activities (IGAs). 56% of the loans are taken for IGAs such as cattle or goat purchase (34%), farm and farm equipment (12%), starting a new business (9%). Consumption smoothing is the reason for 44% of the loans which is generally spent on medical care (13%), marriage (12%) and education (3%). Moreover, 7% of the loans are used for home construction and repairing including toilet construction.

About 10% of the loans have been taken to replace high-cost credit taken from informal sources. The HHs who has replaced a loan have made an average saving of INR 2725 on interest on each such loan.

v) Acquiring of Assets

Overtime, the HHs in treatment sample have also accumulated both productive and consumption asset. The productive asset is being accumulated in the form of farm, farm equipment, tractor, cattle. The consumption asset includes repairing of homes, TV, refrigerator, washing machines, mobile phones, motorcycles and car. 20% individuals in treatment sample have spent more than INR 5,000/- on repairing of their homes.

vi) Perception about the DIGs and level of participation

88% feel that DIGs are important for economic development of women while 74% believe that it is a platform to receive important information. 84% feel their confidence has improved after joining the DIG. 88% women said that they can ask for anything they need from SPARSH.

However, sometimes the members are not able to leverage the benefits of participation in the DIG. A few mentioned that even through low cost credit is being provided by the DIGs, but sometimes fail to address emergency needs of individuals. Despite the availability of low-cost credit, the DIG members have been forced by circumstances to borrow high cost credit. One reason is limited number of meetings being organised each month and money being disbursed only during the meeting. Only a few DIGs mentioned that they have provision for emergency meetings. Such meetings can help the group members during the emergency.

Out of the 65 SHGs covered under the study, three were found to be defunct which are not engaged in any SHG activity such as saving, inter-loaning etc. The primary reason for the non-functionality is trust deficit among the group members while others being failure to deposit monthly installment and suspicion that members will not repay the loan amount. 94% of the women members were found to be involved in meaningful activities in the DIGs and regularly participate in meetings, monthly savings and inter-loaning. 83% women feel better prepared for any sudden financial crisis due to participation in the DIG. However, 63% of the women said that they would not be able to run their DIG in case the implementing agency exits.

viii) Linkage to supply chain

31% of individuals in the treatment sample supply milk on regular basis to Umang Dairies. About 206 liters of raw milk is supplied daily. Out of which 67% is procured from women of Dhanaura, 20% from Gangeshwari and 13% from Hasanpur block.

ix) Awareness and access to government entitlements

The level of women's awareness and access to government entitlements in respect of both the treatment and control group is minimal.

x) Women empowerment: Level of mobility, decision making, ability of taking collective action

There is not much improvement in the decision making and mobility of women. The place where the women majority (56%) of women can go independently is home of relatives generally their parental home. Only 42% women are confident enough to visit a market alone, 36% can visit bank, 34% can go to hospital, 31% to their children's school, a meagre 7%

and 6% to panchayat office and any government office respectively. Only 30% women said that they can resist any physical or verbal abuse at home while 53% cannot decide the rate of their produce on their own. 73% women said they can express their opinion during public meetings. Moreover, there is an instance when the DIG members took collective action and forced the local development authorities to construct drainage. Therefore, at a very few places, the participation in DIG is also enabling women to take collective action for village development. Although 90% women said that they have been asked for important HH decisions but only 9% said that their decision is taken as final.

xi) Political participation

Only 32% women know that there is reservation for women in elections at different levels. However, 90% of the women (95% in control) voted in recent general election while 78% (81% in control) in assembly elections, and 72% (77% in control) panchayat elections. Moreover, only 9% women voted according to their own knowledge and without any influence from their family or outside.

xii) Adult literacy

74% of women who are able to sign mentioned that they have learned the signature literacy through adult literacy programme of SPARSH.

5. Sustainability

It is high time to craft a robust exit strategy. At present stage, without handholding support, the process may not sustain itself. However, a blueprint has been developed which may lead to sustainability. SPARSH is setting up a micro dairy plant and its success may have demonstrative effect for other DIGs to go for it. They are also planning to establish a model cattle farm and motivate DIG members to also develop similar farms so that the increased and quality milk production could lead to larger benefits for the community and society. These are building blocks for ensuring sustainability but in view of present conditions, hand holding support for a longer period cannot be ruled out.

Conclusions

- Intervention has positive impact on economic conditions of women.
- Process is rigorous, and systems are in place which may produce better results in future.
- There is strong project team who are in regular touch with the target group.
- 59% women don't know about role of Umang Dairies Limited and SPARSH and they have got impression that all these things are being done by field staff.

- Linkages with NABARD and banks are very good, and they own the project. These linkages are also major contributors to the effects of the project.
- Awareness about social welfare schemes is minimal.
- It was also observed members of the project teams are never canvassing to members of groups to supply milk to UDL and LVP.
- Repayment of loans to the banks is almost one hundred percent.
- NABARD, main funder of the project, very much appreciative of project implementation and outcomes.

Recommendations

- As there is very much positive feeling, management of dairy should explore and straighten milk routes so that willingly many more groups can join the supply chain.
- As project is under implementation and has created positive environment, it is high time that members of the DIGs are made aware about their entitlements and schemes of the state and central governments.
- During the next phase of the project a transition process needs to be worked out wherein the handholding of the DIGs by SPARSH needs to the self-holding of by the group.
- The interface of the DIGs with the officials of SPARSH and companies is good but with company is inadequate therefore the brand image is not visible. Therefore, there is a need of developing robust communication strategy for brand promotion of UDL, LVPFPL and J. K. Organisation.
- Adoption of IT tools for monitoring and follow-up.
- In future, handholding support may be provided to these groups in developing such farms in each village and multiple locations. Doing so will also enable UDL to procure more raw milk through new VLCs and increasing the length of their milk route at a very marginal cost. Therefore, motivating and collectivization of DIG members for opening dairy microenterprises is imperative for creating 'Shared Value' that will ensure quality and sustained supply of milk to UDL while larger economic benefits for the women and boosting the entire rural economy of the region. For this purpose, SPARSH has already devised its future strategy where a demonstration farm will be set-up in 1 Bigha land with an investment of INR 20 lakh. A dairy structure has already been formed. SPARSH will purchase 12 buffalos. The electricity requirement will be met through solar power. The organization wants to motivate the DIG members to set-up 40 such model dairy farms in near future. The organisation expect production of around 100 liter of raw milk per day from each such farm. According to the company officials, the recurring cost of each plant is estimated to be INR 9 lakh/year and the estimated sale will be around INR 11 lakh per year. The organization estimate that from the 4th year onwards a profit of around INR 7 lakh will be generated from each such model dairy farm.

- Though very difficult, but efforts should be made by project team to explore possibility that a few groups may undertake economic activity in collective manner.
- A view may be taken to bring purchase price of milk by UDL at par with other dairies operating in the area.
- For upscaling and ensuring continuation of support to DIGs, strategy needs to be evolved for leveraging of resources and forming partnerships with other companies.
- Emphasis need to be given for promoting leadership among DIGs.

1. Introduction

Umang Dairies Limited (UDL) and LVP Foods Private Limited (LVP), both of JK Organisation are having dairy processing plants at Gajraula in Amroha district of UP. Guided by their philosophy and being a good corporate citizen, they were undertaking certain activities for benefit of community residing in villages near to their plant operations.

In 2016, guided by concept of share value having potential of up scaling and sustainability and taking into consideration the local milieu, they decided to mobilize and extend support to women interested in undertaking dairy business or expanding their existing businesses. It was envisaged that this intervention will improve socio- economic conditions of women and possibility of strengthening supply chain for their plant operations.

It is worthwhile to mention that in Amroha district, women normally are engaged in dairy business and it is one the most important secondary source of livelihood. On the other hand, UDL and LVP, despite having their collection centres in different villages, face acute shortage of about 500,000 litres of milk every month and then they have to resort to procure milk from contractors.

It was intended that by this intervention, women will be immensely benefitted and possibility of value addition to the companies and thus creating a win-win situation for the community as well as for the companies.

The project has run for about three years and its coverage has extended to 184 villages in 5 blocks of Amroha district and 613 women groups have been formed having 6316 members. As operations are related to dairy, these women groups are referred as **Dairy Interest Groups (DIGs)**.

The companies decided to get an impact assessment done by an independent agency and identified Birla Institute of Management Technology (BIMTECH), one of the premier management institute to undertake this task.

The main objectives of this evaluation were to:

- Ascertain impact on socio-economic conditions of women joining the groups;
- Study the processes and procedures of implementation;
- Explore possibility and potential of women groups joining the supply chain; and
- Make recommendations for improving the architecture of implementation and up scaling of operations and ensuring its sustainability

Guided by the legacy of its founders, UDL is driven by the mission to serve the society with integrity, fairness and trust and creating value for all stakeholders. A major factor that differentiate UDL from others is that the company is one of the few ones who have more than two decades old village level collection system under which milk is collected from nearly 525 villages comprising of about 18500 farmers thereby creating mutual benefits for the local dairy farmers and itself. Most importantly, the company has developed a sanguine relationship with local communities.

In addition, the company provides several value-added services to dairy farmers through Corporate Social Responsibility (CSR) initiatives. Some of these include seminars on quality of life, free health check-up for cattle, free cattle vaccination in order to keep the cattle healthy and disease free, free veterinary care, supply of high-grade cattle feed to farmers at subsidized rates and advice on clean milk production etc.

UDL, along with SPARSH, a non-governmental organisation (NGO) and CSR arm of JK Organisation, is promoting Self-Help Groups (SHGs) to provide livelihood opportunities to women and build pro-women institutions to strengthen the local economy and build social capital. The idea behind promoting the DIGs is also to develop a resilient milk supply chain for the companies.

2. About the organisations

Founded 125 years back, J.K. Organisation is a multinational group headquartered in New Delhi. Driven with integrity, openness, fairness and trust the group see value in caring for people. This socially valued conglomerate has multi-business, multi-product and multi-location operations, with its footprints in various countries across the globe. It has overseas manufacturing operations in Mexico, Indonesia, Romania, Belgium, Portugal and UAE. The group businesses include Umang Dairies, J. K. Paper, J. K. Lakshmi Cement, J. K. Tyre, J. K. Fenner, J. K. Seeds, Global Strategic Technologies, J. K. Insurance and CliniRx Research Limited. Products of the JK Group have a strong brand recall and enjoy a significant market share in their respective segments. The strong brand equity of the Group has been built through use of latest technologies, continuous research & development and innovation. The organisation has set up highly reputed Research and Development Institutes in various fields.

Moreover, expanding the legacy of its founders, who believed community development as their moral responsibility, the group is committed towards sustainable development by enhancing the quality of life and social wellbeing of communities in areas of its operation.

These group takes community development initiatives based on the requirements of the local populations ensuring empowerment of socio-economically backward population with skills to earn sustainable livelihood through SHGs, farmers' training, literacy and education, development of ITIs as 'Centre of Excellence'.

Umang Dairies Limited

Umang Dairies Limited (UDL) is a part of J.K. Organisation. UDL started operation in 1994. It has a state-of-the-art plant with a combined capacity of processing 11.5 lac litres of milk per day. The plant is located in the heart of the milk bowl - Gajraula (U.P.), about 110 kms east of Delhi. The plant has the highest standard food safety and quality certifications and provide the best quality dairy products for institutional customers. UDL, strongly believe in the empowerment of women, helping them grow and bring change for their own economic and social freedom.

UDL is promoting women self-help groups as the key intervention of its Corporate Social Responsibility (CSR) programme.

J. K. Paper Limited

Established in 1962 JK Paper is the leading player in office paper, coated paper and packaging board segments. With two major integrated Pulp and Paper Mills at Rayagada (Odisha) near the Eastern coast of India and Songadh (Gujarat) on the West coast, the company has a combined capacity of 4,55,000 tons annually. Being the pioneer of branded paper in India, the Company exports its Branded Copier Papers and Packaging Boards to 35 countries covering USA, Middle East, Southeast Asia, SAARC and African countries.

J. K. Paper is working towards societal welfare through intervention in areas of education, healthcare and livelihood under its CSR operations.

LVP Foods Private Limited

LVP Foods Private Limited (LVPFPL), incorporated in December-2006, is a subsidiary of Bengal & Assam Company Limited or BAACL (part of the JK Group). BAACL is the investment holding company for the JK Group companies. LVPFPL has been packaging milk as franchise of Mother Dairy Fruit & Vegetables Pvt. Ltd. (MDFVPL) since September 2009 and has now set up curd and lassi manufacturing facilities for Mother Dairy to initially process and pack 100,000 litre per day of curd and lassi in pouches. The new plant of the company commenced in April 2017 and is operated by UDL.

SPARSH

SPARSH, is a registered NGO under the Societies Registration Act – 1860. It is promoted by J. K. Paper Mills, Jaykaypur, District – Rayagada, Odisha. The regional office of the organisation is at 3KM stone, Hasanpur Road, Gajraula, District – Amroha, Uttar Pradesh. SPARSH endeavours to create communities that are economically viable and socially inclusive. SPARSH is operating field level activities in Odisha, Gujarat and Uttar Pradesh and planning to extend to Uttarakhand as well.

SPARSH is associated with Umang Dairies Limited, LVP Foods Private Limited and JK Paper Limited for implementing their CSR activities.

3. About the intervention

The intervention is based on the concept of “Shared Value” which aims to create value for the community members as well as for the companies. Women of the villages are exposed to dairy business and aspire to improve their economic conditions and companies facing difficulties in

procurement of milk. It has been envisaged in the project that women should be organised in Dairy Interest Groups (DIGs) and nurture them to undertake dairy business or expand their existing businesses and by proper incentive systems and thus ensuring possibility of their participation in supply chain of the both the companies.

The major components of the project are as under:

- Formation of Dairy Interest Groups
- Providing them all support for undertaking dairy business
- Empowerment of members of DIGs by making them aware of their rights, benefits of schemes of state and central governments
- Exploring possibilities of leveraging resources for up scaling and forging partnership with other companies and organisations
- Building robust and stable supply chain for both companies

The project promotes socio-economic inclusion of rural HHs by mobilizing women members from such families into DIGs (Dairy Interest Groups). In context of the project, a DIG is group of 10 women. The members of the groups are trained and facilitated to form DIGs. All DIGs follow the cardinal five principles that is meetings, savings, bookkeeping, borrowing and repayments. They have functioning bank accounts where savings are deposited and inter-lending amongst the members is regularly taking place. Additionally, the group provides an opportunity for women of different backgrounds to come together and discuss their day-to-day lives. Each member is required to deposit INR 100-200 per month; once some equity is established, the members may begin drawing credit from this pool. After some months of demonstrated group savings and inter-lending the project link DIGs to banks and leverage funds from formal credit institutions, which the DIG may disburse as loans to its members. The annual cost of credit to DIG members is 24% (2% per month), much lower rate compared to those charged by informal creditors who charges between 5-10 percent per month (or 60-120% per annum). The DIG members are encouraged to undertake income generating activities, especially dairying. The women are also informed about government sponsored schemes, personal hygiene and adult literacy. Every year, SPARSH celebrate International Women's Day (IWD) to empower women. During the IWD many key stakeholders such as Chief Development Officer, senior officials from National Bank for Agriculture and Rural Development (NABARD), Prathma Bank, Punjab National Bank, Syndicate Bank and other formal financial institutions are felicitating and encouraging the DIG members.

The project was initiated in 2016 with 12 DIGs. Within a short span of three years, the project has reached 184 villages spread across five out of six blocks of district Amroha in Uttar Pradesh district namely Amroha, Dhanaura, Gajraula, Hasanpur and Gangeshwari. The project is supported by Umang Dairies, J. K. Paper, and LVP Foods under their CSR initiative. In 2016, the project touched a milestone when SPARSH associated with NABARD as a Self-Help Promoting Institution (SHPI) and mandated it to form an additional 500 DIG's. In the month of August 2017, NABARD further sanctioned the formation and strengthening of 75 new DIGs.

Hitherto, SPARSH has mobilised 6316 women to form 613 DIGs of which 491 have been lined with banks, 208 DIGs were provided credit linkage and a total INR 2,53,27,800 has been disbursed in loans by banks to the DIGs. The organisation has provided training to 120 DIGs for dairy enterprise development while 152 DIGs have received cutting and tailoring training.

In the next two years the number of DIG's is expected to surpass 700 which will have a daily milk producing capacity of nearly 200,000 litres per year. It is being realized that the company would be able to overcome a part of raw milk shortage through the DIGs. The members of DIG will not only add substantially to the income of their HHs but also help UDL in surmounting the challenge of milk shortage. However, only 23 villages have been covered under the milk route of UDL.

4. Study context

4.1 Research objectives

Present study investigates the impact of the project implemented by SPARSH in 184 villages spread across five Development Blocks of the Amroha district namely Amroha, Dhanaura, Gajraula, Hasanpur and Gangeshwari.

Three years after its implementation, the supporting organisations intends to understand the level what impact the project has made in the lives of women and individual households whether it has increased their well-being, consumption and business profits, and does it have positive impacts on education, asset, quality of life and women empowerment. Thus, this study aims to assess the impact of project on the overall well-being of women and measure the extent to which the project has succeeded in creating shared value.

Broadly, the research objectives are as follows:

- To gain insight as to what extent the project has achieved the stated objectives
- To assess relevance, effectiveness, efficiency, impact and sustainability of the project

4.2 Impact evaluation design

The design approach¹, methods and basis of causal inference is given in table 1. A schematic of the entire process of impact evaluation is shown in figure ¹.

¹ <https://www.bond.org.uk/sites/default/files/impact-evaluation-guide-0515.pdf>

Table 1: Design approaches, methods and causal inference

Design approach	Specific method	Basis for causal inference
Experimental	Quasi experiment	Counterfactual: the difference between two otherwise identical cases – the treated and the controlled; the co-presence of cause and effects.
Statistical	Econometrics Difference in Differences and Regression	Regularity: Correlation between cause and effect or between variables, influence of (usually) isolatable multiple causes on a single effect.
Theory-based	Causal process designs: Theory of change Causal mechanism designs: Realist evaluation, congruence analysis	Generative causation: Identification and confirmation of causal processes. Supporting factors and mechanisms at work in context
Case-based	Interpretative: Naturalistic, ethnography Structured: Case analysis	Multiple causation: different cases (or case-studies) are analysed and sets of case characteristics (configurations) are compared in relation to outcomes.
Participatory	Participatory evaluation	Actor agency: Validation by participants that their actions and experienced effects are ‘caused’ by programme.

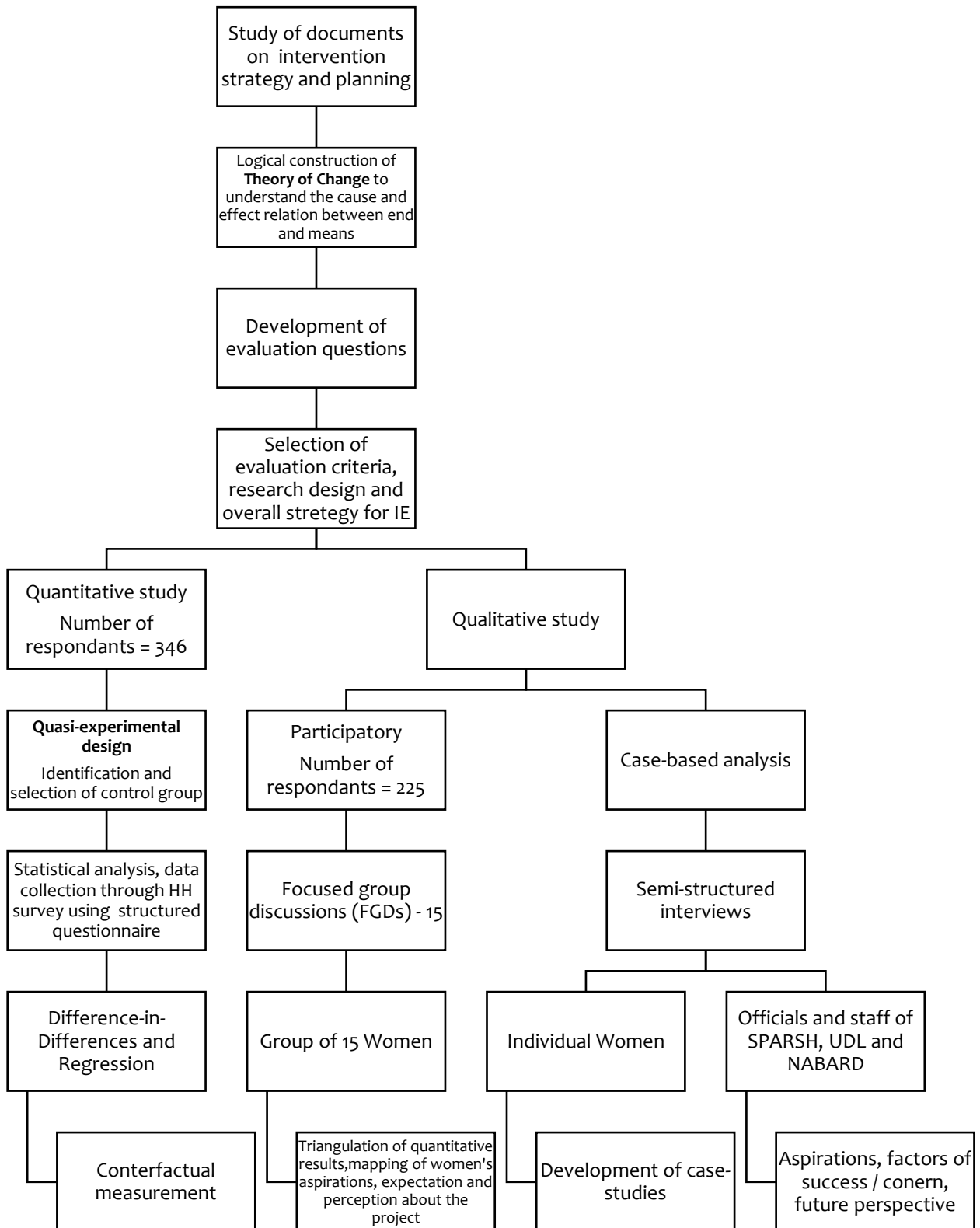
4.3 Evaluation criteria

The Organisation for Economic Co-operation and Development (OECD)/ Development Assistance Committee (DAC) criteria for evaluation of development projects/programmes has been adopted. The criterion encompasses the following five elements.

- i. Relevance
- ii. Effectiveness
- iii. Efficiency
- iv. Impact
- v. Sustainability

It has been used as it has got wider acceptance among development practitioners. Details of coverage of each criterion has been detailed at Annexure II.

Figure 1: Schematic of impact evaluation process



4.4 Theory of Change

To understand the intervention logic of the project, a preliminary analysis of the intervention has been done and summarised in the form of theory of change (ToC) model at figure 2. The ToC diagram highlight specifics of the project and describe the overall logic of the intervention. ToC was developed to understand the causal pathways and to develop evaluation indicators for the study.

4.5 Research methodology

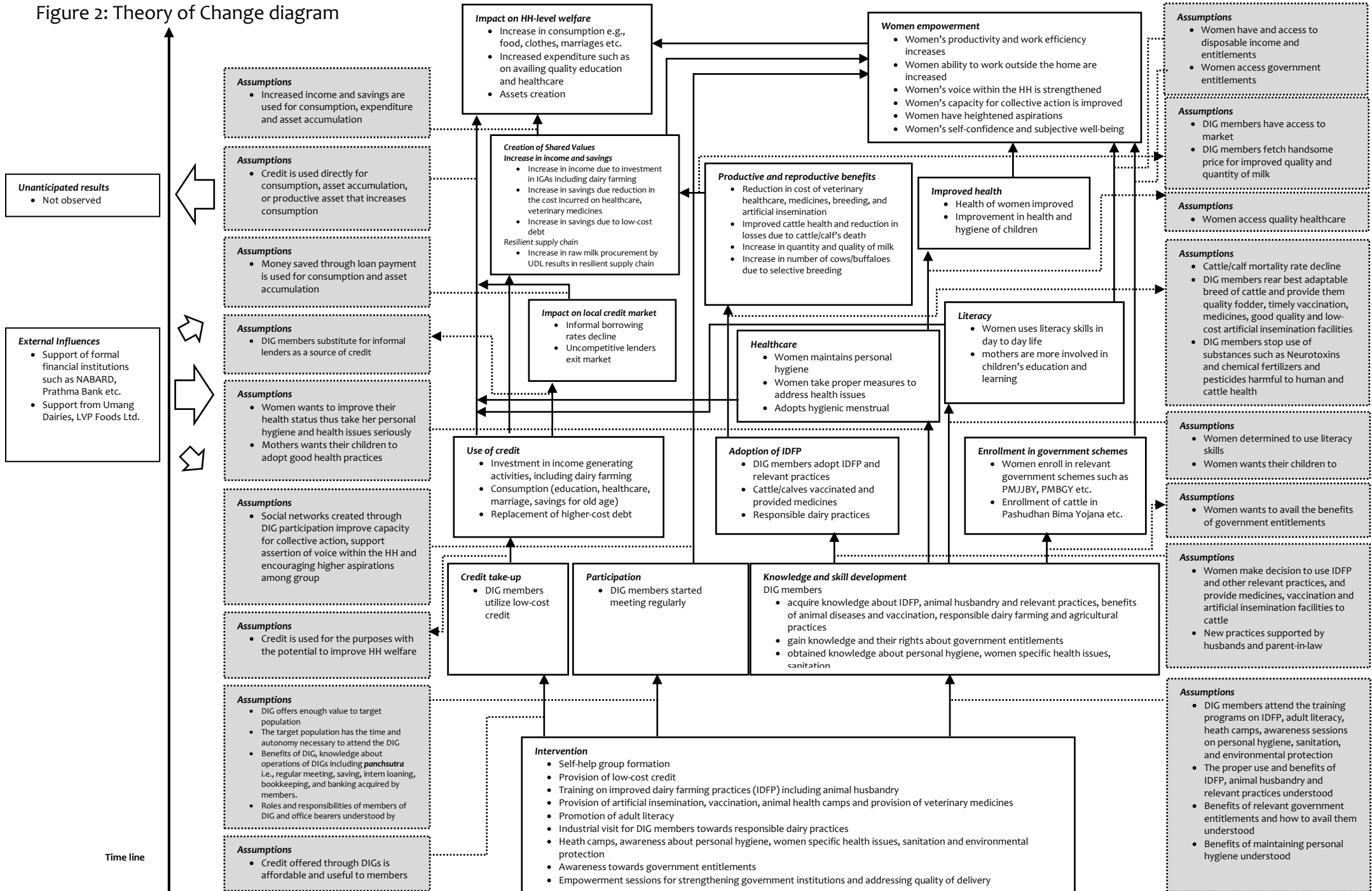
The study uses Difference-in Differences (DID) to evaluate the causal effect of the intervention on desired outcome variables of members of DIGs. Alternative to randomized controlled trials (RCTs) DID, a quasi-experimental design, computes the difference in changes over time (from 2016 to 2019) between the treatment and control sample and measures *counterfactual* i.e., what would have happened to beneficiaries in the absence of the intervention.

DID assumes that both treatment and control groups have a common trend in the outcome variable before the treatment and that in the absence of treatment the original difference between treated units in the outcome will remain constant over time. This is important to ascertain that the change for the treated group is because of the treatment and not because the two groups were already different from each other at the beginning. The details of DID methodology is given at Annexure III.

Heterogeneous effects

Impact of the intervention on particular sub-groups like minorities and across age spectrum were also evaluated. Comparing treatment effects among sub-groups is termed testing for “heterogeneous effects”. The empirical models used to study the overall impact of intervention as well as effect on sub- groups like has been also given in Annexure III. The sub-group study was undertaken since these groups are generally vulnerable to socio-economic distresses.

Figure 2: Theory of Change diagram



4.5.1 Location, data, sample, surveys, unit of analysis and statistical testing

4.5.1.1 About the location of study

This study focuses on evaluation of DIGs spread across five Development Blocks of the Amroha district namely Amroha, Dhanaura, Gajraula, Hasanpur and Gangeshwari. The project location is depicted in figure 3.

4.5.2 Data

A mixed methodology approach using both the quantitative and qualitative study has been adopted to study the impact of intervention on individuals and HHs.

4.5.2.1 Quantitative data

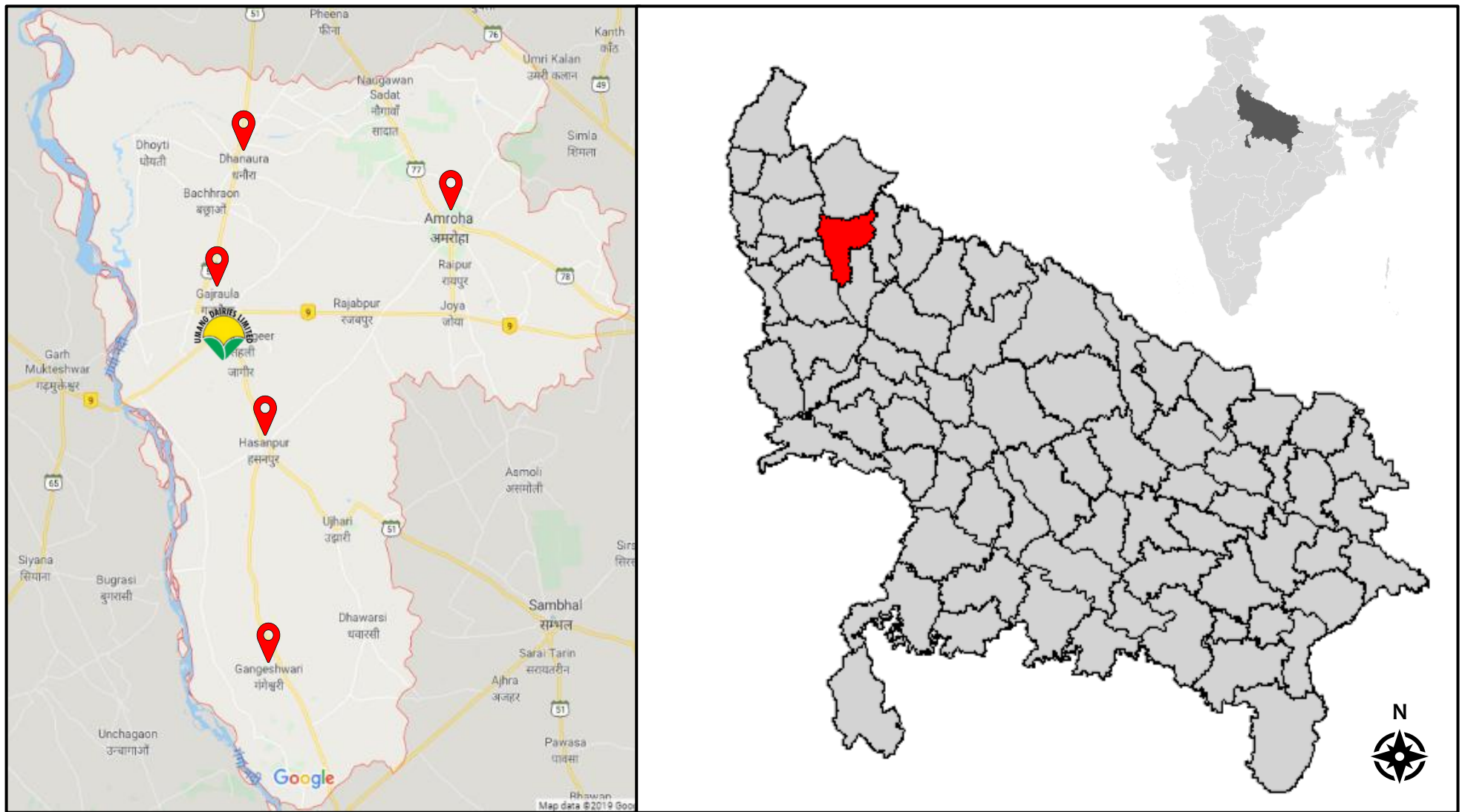
Quantitative data has been collected by conducting a HH survey in 15 villages spread across five development blocks, all blocks where the project has expanded, of district Amroha.

From each of the block a few villages were chosen at random from the full list of villages, and from each village a few DIGs, a total 65, are selected at random. The detail about number of villages and DIGs covered during the survey is given in table 1. A complete list containing name of villages and DIGs is given at Annexure IV. The final sample size is 346 women. Selection of treatment sample has been conditioned on credit linkage of DIGs while control sample has been selected primarily from newly formed DIGs which are neither credit linked nor linked with a bank. Of the 346 HHs in the sample, 255 forms the treatment group while 91 HHs have served as control sample. Interviews for the quantitative data has been conducted using structured paper survey form. The survey included detailed questions on income, expenditure, debt, asset holdings, livelihood activities, animal husbandry and dairying, loan replacements, women mobility, role in HH decisions, political participation, awareness and access to public entitlements. The questionnaire used for data collection is at Annexure V.

Table 2: List of blocks and number of villages and DIGs covered under the study

Block	No. of Villages	No. of DIGs
Amroha	3	6
Dhanaura	3	14
Gajraula	3	12
Gangeshwari	1	15
Hasanpur	5	18
Total	15	65

Figure 3: Location of study area



4.5.1.2 Qualitative data

Qualitative data was collected through a variety of methods: a) personal interviews (open ended semi-structured), conversation with project participants and members of newly formed DIGs; b) Focus Group Discussions (FGDs) with participants and non-participants; c) structured interviews with key officials of Umang Dairies Limited, SPARSH team and NABARD. A total 15 FGDs, with at least one FGD in each village, have been conducted. The participants for FGDs belonged to two or more different DIGs. The average size of the group for FGDs have been around 15. Thus, approximately 255 women have been covered during the FGDs. The qualitative nature of the study helped to map the attitude and perceived relevance of intervention in the eyes of the participants. Additionally, 10 case studies have been captured with the help of in-depth interviews with individual women. Thus, the qualitative study coupled with the case studies captured through personal interviews have enabled us to triangulate the findings of quantitative research.

The qualitative study revealed several issues relevant to women's lives – and their experience of DIGs –that otherwise would not have been revealed by quantitative survey methods used for impact evaluation. The participatory nature of methods encouraged women to initiate conversations, ask questions, and share their personal experiences. Though most of the information received from participatory methods was not new but revealed nuances in women's experiences that helped us reflect on the ways to connect their work to complex challenges faced by women.

Moreover, listening to participants helped in understanding motivations for why and how people participate in DIGs, save etc. It also enabled us to value women's experiences and understand more systematically some of the ways that their lives are affected by shocks and stresses and how self-help groups strengthen resilience.

The interviews have been combined with direct observations of project activities and focused on understanding how the project and its frontline workers have been responsible for the observed changes. All the interviews and FGDs have been conducted in Hindi which is the local language of the intervention area. The major themes for qualitative research have been physical mobility, informal lending methods, usage of debt, overall perception about the intervention, multitude of traditional and new ways people supported each other in times of difficulty and collective capabilities.

4.5.1.3 Unit of analysis

Both the HH and individual have been taken as unit of the analysis.

4.5.1.4 Statistical testing

Independent means and t-tests have been used to calculate on comparative data assessing statistical significance of differences between treatment and control group. The data analysis has been conducted using the programming language 'R'.

4.5.1.5 Implementation of impact evaluation

The impact evaluation was conducted in three phases. During Phase 1, a visit was paid to one of the key intervention sites where an informal discussion took place with the members of DIGs, officials and field staff of SPARSH. After a detailed discussion with the key stakeholders of the project an impact evaluation strategy was devised. A thorough discussion with the project implementation team led to the development of theory of change (figure 1). Based on ToC indicators, research methodology and survey instruments were designed.

Phase 2 started with the pilot testing of the survey instruments in Shahpur village. Since the SPARSH team has already been working in the village its field staff ensured community mobilization and door-to-door visit of research team for HH surveys, personal interviews and FGDs. The survey questionnaire and data collected through it were analysed for check their appropriateness and extent to answering the hypothesized questions. After the analysis of preliminary data collected during the second phase and the suggestions of the SPARSH team the questionnaire was modified and retested.

The data collection, data analysis, presentation on findings of the study, report writing, and submission of draft and final report took place in Phase 3.

The project began in 2016. Thus, the duration of exposure to the intervention in treatment group is only over three years at most. Therefore, the present study reflects a midline assessment of intervention.

4.5.1.6 Limitations of study

Since suitable baseline data was not available for the study the baseline was created by the method of "Recall".

5. Demographic and socio-economic characteristics

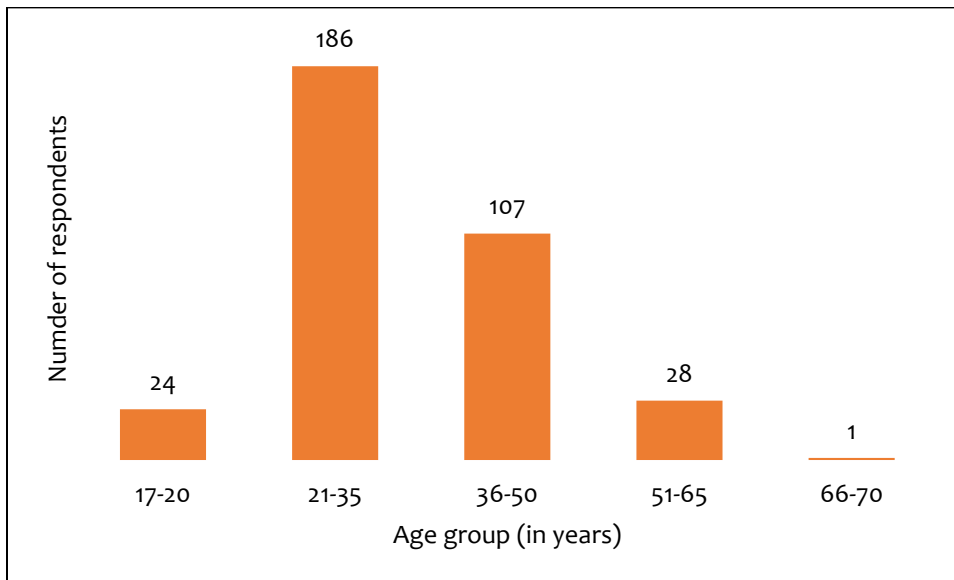
The demographic and socio-economic variables studied includes age, religion, caste, marital status, status and size of landholding, education, HH size, HH income and status of animal husbandry and dairying. These variables have been discussed in detail below. The summary

statistics of demographic and socio-economic variables of overall sample vis-à-vis treatment and control group is given at Annexure VI.

5.1 Age-wise distribution of sample

The age wise distribution of the overall sample is depicted in figure 4. The largest (54%) proportion of the sample lies in the 21-35 years group followed by 31%, 8%, 7% and 0.29% in the age bar of 36-50 years, 51-65 years, 17-20 years and 66-70 years respectively.

Figure 4: Age wise distribution of sample

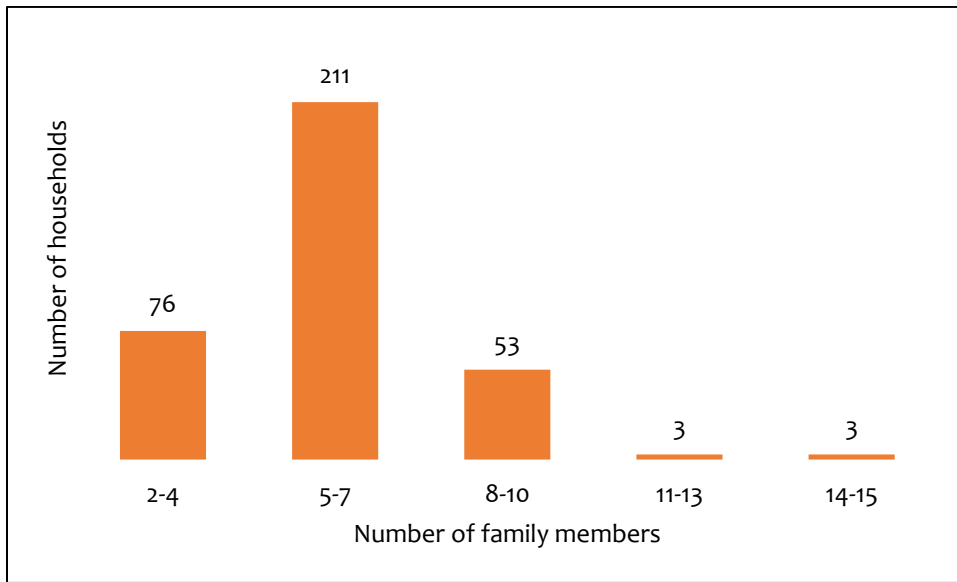


The average age of a woman in treatment and control group is 35.5 years and 33.5 years respectively.

5.2 HH size

The average size of HH in the full sample is 5.90. The result on HH size also conforms with the Census data of 2011. The average number of persons in a HH range from 2-15. The difference in the average size of a HH among treatment and control do not differ significantly. In treatment sample the mean of HH size is 5.91 which is only 0.06 points more than the control group. The distribution of sample according to the HH size is shown in figure 5.

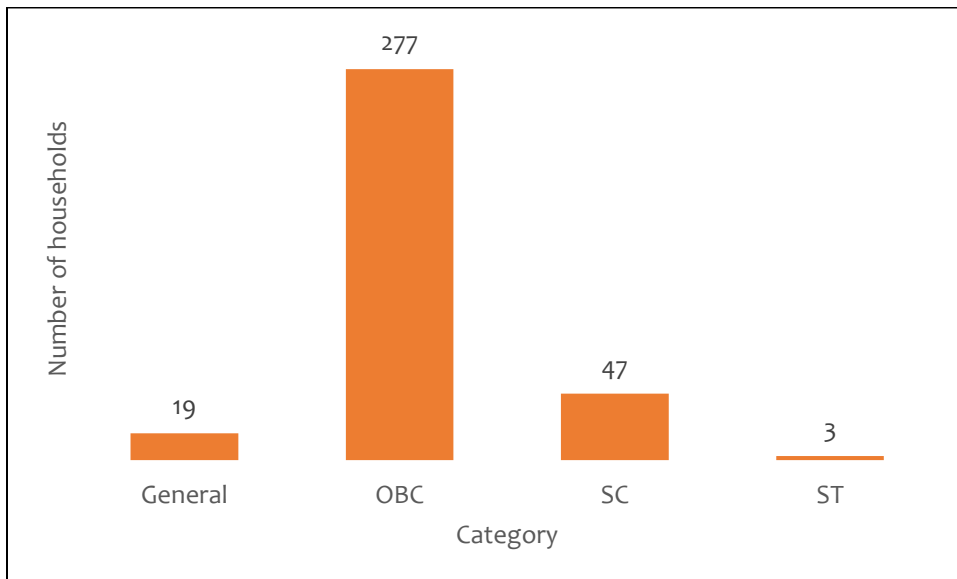
Figure 5: HH size



5.3 Category wise distribution of sample

The distribution of entire sample based on different categories is shown in figure 6.

Figure 6: Category-wise distribution of sample



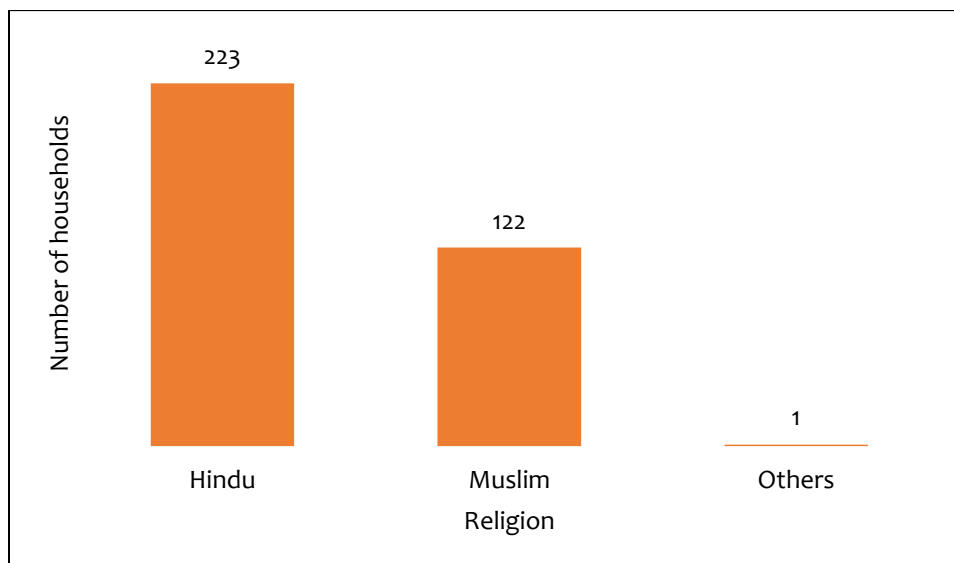
The persons from Other Backward Classes (OBC) have the largest representation in the sample followed by Schedule Caste (SC), General and Schedule Tribe category. The average number of SC caste individuals in treatment group differs significantly from control group. Likewise, a significant difference has been found in the average number of ST individuals among treatment and control groups. However, no significant difference exists among the

treatment and control group regarding average number of OBC and General category persons.

5.4 Religion

Overall the sample constitute 64.5% Hindus and 35.9% Muslims. The average number of Hindus in the treatment (66.7%) and control (58.2%) groups does not differ significantly. Similarly, there no significant difference has been found in the average number of Muslims in treatment (32.9%) and control (41.8%) observations. Figure 7 shows composition of sample by different religious groups.

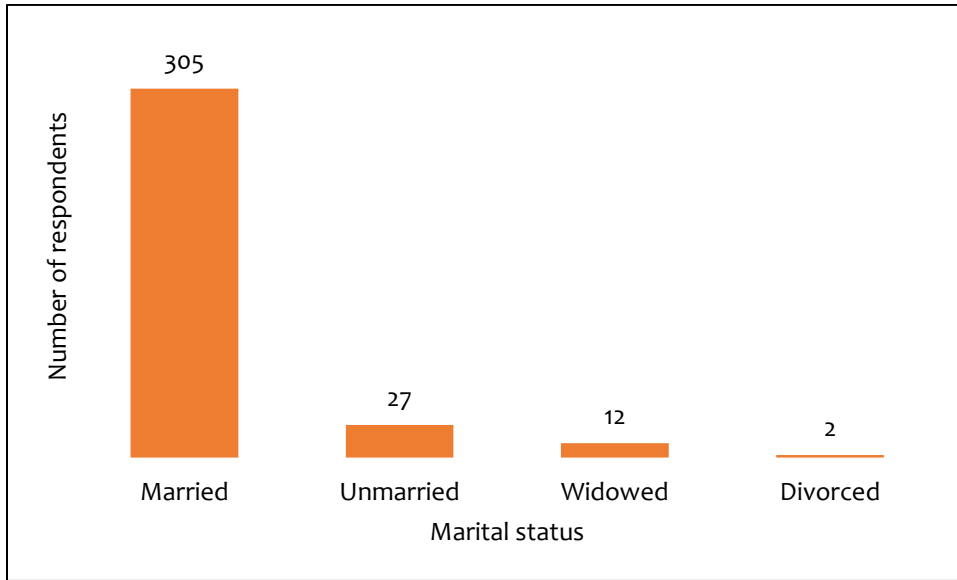
Figure 7: Composition of sample by different religious groups



5.5 Marital status

In case of marital status, the average number of persons in married, unmarried and widowed category do not differ significantly among the treatment and control group. However, a significant difference has been found in average number of divorced women between treatment and control group, latter having slightly lower. The number of individuals based on marital status is given in figure 8.

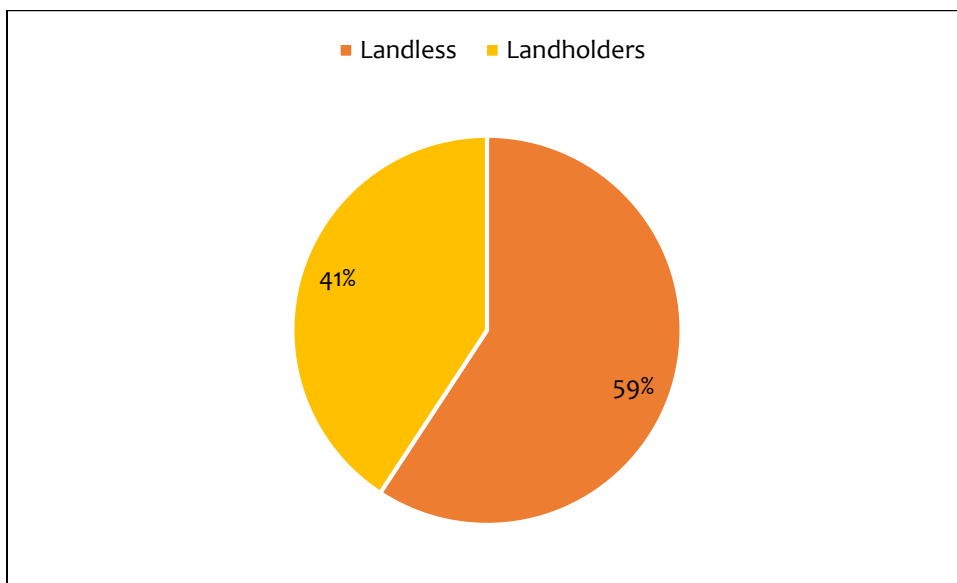
Figure 8: Marital status



5.6 Land holding

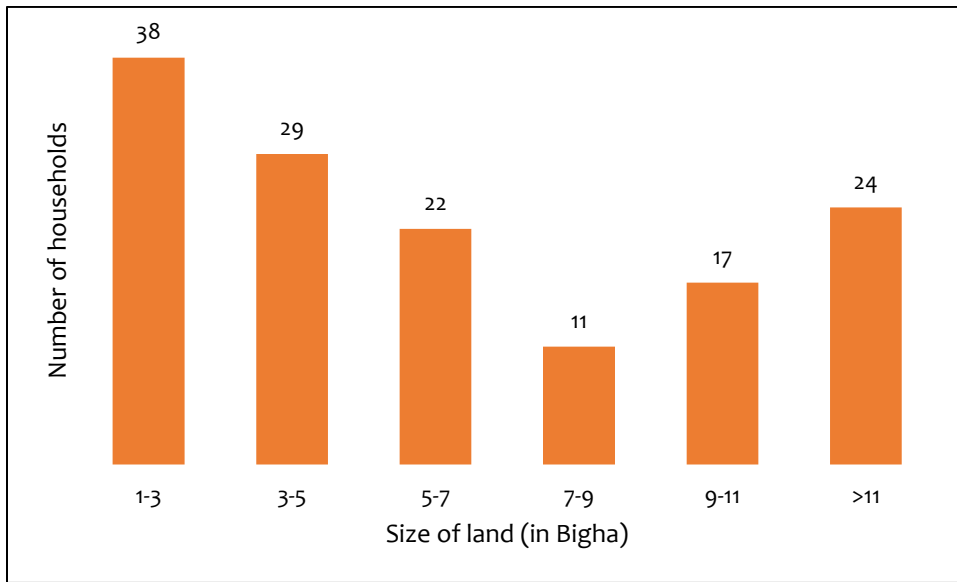
Of the total sample 59% individuals are landless (figure 9). The treatment and control HHs own an average 3.60 and 1.57 bigha respectively. The average landholding between the treatment and control group differ significantly with treatment HHs having an average 2.03 bigha of land more compared to the control group.

Figure 9: Percentage of landless and landholders



The distribution of HHs based on the average land size is described in figure 10.

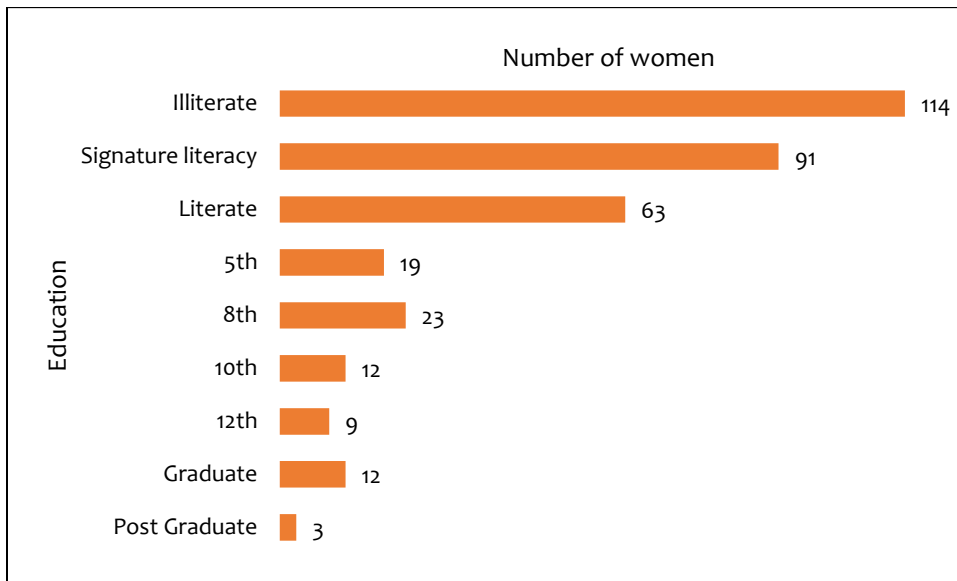
Figure 10: Distribution of HHs based on average land size



5.7 Education

Figure 11 reflects the number of persons into different educational categories. The largest portion of the sample is constituted by illiterates (33.2%). Signature literates (26.3%) and literates (17.9%) shares the second and third largest part of the pie respectively. There is no significant difference in the means of treatment and control group across different levels of education.

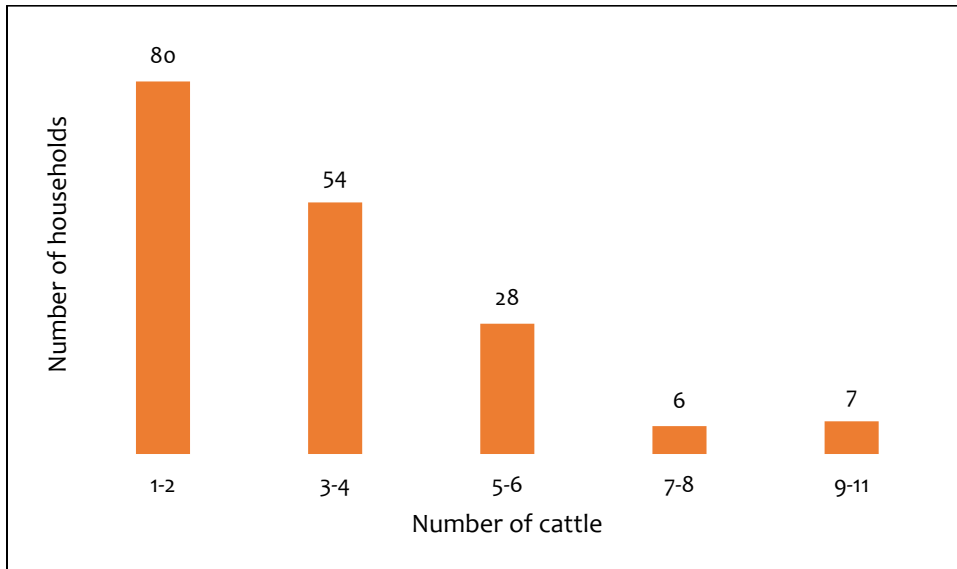
Figure 11: Sample distribution according to education



5.8 Herd size

The average herd size for a HH stands at 3.21 and the median herd size for a HH is 3. 46% of the HH have herd size in the range 1-2 cattle, 31% have 3-4 cattle, 16% 5-6 cattle and 7% owns more than 7 cattle. The distribution of HHs according to herd size ownership is given in figure 12.

Figure 12: Herd size

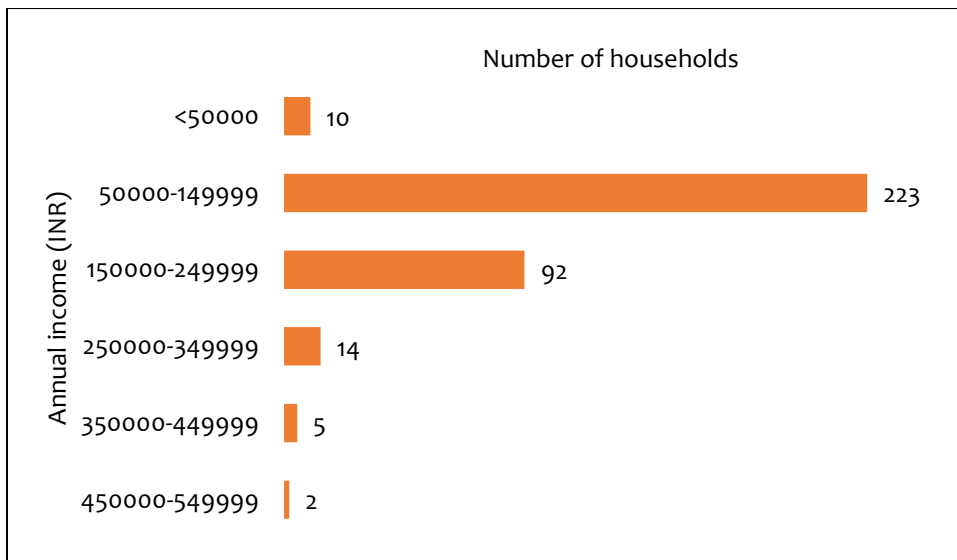


Note: N=175 (only those who practice dairy farming)

5.9 HH income

The distribution of annual HH income of sample is depicted in figure 13.

Figure 13: Annual income distribution of HH sample



The average annual income for a HH is INR 1,34,007 and the median annual income for a HH is INR 1,20,000. 33% of the HHs earn a yearly income below INR 1 lakh and 53% earns more than INR 1 lakh but below INR 20000 a year 14% of the HHs earn more than INR 2 lakh a year.

5.10 HH expenditure

The average annual expenditure for a HH is INR 83,817 and the median annual expenditure for a HH is INR 72,325. 25% of the HHs spend below INR 50,000 and 47% spend more than INR 50,000 but below INR 1 lakh a year 18% of the HHs spend between INR 1-1.5 lakh and 10% spend more than INR 1.5 lakh a year. The expenditure distribution for the sample HHs is shown in figure 14.

Figure 14: Annual expenditure distribution of HH sample

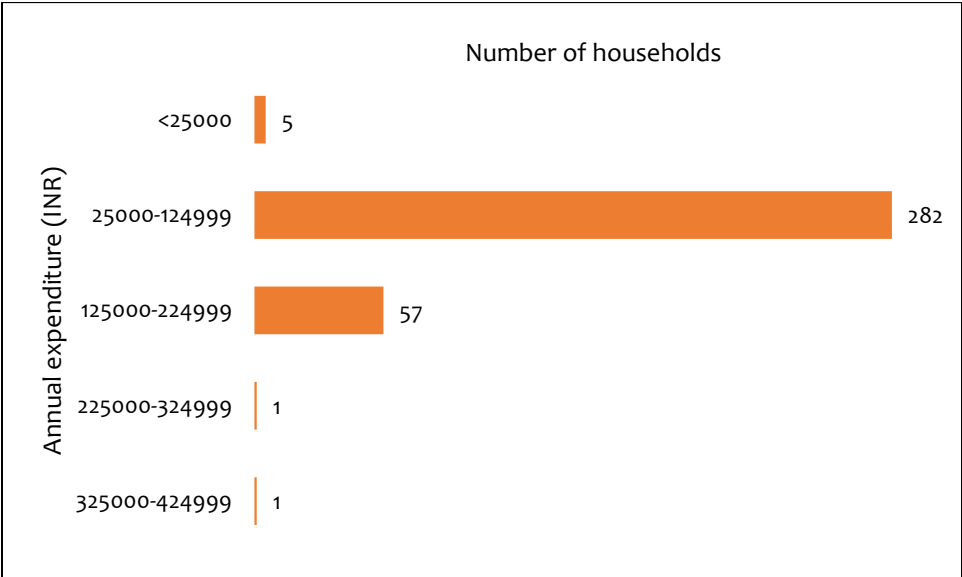
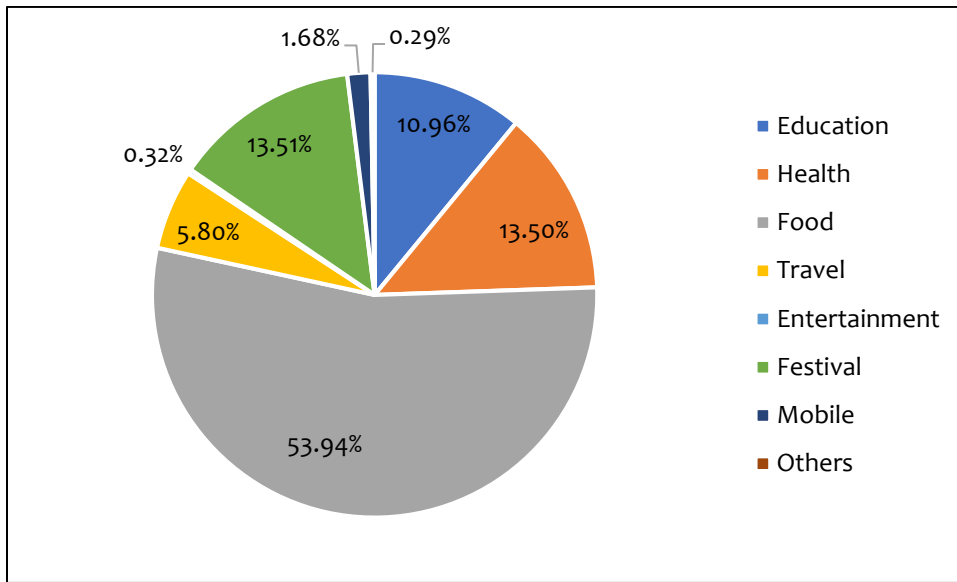


Figure 15 shows that a HH spends majority (53.94%) of its annual budget on food (INR 3,771 per month). Health and festival are the next two major portion of the expenditure pie sharing equal portion of the pie that is 13.50%. Surprisingly, a HH spends more on festivals compared to education even though expenditure on education may create long-term economic benefits for the HH.

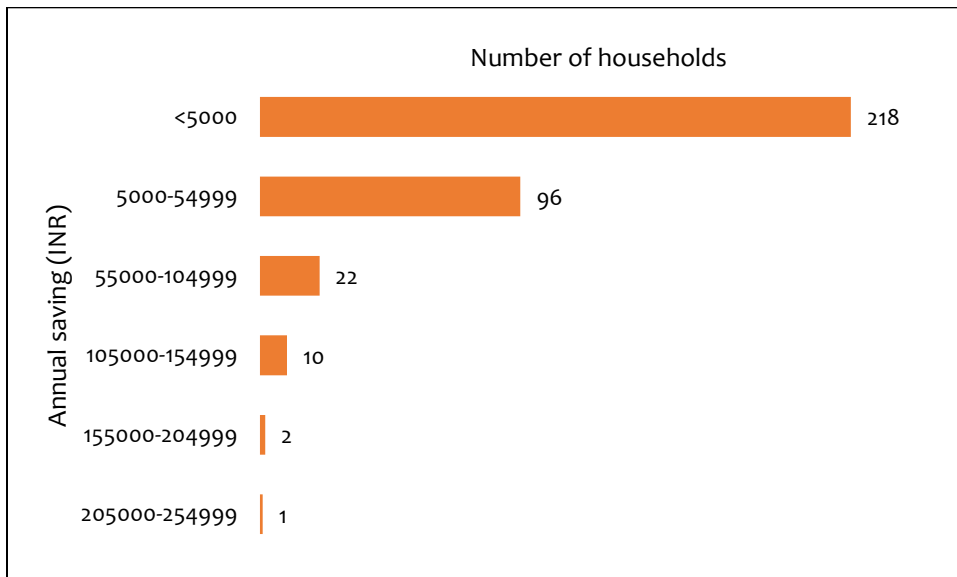
Figure 15: Area wise monthly distribution of expenditure



5.11 HH savings

The average annual saving for a HH is INR 16,338 and the median annual saving for a HH is INR 1,200. 63% of the HHs save below INR 5,000 and 16% save between INR 5000-25000, 8% save between INR 25000-45000 and 13% spend more than INR 25,000 a year. Figure 16 portray the distribution of annual HH savings.

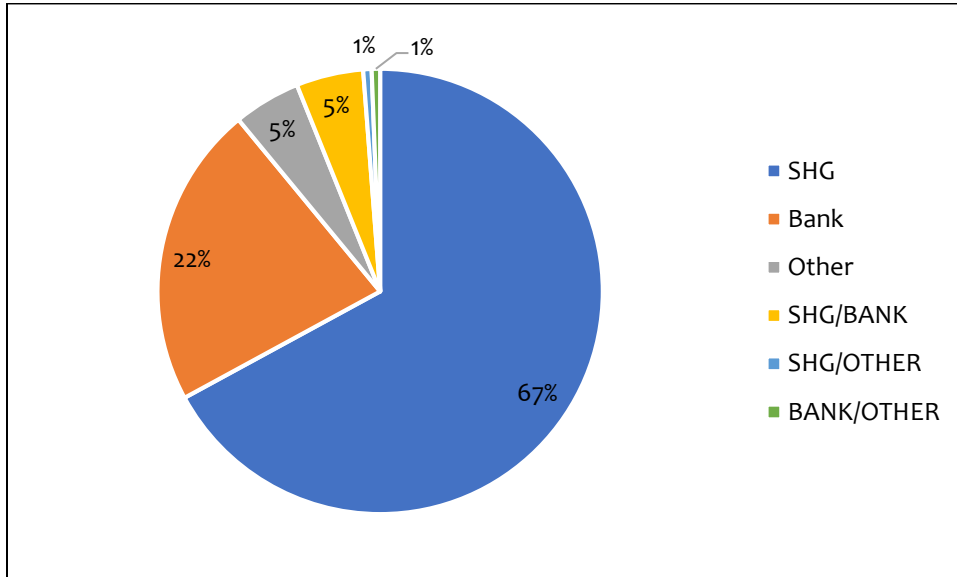
Figure 16: Annual savings distribution of HH sample



5.12 HH debt

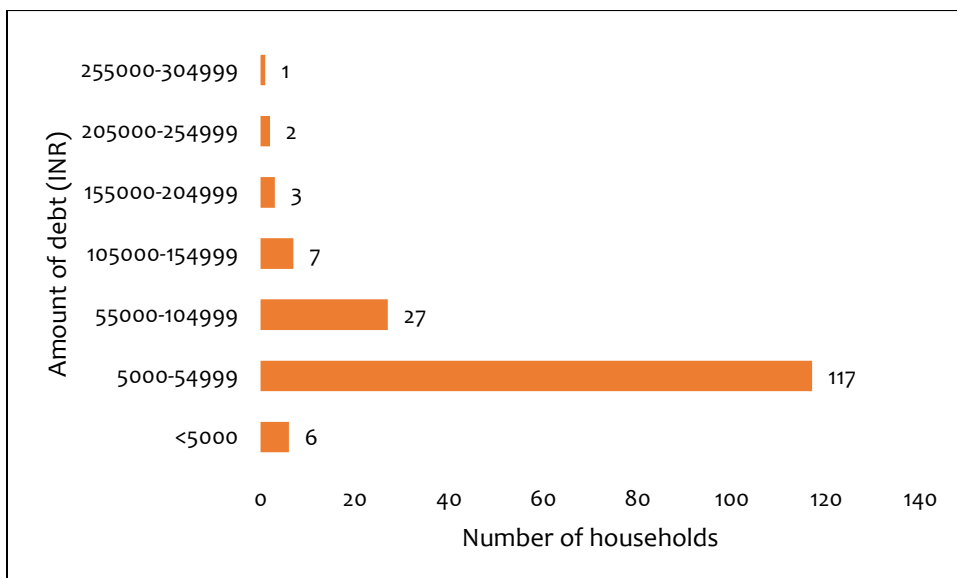
The sources of debt for the sample are shown in figure 17. 48% HHs in the sample reported to have an active loan during the time of study. 67% of these loans have been taken from the DIGs while 22% have been taken from banks. About 5% of the HHs have loans from informal sources whose monthly interest rate range from 5-15%. 5% HHs have borrowed from both DIG and Bank and 1% each from DIG and informal lender and Bank and informal source.

Figure 17: Sources of debt



Note N = 163 (only those who have debt)

Figure 18: Distribution of loan amount



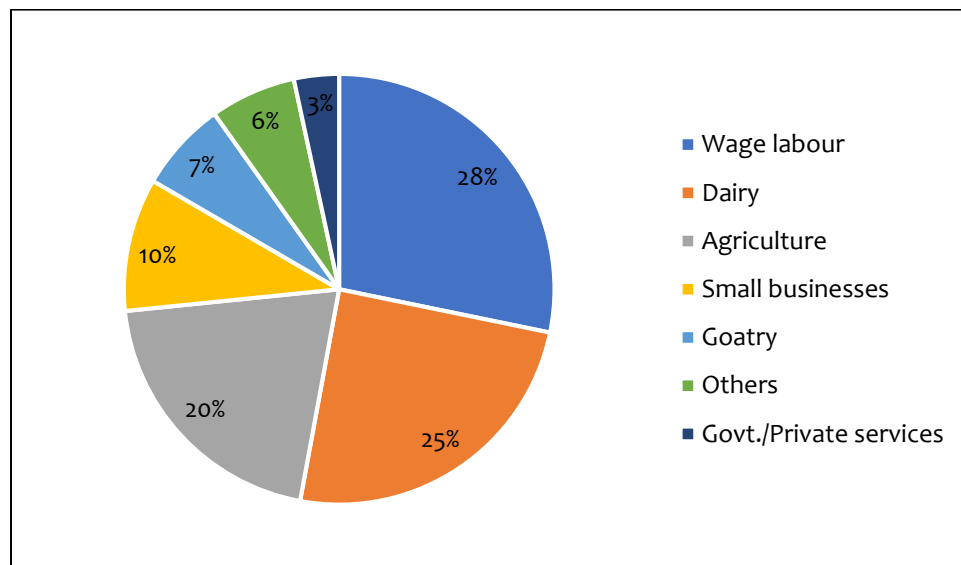
Note: N = 163 (only those who have debt)

The distribution of amount of debt taken by HHs in the sample is given in figure 18. 72% of the HHs in the sample have a loan between INR 5,000-54,999, 17% falls with the INR 55,000-1,04,999 loan category, 4% HHs have borrowed below INR 5,000 while an equal percentage have loan ranging from INR 1,05,000-1,54,999 and INR 1,55,000-3,04,999. The larger loan amount generally reflects the amount borrowed from bank on Kisan Credit Card.

5.13 Livelihood

Figure 19 depicts the composition of occupation in the sample. The majority (28%) of the working individuals are involved in casual wage labour. These people are engaged in bidi making, nearby factories, construction sites etc. Animal husbandry and dairy is the second most prevalent occupation with 25% of the individuals have been found to be involved in cattle rearing. Women have been found to be solely responsible for dairy farming except in a very few cases where the male earner has dairying as the primary occupation. Agriculture and petty businesses constitute 10% and 7% portion of the occupational pie respectively. The rest of the individuals are involved in goatry, government and private services etc. is next most reports being employed.

Figure 19: Primary occupation composition



Note = 620 (since several HHs have multiple earners and sources of income)

6. Impact of the intervention

6.1 Relevance

The relevance of the project was tested considering whether it addresses the needs and issues of the women, what value does women see in participating in the project and whether intervention has well defined criteria for the selection of target beneficiaries. Moreover, since the primary goal of the project is creation of 'Shared Value' the project has also been tested for its relevance to the UDL.

Perception about importance and value creation

The results suggests that 88% women in treatment sample feel that DIGs are important for economic development of women while 74% believe that it is a platform to receive important information. 83% women from treatment sample feel better prepared for any sudden financial crisis due to participation in the DIG. 88% women said that they can ask for anything they need from SPARSH.

However, sometimes the members are not able to leverage the benefits of participation in the DIG. A few mentioned that even though low cost credit is being provided by the DIGs, but sometimes the group fail to address emergency needs of individuals. Despite the availability of low-cost credit, the DIG members have been forced by circumstances to borrow high cost credit. The primary reason is that loans are disbursed only during the scheduled DIG meetings, twice in a month, due to which the emergency needs of members are sometimes not met. Munisha a member of Nisha DIG of village Porara of Ganghewari block is one such case who was forced by these circumstances to take a high-cost debt because the group meeting had 10 days to take place. There are only a few DIGs who have provision for emergency meetings where the sudden needs of the members are addressed.

Moreover, focused group discussion (FGD) with the members of DIGs in Mangroli villages revealed a feeling of dissatisfaction towards SPARSH. According to these women they have been providing cutting and tailoring training with a promise of making the tailoring work available for them at their doorstep. However, no such work has been provided so far.

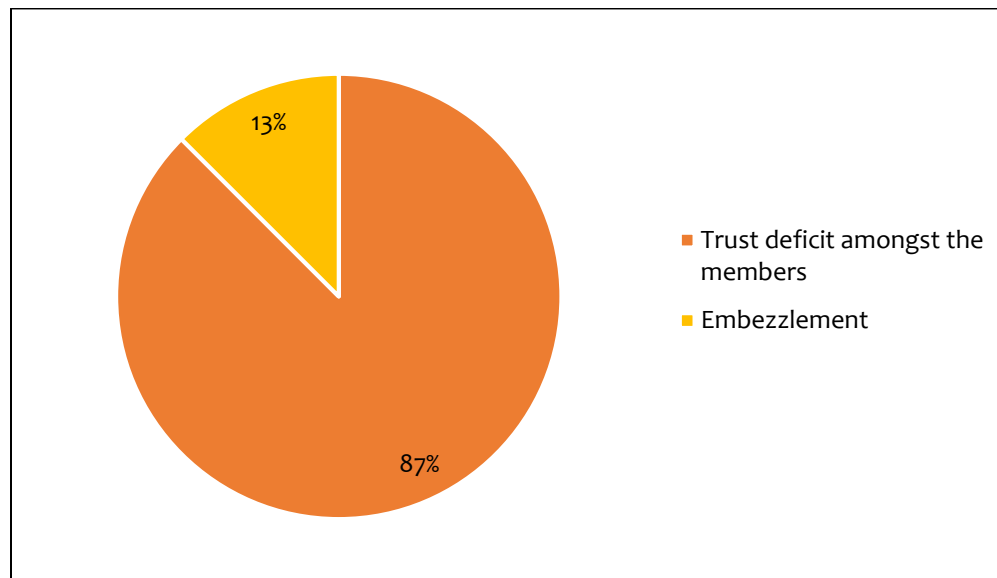
A few group members also registered their grievances with the research team. A member of Mahi SPARSH DIG told that SPARSH had promised to pay (INR 3,000 per DIG) for forming a DIG in the village. She mentioned that despite forming three DIGs she has not received any payment.

It has also been found that out of the 65 DIGs covered under the study three were defunct and not engaged in any DIG activity such as saving, inter-lending etc. As shown in the figure 20, 87% women respondent said that the main reason for the non-functionality is trust deficit

among the group members. Women from defunct DIGs explained that there is a suspicion that members will not repay the loan amount.

Ms. Vidya, Ex-field staff of SPARSH from Neeli Kheri recounts her story and narrate what motivated her to become one their most successful volunteers of SPARSH. She also explains the importance of this intervention in addressing the socio-economic issues of women. Her exciting journey is portrayed in Box 1.

Figure 20: Reasons for non-functionality of DIGs



What motivates women to join the DIGs?

During the FGDs, majority of women reported that the primary reason for joining the DIG is to make regular savings. Another major reason is availability of low-cost credit during the times of any emergent financial needs. Opportunity provided by the DIG to start and income generating activity was also a major reason for many women to join the DIGs.

Box 1: Values, trust and growth – story of Vidya

Values, trust and growth: story of Vidya



Vidya was initially a teacher at a nearby mission school. Then, a philanthropic Institution approached her to make self-help groups for them. These groups did some saving, but those accounts were not credit linked. This experience helped Vidya, when people from SPARSH came into the village. They requested her to establish the DIGs in the villages. According to Ms. Vidya, she took this opportunity after realizing that the SPARSH model had more benefits for the women in particular and the society in general.

The money is being controlled by the women themselves and no lending happens in cash so there are lesser chances of cheating by anyone. This contributes immensely in building the mutual trust and confidence in the system. The interest rate is also less at 2%. Additionally, as women handles everything, and they know each other for years so they are aware with the nature and genuineness of the constraint of the individuals in the group. This prevented any bad debts. Most importantly these DIGs are credit linked with the Bank so they could get loan of higher amount for buying cattle or land.

Vidya helped in constituting and running of more than 30 DIGs. She helps them in decision-making and conflict resolution. Also being one of the oldest SPARSH staff, she is very much aware with the processes and system in place for smooth functioning of these groups.

She has recently left her work as field coordinator, as she needed to be at home. Also, she couldn't travel as much as 'these new girls can'. She proudly mentions that her daughter has joined SPARSH and taking her work forward.

Her personality has an imprint of her being a working woman throughout her life. Her confidence and openness to new challenges are proof for the same. She is an inspiration and guide for members of DIGs.

Linkage to supply chain

Since the project envisages to create shared value, the evaluation has tested the relevance of the DIGs by measuring the extent to which these groups help UDL in developing a resilient supply chain. It has been found that 31% of individuals in the treatment sample supply milk on regular basis to Umang Dairies. About 206 liters of raw milk is supplied daily. Out of this 67% is procured from women of Dhanaura, 20% from Gangeshwari and 13% from Hasanpur block.

Although the above figures are decent but the supply of raw milk to UDL may increase considerably if more Village Collection Centre (VLC) can be opened in the villages where the DIGs are operational. Such an initiative may gel well with the entrepreneurial aspirations of women. Even the project already has training component in animal husbandry and dairying practices, but establishment of a model cattle farm, of about 15-20 highly productive cattle, may provide a platform to SPARSH to further help the DIG members in learning and adopting improved dairy farming practices (IDFP).

Alignment with national and global goals

The objectives of the project are in conformity with the following national and global development priorities.




National

The objectives of the project are also aligned with scheme of state and central government. The objectives are in sync with the National Policy for Women² and with activity (iii) of the Schedule VII of Companies Act, 2013.

Sustainable Development Goals (SDGs)

Table 3 shows the SDG and its specific goal being covered by the project.

Table 3: Relevance of the intervention with SDGs

SDG	Target addressed by intervention
 <p>1 NO POVERTY</p>	<ul style="list-style-type: none"> • Ensure financial services, including microfinance, to women, the poor and the vulnerable
 <p>5 GENDER EQUALITY</p>	<ul style="list-style-type: none"> • Empowerment of women and girls
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<ul style="list-style-type: none"> • Productive employment and decent work for all women • Support to productive activities, entrepreneurship, and encouraging the micro-enterprises, including through access to financial services

² https://wcd.nic.in/sites/default/files/draft%20national%20policy%20for%20women%202016_0.pdf



- Empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

6.2 Efficiency

6.2.1 Cost efficiency

The cost efficiency of the project has been judged on two criteria i.e., i) cost of nurturing one SHG and ii) level of leverage attained by the project.

i) Cost of nurturing the SHG

Total number of SHGs formed = 613

Total cost incurred from 2016-2019 = INR 90,00,000

$$\text{Cost of nurturing one SHG} = \frac{\text{Total cost}}{\text{Total number of SHGs formed}} = \frac{\text{INR } 90,00,000}{613} = \text{INR } 14,682$$

ii) Level of leverage attained by the project

a) Leverage from NABARD

- For the promotion of 575 DIGs as Self-Help Promoting Institutes (SHPI) - INR 57,00,000
- To provide “Dairy Enterprise Development” training to 150 DIGs under Micro Enterprise Development Programme (MEDP) - INR 6,18,000
- To provide “Cutting and Tailoring” training to 30 DIGs under Livelihood and Enterprise Development Programme (LEDP) - INR 50,000

b) Leverage from banks in the form of loan provided to the DIGs

- Provision of loan to DIGs through national and regional banks = INR 1,52,00,000

Total leverage = INR 2,15,68,000

$$\text{Leverage ratio} = \frac{\text{Total cost}}{\text{Total amount leveraged}}$$

$$\text{Leverage ratio} = \frac{\text{INR } 90,00,000}{\text{INR } 2,15,68,000} = \frac{1}{2.39}$$

The intervention is cost efficient as project has been able to leverage double the cost incurred by the organization on intervention.

6.3 Impact

6.3.1 Savings

There is a significant impact on saving pattern of individual women impacted by the intervention. Prior to joining DIGs, 49 % were making savings. As a result of joining DIGs, 93% women are regularly making savings. Majority of members of DIGs are saving INR 100 per month. In very few DIGs members are saving INR 200 per month. Figure 21 provide details on change in average monthly savings of women in treatment and control group from 2016-2019. It shows that a rise of 32.55% has happened in average monthly saving of woman in control group between the years 2016-2019. During the same period, the mean monthly saving of woman in treatment sample has increased by 78%.

Figure 21: Average monthly savings of women (by Treatment and Control group)

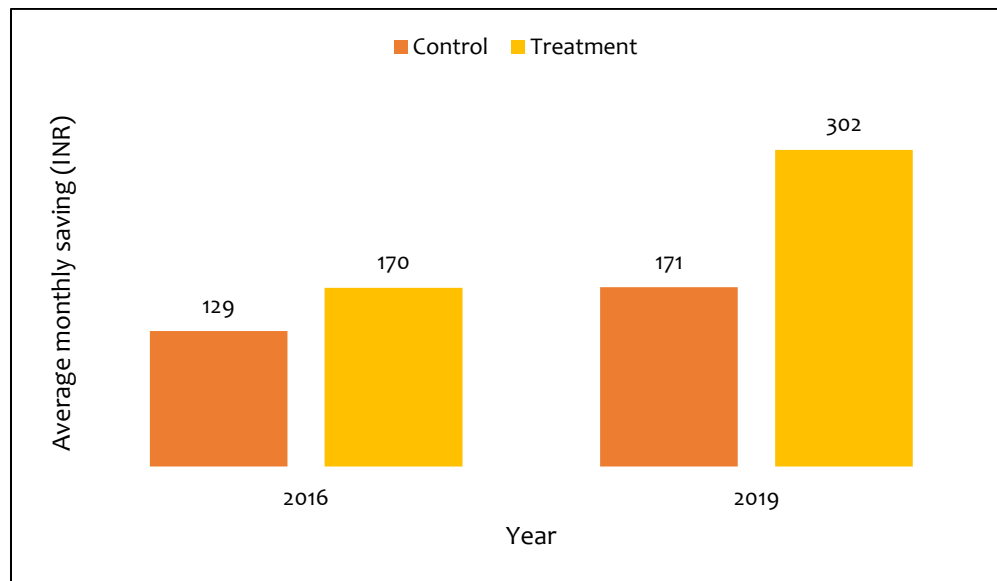


Table 4: DID analysis for savings of women

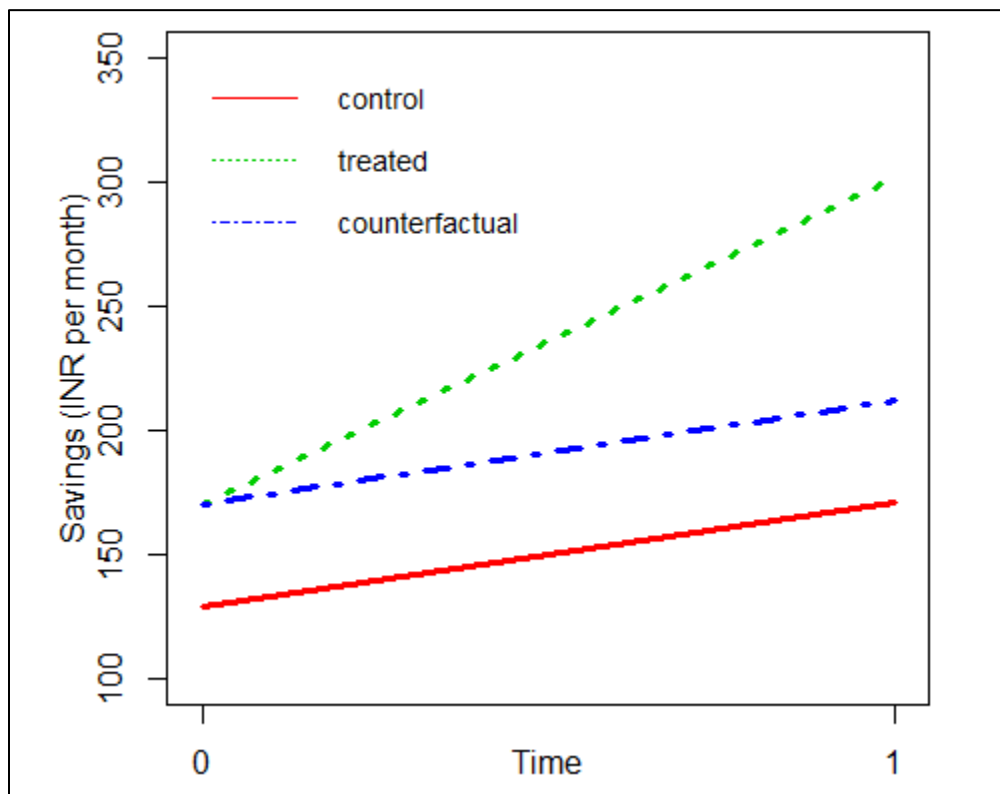
	Pre	Post	Post-Pre-Difference
Treatment (T)	170	302	132
Control (C)	129	171	42

T-C Difference	41	131	DID = 90
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The DID analysis in table 4 shows that women in treatment sample saves INR 90 more per month compared to women in control sample. The results of DID-regression are given at Annexure VII. The treatment also has a positive impact on individual savings across different social and economic categories and age groups expect individuals in the age groups 17-25 years and 41-55 years. A positive impact of the intervention has been observed on the overall monthly savings of women from minorities (INR 89), SC/ST (INR 117), landless (INR 95), age groups 25-40 years (INR 102) and >55 years (INR 138).

The counterfactual estimate is depicted in figure 22. The counterfactual shows that the average monthly saving of a woman in the DIG would have raised from INR 170 to INR 212 per month from 2016 to 2019 if they would not have participated in the DIG. However, due to participation in the DIG, the average monthly saving of a women has increased to INR 302 month.

Figure 22: DID for personal savings of women (Treatment, Control and Counterfactual)



However, the treatment has negatively affected the monthly individual savings of women the age groups 17-25 years and 41-55 years. However, a significant difference does not exist between the monthly individual savings of women treatment and control samples for

heterogeneous groups. The impact of the savings on confidence and empowerment of women is also visible among DIG members. One such case is recounted in Box 2.

Box 2: Dignity, confidence and empowerment: story of Jayeda

Dignity, confidence and empowerment: story of Jayeda

30 years old Jayeda, belongs to Jainab Swayam Sahayta Samooh from the village Kaneta. She has been part of this group since beginning December 2016. The DIG has done transactions of ₹5,12,000 in last two and a half years of its' existence. First it was credit linked for ₹50,000 and now it is having CCL of ₹1 lakh. From inter-loaning alone it has earned ₹21,200 as interest. The savings account has a balance of ₹56,000 from micro savings and interests.



She remembers how in initial days one of her groupmate left the group because of the family constraints. She is thankful that her family understands the importance of such groups and allowed her to be a part of this. She recounts that how her family members used to struggle for clean drinking water for which they were dependent on their neighbors. She fulfilled her family's much awaited need of clean drinking water by taking loan from her DIG. She got submersible water pump installed in her house and they no longer have to go anywhere for water.

She proudly shares that saving has become a habit for her now as she has to submit her share every month to the DIG. She also started going to bank because of her DIG. She feels this has improved her confidence. She along with her group members, complained to the senior officers about the problems they faced at the bank, with the support from SPARSH. She also agrees with her DIG's member Yashmin, about keeping the complaint ready, if the bank employees do not do their work properly.

On being asked about their dependency on the SPARSH for running the DIG, she quickly retorts **“Agar ye log nahi bhi aaye to hum chala lenge upne aap”** even if SPARSH staff quits we can run the DIG on our own.

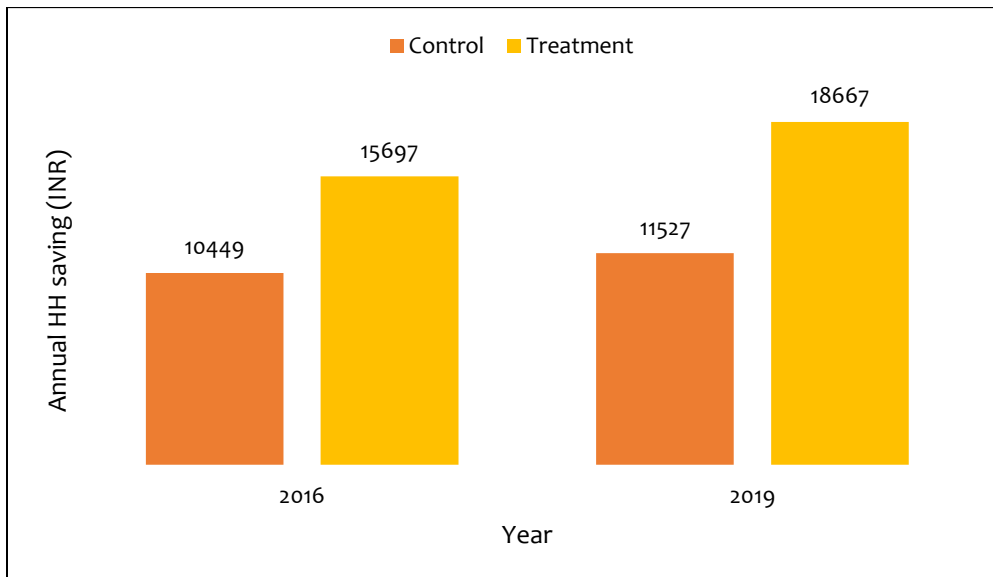
The project has visible impact on the average monthly savings of women. Thus, the intervention provided a good platform to women to inculcate saving habits.

HH savings

The participation in intervention increases the probability of saving by 0.47 points for both woman and HH. Data shows that the number of HHs who saves some amount has increased from 51% in 2016 to 85% in 2019. Only 54% of the HH in treatment used to save prior to joining the DIG while 98% of the HH in treatment sample save some amount every year. There is not much change for HHs in control group where the percentage of HH who save some amount has remain largely stagnant at 53%.

Figure 23 provide details of change in average annual HH savings by treatment and control group between year 2016 and 2019. Where the average annual HH savings have increased by 10% for the control sample these have increased by 19% for the treatment group.

Figure 23: Average annual HH savings (by Treatment and Control group)



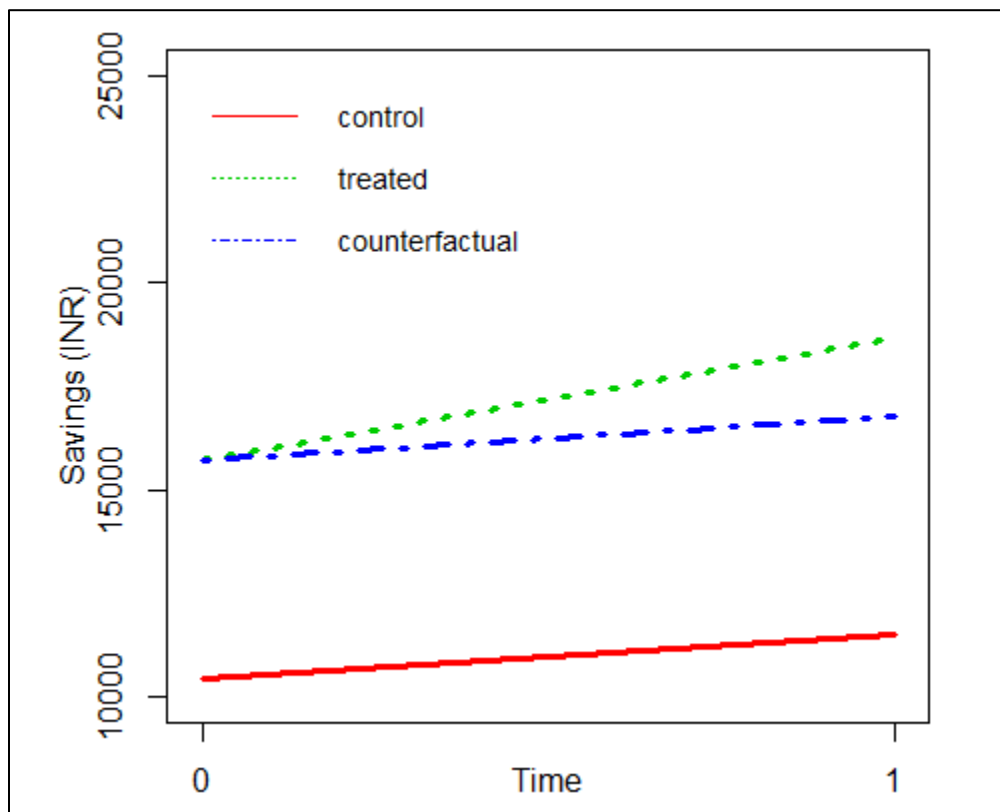
The DID analysis in table 5 shows that due to the intervention average savings of HHs in treatment sample exceed by INR 1892 vis-à-vis women in control sample. The results of DID-regression are given at Annexure VII. A positive trend has also been observed across the treatment HHs from minorities (INR 1937), landless (INR 2625) to HHs of individual in the age groups 17-25 years (INR 2525) and 25-40 years (INR 2037). The treatment, however, has negatively affected the annual HH savings of SC/ST, DIG members whose age is 41 years or more.

Table 5: DID analysis for average annual HH savings

	Pre	Post	Post-Pre-Difference
Treatment (T)	15697	18667	2970
Control (C)	10449	11527	1078
T-C Difference	5248	7140	DID = 1892

Figure 24 shed light on the counterfactual. The counterfactual shows that the average annual saving of a HH in the DIG would have raised from INR 15697 to INR 16,775 during the period 2016-2019 if they would not have participated in the DIG. But due to participation in the DIG, the average annual saving of a HH in the DIG has increased to INR 18,667.

Figure 24: DID for average annual HH savings (Treatment, Control and Counterfactual)



There is a positive impact of intervention on the average annual amount of savings of HHs of treatment sample. It may also be inferred that the impact of intervention on the savings are not limited to its members but pass onto their respective HHs.

Modes of saving

As depicted in figure 25, the source of saving has changed considerably for the entire sample between 2016-2019. In 2016, 50% of the women reported to keep their savings at home which has decreased to 13% in 2019. On the other hand, most women are now using DIG and Banks for saving purposes. Figure 26 and figure 27 shows change in the sources of savings in treatment and control group. Overall 87% of the members of DIGs utilize formal sources such as Bank and DIGs to keep their savings compared to 59% in control sample. 95% of the women in treatment have their own banks accounts compared to 93% in control group. In contrast, 47% women in control sample can do banking operations on their own while in treatment sample only 37% women can do so.

Figure 25: Sources of saving for entire sample in 2016 (L) and 2019 (R)

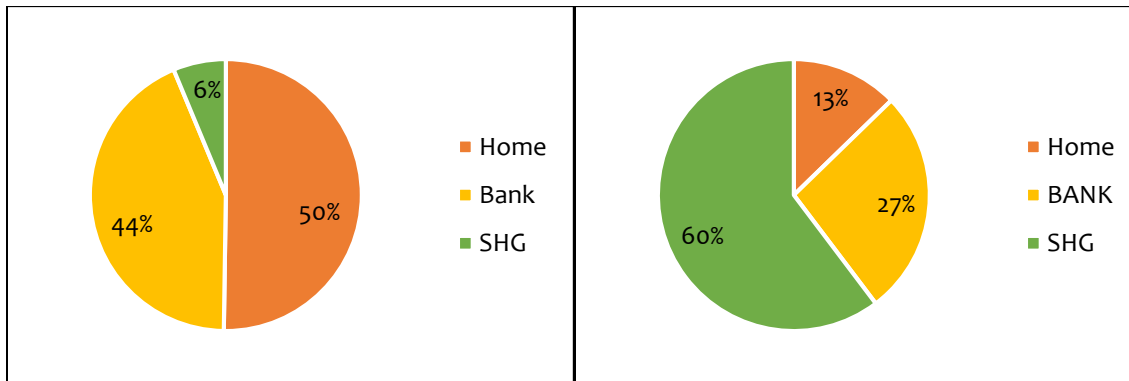


Figure 26: Sources of saving for treatment sample in 2016 (L) and 2019 (R)

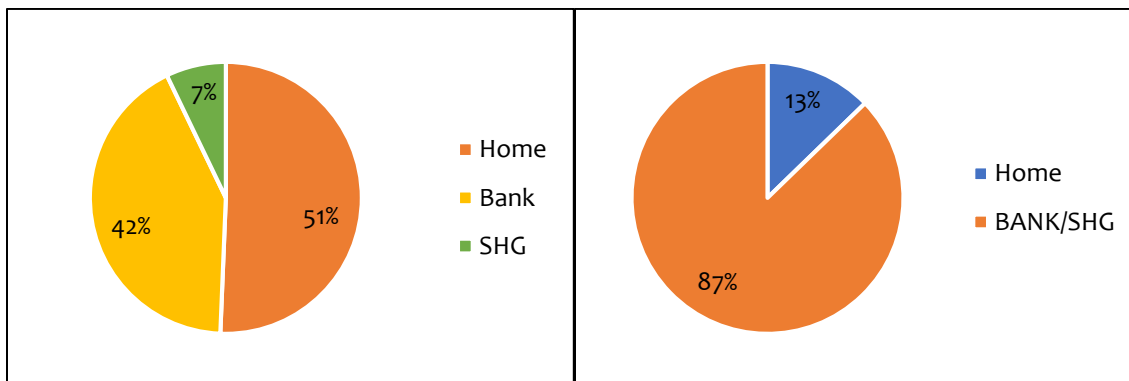
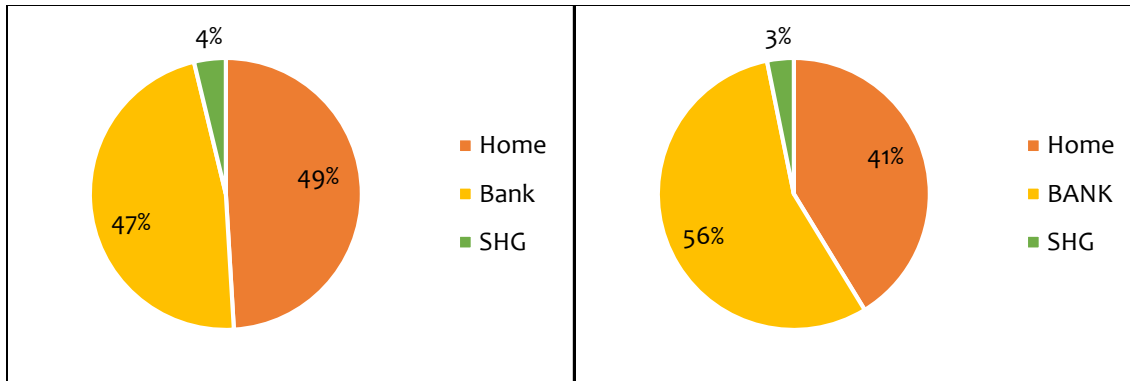


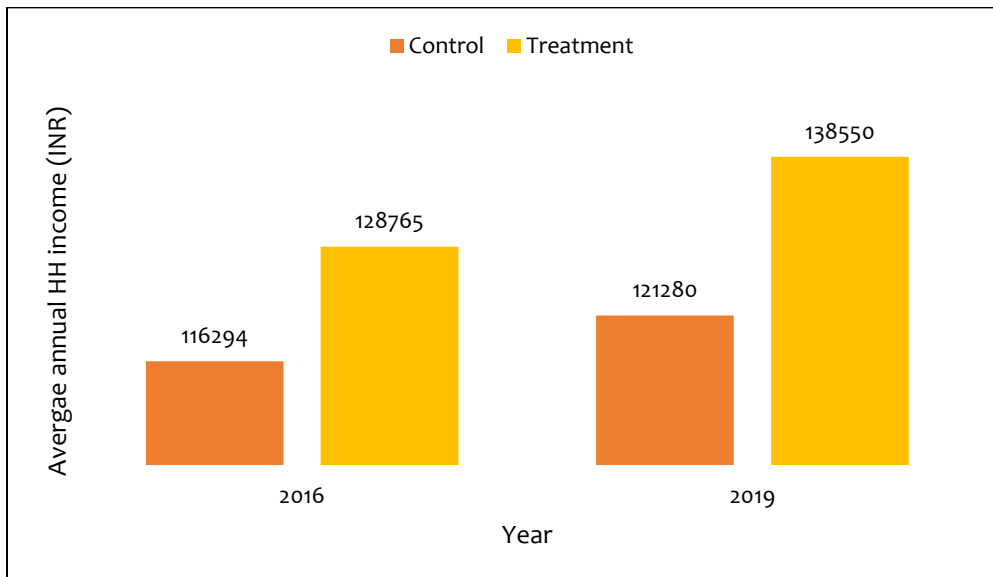
Figure 27: Sources of saving for control sample in 2016 (L) and 2019 (R)



6.3.2 HH income

The change in the average annual HH income of control and treatment sample is highlighted in figure 28. Their average annual HH income has increased by 7.6% and 4.3% for the treatment and control group respectively.

Figure 28: Average annual HH income (by Treatment and Control group)



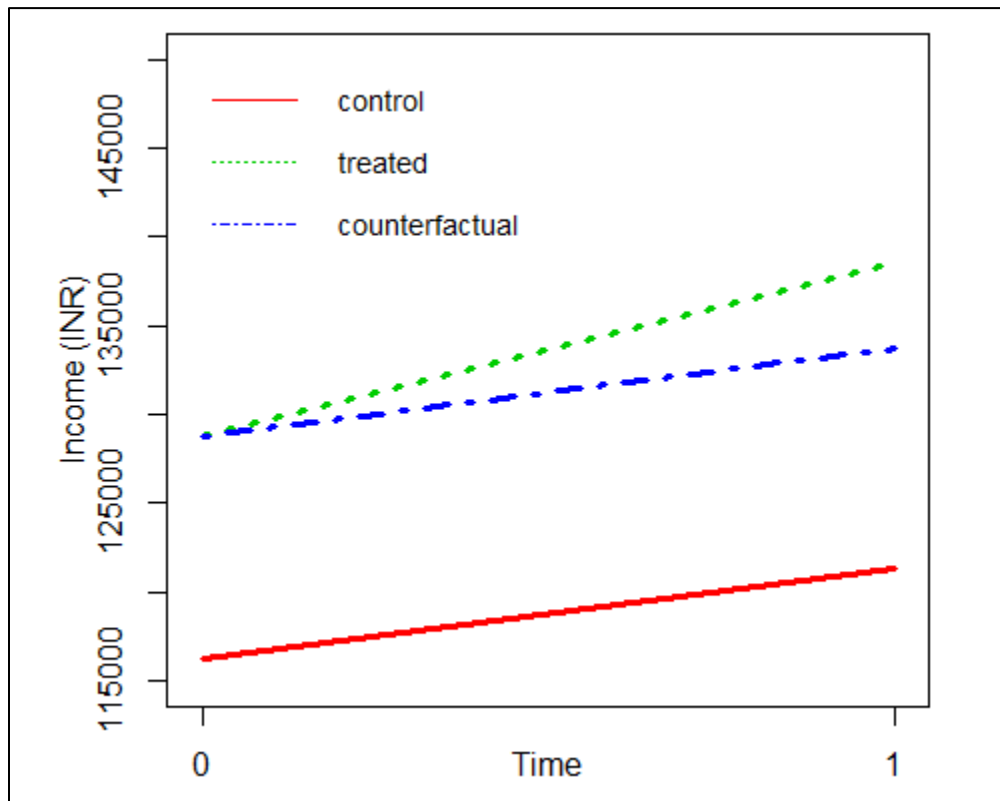
DID analysis shown in table 6 shows that due to the intervention the average annual HH income of the treatment sample has increased by INR 4,799 in comparison to the control sample. The results of DID-regression are given in Annexure VII.

Table 6: DID analysis for average annual HH income

	Pre	Post	Post-Pre-Difference
Treatment (T)	1,28,765	1,38,550	9785
Control (C)	1,16,294	1,21,280	4986
T-C Difference	12,471	17,270	DID = 4799

The counterfactual estimate for HH income is depicted in figure 29. The counterfactual shows that the average annual income of a HH in the DIG would have raised from INR 1,28,765 to INR 1,33,751 during the period 2016 to 2019 if they would not have participated in the DIG. However, due to participation in the DIG, the average annual income of the HH in DIG has increased to INR 1,38,550.

Figure 29: DID for average annual HH income (Treatment, Control and Counterfactual)



Thus, it can be concluded that the intervention has a significant positive impact on the average annual income of HHs of treatment sample.

The effects of the intervention on heterogenous groups such as the minorities, SC/ST as well as on individuals of a specific age group have been discussed below.

- i. **Effect of intervention on the income of minority HHs:** There is an increase of INR 9,344 in the annual income of minorities due to the intervention.
- ii. **Effect of intervention on the income of HHs with respect to age:**
 - a) **17-25 years:** The intervention has negative impact which has been found not to be significant.
 - b) **26-40 years:** There is an increase of INR 1600 increase in the annual income of HHs in this category due to the intervention but not significant.
 - c) **41-55 years:** The intervention has negative impact which has been found not to be significant.
 - d) **>55 years:** Although the results show an increase of INR 6,285 in the annual income of HHs in this category, but the change is not significant.

Therefore, the intervention has created a positive impact on the average annual income of HHs as well as on the income of HHs belonging to minorities.

Box 3: Livelihood creation: story of Maa Lakshmi DIG

Livelihood creation: story of Maa Lakshmi DIG

Maa Lakshmi DIG is a woman group at **Village – Dyawali Khalsa** under Hasanpur Block of Amroha district. The group was formed in September 2016 with a membership of eleven women members. The primary purpose of the DIG was to improve the social economic status of these women by increasing their income through dairy activity. The women were informed about the process of group formation and the benefit that would arise from such group formation.

Observing their interest in formation of a DIG to develop their socio-economic condition SPARSH took initiative in formation of the group and also guided them for opening an account in the bank.

All the members decided to conduct a meeting of DIG, twice a month and decided that each member would deposit an amount of 200/- per month. In the first meeting of the month monthly contribution has been mobilized and in second meeting of the members took loan from group as per requirement. During the mobilization process the group members have been made aware about the benefit of the dairy activity. Keeping this in consideration, the group members has decided to invest in scaling up their dairy activity.

Keeping the saving and inter-loaning in consideration, SPARSH team has facilitated for grading and credit linkage of the DIG. After the grading process respective hank has approved CCL of Rs. 50,000 to the group and by this time total monthly saving of the group was Rs. 32,000. After approval of CCL, initially there DIG members has taken loan to buy cattle, one member has taken loan to establish VLCC (Village Level Collection Centre) of UDL and other member has taken smaller loan to meet the recurring expenses like to purchase cattle feed fodder and medicine for treatment of the animal. As these women repaid their loans, one more member has taken loan from group for buying cattle.

The group members were trained on various aspects of animal husbandry like breed improvement, vermin compost, costing and pricing of the milk. SPARSH has also facilitated for the exposure visit of the group members to the plant of UDL at Gajuraula. Here members got chance to understand the requirement of sanitation in the milk industry.

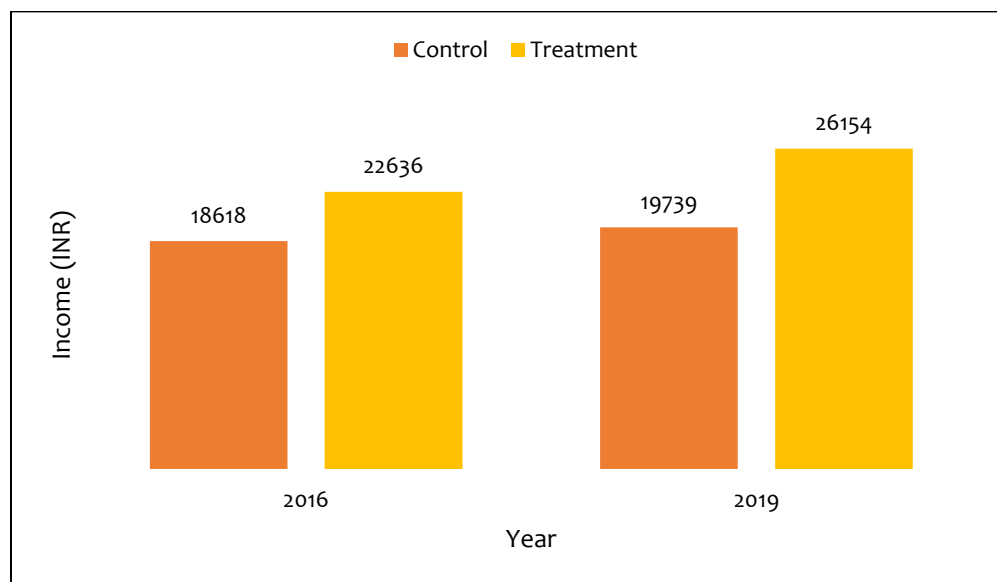
After the training, DIG members have changed the feeding pattern of the cattle. They have started using mineral mixture in the cattle feed. This has resulted in the increase in, milk production from 500 ml to 1 liter per cattle. This helping them to get Rs. 15 to Rs. 30 per day more. Due to proper sanitation milk rejection probability has reduced. As one of the DIG members has established milk collection center, this is improving opportunity to other DIG members to sell their milk at the same center. Earlier they used to sell their milk to the local milk man who used to pay higher rates of Rs. 40 -42 per liter during off season (April to June) and lower rates Rs.25-30 per liter in the peck season (October to February). After the establishment VLCC, it is expected that they will get fare pricing which ranges from Rs. 33- 37 per liter. This center also provides facility to buy milk as when their cattle are in dry phase on the same rate excluding the commission of VLCC agent while local milk man sold milk on higher rate to some woman. Marketing of the milk is not issue for the women as other companies also have their collection center in the village, so DIG members are free to sell their wherever they want to sell it as per their profit.

The group is progressing day by day. The group maintain cash book, loan ledger and monthly saving book with assistance and supervision of the field mobiliser of SPARSH. Till May 2018 total saving of the group was Rs. 43,200. Group has done inter-loaning of Rs. 1, 80,000 revolving CCL of the Rs. 50,000. Group member has generated profit of Rs. 8,011 through interest paid by the DIG members. This comes as return of almost 11.12% on the saving of DIG.

6.3.3 Income from dairying

The most significant aspect of the project is dairying through which the project intends to create mutual benefits for the women and UDL. The change in the average HH income of both the treatment and control groups between the years 2016-2019 is depicted in figure 30. There is a positive change in the dairy income for both the groups. The dairy income for the treatment and control sample has increased by 16% and 6% respectively.

Figure 30: Average annual income of HH as a result of dairy business (by Treatment and Control group)



According to DID calculation the project has resulted into an increase in the average annual income from dairying of treatment HHs by INR 2,397 compared to the control group. The results of DID-regression are given at Annexure VII.

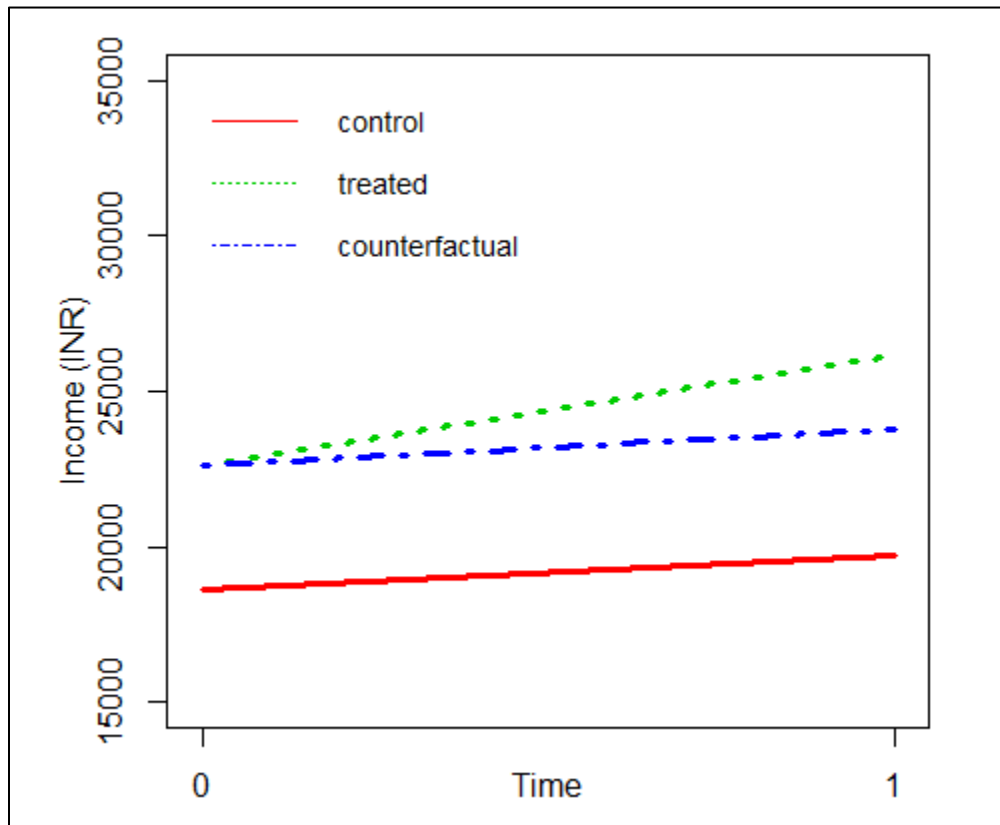
Table 7: DID analysis for average annual dairy income of HH

	Pre	Post	Post-Pre-Difference
Treatment (T)	22,636	26,154	3,518
Control (C)	18,618	19,739	1,121
T-C Difference	4,018	6,415	DID = 2,397

There is an overall increase in the dairy income of the HHs of SC/ST (INR 1,156) HHs, minorities (INR 4,226), landless (INR 1896), women in the age-groups 17-15 years (INR 3,297), 25-40 years (INR 2,310), 41-55 years (INR 2,554) and those above 55 years (INR 3,782).

The counterfactual is shown in figure 31. The counterfactual shows that the average annual income from dairying of a HH in the DIG would have raised from INR 22,636 to INR 23,757 during the period 2016 to 2019 if they would not have participated in the DIG. But due to participation in the DIG, the average annual income from dairying of the HH in DIG has increased to INR 26,154.

Figure 31: DID for average annual dairy income of HH (Treatment, Control and Counterfactual)



The project has not only accrued monetary benefits for the HHs but has created social capital. Box 4 depicts story of Ms. Mukesh and explain how the intervention besides economic condition of women is also creating social capital, improving, sensitizing them towards societal issues and empowering them to raise their voice and take collective action for community development and societal welfare.

Box 4: Creation of social capital: story of Mukesh

Creation of social capital: story of Mukesh

A simple looking village woman, Mukesh, doesn't appeal to you as someone different than others of her group. But if you don't interact with her, you may lose-out on an amazing display of personality transformation and empowerment. Married at a young age of 17, Mukesh, had to struggle at her in-law's place. Her husband was a drunkard and an abuser. Her mother-in-law and sister-in-law also didn't support her and made her life miserable. She faced domestic violence and also poverty. Her husband spent most of his earning at the liquor shop. Mukesh soon realized that she needs to stand for herself. She found a job as Anganwadi (community) worker. That provided her a steady income and also a chance to spend time out of her abusive home. Slowly, she gained popularity due to her helping nature and unbiased behavior.



When Mr. Manoj Kumar of SPARSH (Umang Dairy), went to the village of Dayawali Khalsa, he met Mukesh. In first the interaction, he realized that Mukesh has the potential to create and lead the Self-Help Group, they were planning to set-up. He spoke to Mukesh about the concept of small savings through DIGs. She took up the challenge of creating the DIG. She convinced 10 other women for starting the DIG. This is how 'Maa Lakshmi Swayam Sahayta Samooh' came into being in 2017. Today, the DIG has done total transaction of ₹5,99,224 with bank transaction ₹1,64,000 and inter-loaning transactions of ₹4,35,224. Their savings account has total amount ₹85,641 from their group's savings of ₹63,800 and interest of ₹21,841 from inter-loaning. The DIG also has been credit linked with approved Cash Credit Loan (CCL) of ₹50,000. Mukesh also personally benefited from the loan facility given to her DIG. She took a buffalo and started milk production. She also implemented the learning from the training on animal husbandry done by Umang Dairy. By leveraging the training, Mukesh has additional income of ₹14,400 per year.

This motivated other women in the village and they approached Mukesh for forming their DIG. Mukesh helped 3 DIGs to form and start operations in her village.

The DIGs also work on the social issues pertaining to their vicinity. They campaigned for the bad condition of roads in their villages and got it repaired by the Government. Now Mukesh, wants to start a campaign against consumption for alcohol. She sadly observes that so many youths are destroying their families due to addiction, including her son.

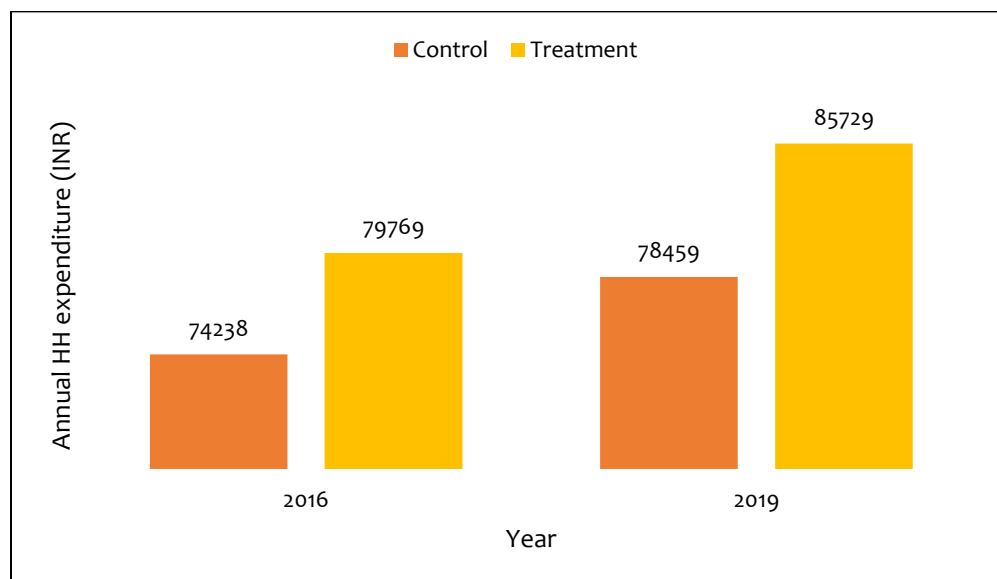
Percentage of HHs supplying milk to UDL

Of the total treatment HHs who are engaged in dairy farming 31% supply milk to UDL.

6.3.4 HH expenditure and consumption

Figure 32 depicts the change in average annual HH expenditure in treatment and control sample from 2016-2019. As can be seen there is an increase in the average annual HH expenditure for both the treatment and control groups. The average annual HH treatment for treatment and control has increased by 7.5% and 5.6% respectively.

Figure 32: Average HH Expenditure (by Treatment and Control Group)



DID analysis in table depicts that due to the participation in the project the annual average spending of the HHs of DIG members is INR 1739 more compared to the HHs in control sample. The results of DID-regression are given at Annexure VII.

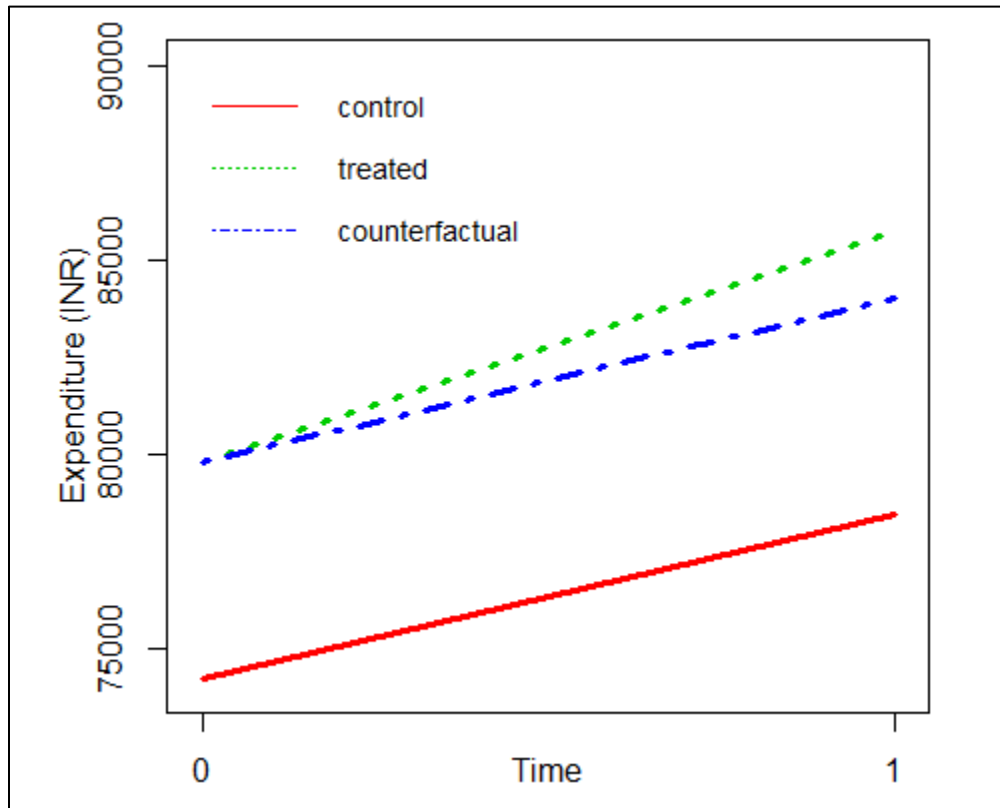
Table 8: DID analysis for average annual HH expenditure

	Pre	Post	Post-Pre-Difference
Treatment (T)	79,769	85,729	5,960
Control (C)	74,238	78,459	4,221
T-C Difference	5,531	7270	DID = 1739

The counterfactual estimate for average annual HH expenditure is shown in figure 33. The counterfactual shows that the average annual expenditure of a HH in the DIG would have

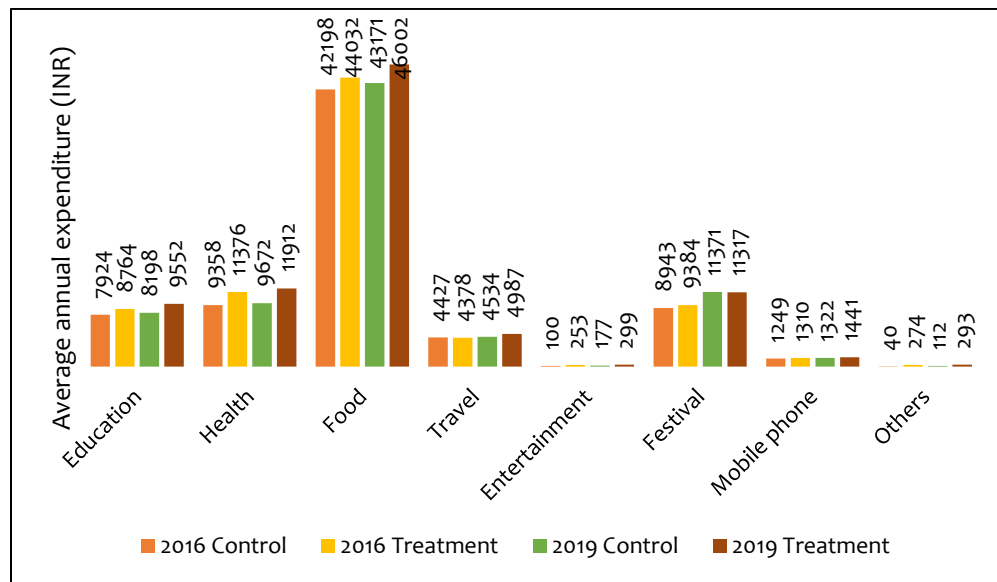
raised from INR 79,769 to INR 83,990 during the period 2016 to 2019 if they would not have participated in the DIG. But due to participation in the DIG, the average annual expenditure of the HH in DIG has increased to INR 85,729. The results of DID-regression are given at Annexure VII.

Figure 33: DID for average annual HH income (Treatment, Control and Counterfactual)



Similarly, an impact has been found on average annual expenditure of INR 514 on education, INR 996 on food, INR 503 on travel. The treatment also has positive impact on expenditure associated with healthcare (INR 222) and mobile phones (INR 58), however, a significant difference does not exist. The distribution and change in annual expenditure across different areas is shown in figure 34. In contrast, the treatment has a negative effect on expenditure on entertainment, festivals and other expenses. The impact on other expenses has been found to be significant.

Figure 34: Average HH Expenditure in different areas (by Treatment and Control Group)



Thus, it can be inferred that the intervention has a significant positive impact on overall HH expenditure, education, food and travel expenses of the treatment sample. The negative impact on entertainment and festivals may be due to higher aspiration of DIG members to provide good quality education and food to their children.

6.3.5 Asset position

Members of DIGs have accumulated more assets compared to non-members. The productive asset ownership is higher in the DIGs. Quality of housing is higher in DIGs. Amount of land leased in for cultivation is higher among HHs in the DIGs.

Overtime, the HHs in treatment sample have also accumulated both productive and consumption asset. The productive asset is being accumulated in the form of farm, farm equipment, tractor, cattle. The consumption asset includes repairing of homes, TV, refrigerator, washing machines, mobile phones, motorcycles and car. 20% individuals in treatment sample have spent more than INR 5,000/- on repairing of their homes. Figure 35 and figure 36 shows change in the average number of rooms in a HH and percentage of HHs having pukka floor, roof and walls. There is only a slight improvement in the quality of housing for both the treatment and control group.

Figure 35: Average number of rooms in a HH

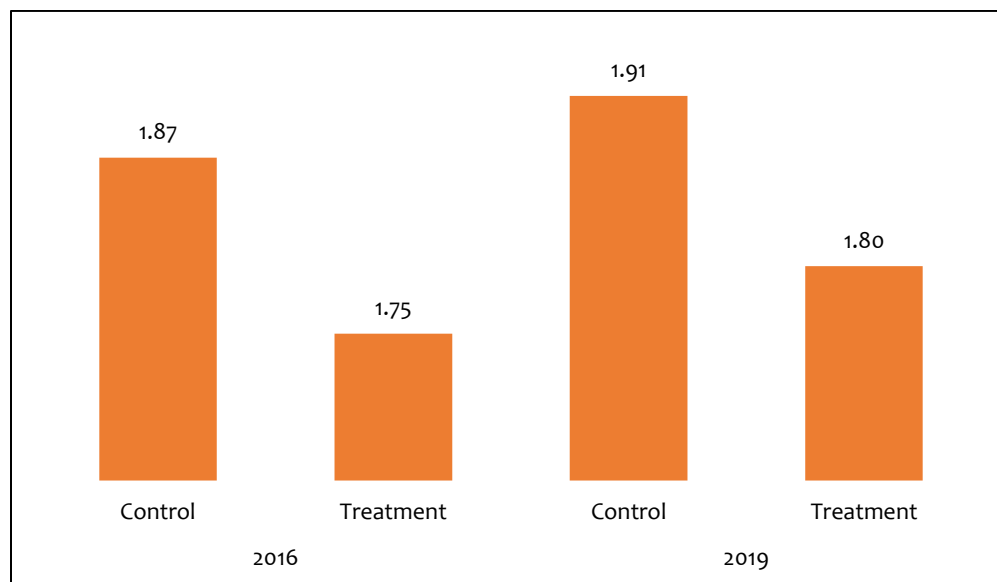
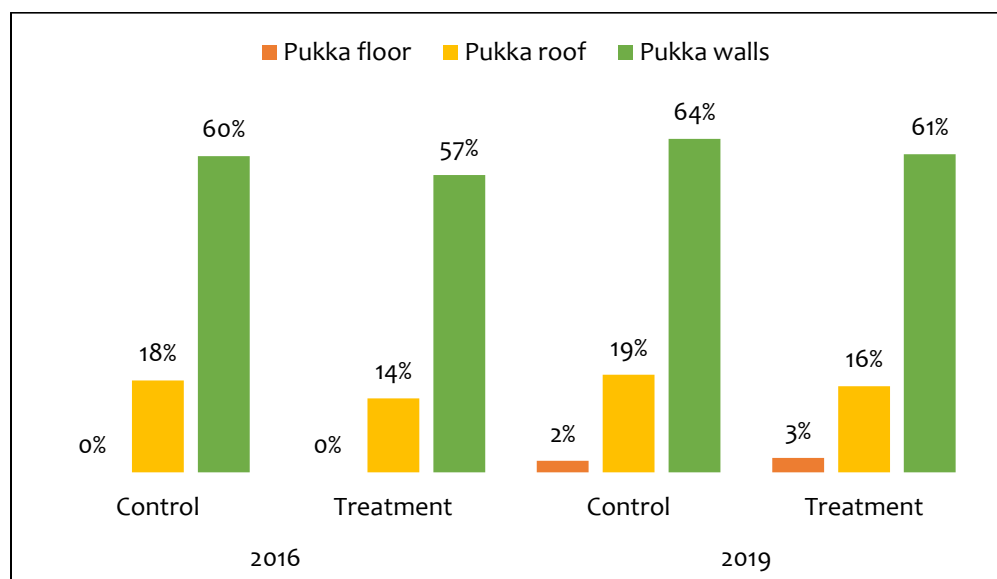


Figure 36: Percentage of HHs having pukka floor, roof and walls



6.3.6 Status of indebtedness and loan replacement

The results show that 63% of HHs in treatment group and 44% in the control sample indicated to have one or more outstanding loans. On average, HHs owe INR 41,644 and INR 54,321 for the treatment and control sample respectively. On an average the rate of interest paid by treatment and control sample is 2.83% and 4% respectively. The present average size of informal loan is also higher among HHs in control sample. The average loan size for treatment

and control HHs is INR 15,429 and INR 34,333 respectively. Moreover, the average size of loan taken from bank is INR 89,882 and INR 86,308 in treatment and control sample. For the average loan size taken from a DIG, the average amount stands at INR 16,262 for HHs in treatment group and INR 14,050 for those in control sample. Most of the high amount loans are taken from bank on Kisan Credit Card.

HHs tend to take a major proportion of loans to finance income generating activities (IGAs). 56% of the loans are taken for IGAs such as cattle or goat purchase (34%), farm and farm equipment (12%), starting a new business (9%). Consumption smoothing is the reason for 44% of the loans which is generally spent on medical care (13%), marriage (12%) and education (3%). Moreover, 7% of the loans are used for home construction and repairing including toilet construction. Like Sakina (Chaman DIG, Shakurabad, Gajraula), Asmina (Chaman DIG, Shakurabad, Gajraula), Khushboo (Maa Ganga DIG, Dayawali, Hasanpur) and Gangawati (Guru DIG, Satera, Hasanpur) took the loan for purchasing tailoring machine, repairing of home, bought bike and spend in the marriage of her son respectively.

About 10% of the loans have been taken to replace high-cost credit taken from informal sources. The HHs who has replaced a loan have made an average saving of INR 2725 on interest on each such loan.

A few women informed of taking loans from multiple sources such as Bank, DIGs and Micro Finance Institutions (MFIs) like Sonata. However, the rate of interest charged by the MFI is between 18-32%, higher than what is charged by the DIGs. Sakina who hails from Punju Sarai village of Amroha block and a member of Raheem DIG told that her HH has multiple loans. The list of lenders includes Bandhan Bank, MFI Sonata, SPARSH DIG, and another DIG. The loan was taken to purchase “Chota Haathi”.

Some women also shared their bitter experiences when they had to put either their land or gold on mortgage to avail loan. Momine, a member of Sangam DIG, and habitant of village Shakurabad of Gajraula mortgaged her gold earrings to avail a loan of INR 25,000 for repairing her home. After joining the SPARSH DIG she replaced this loan with DIG loan and recovered her gold. Not only this she even repaid the DIG loan three months back.

Fathima living in Khetapur village of Amroha block and a member of Suraj Mukhi DIG and Jaivati, a member of Maha Lakshmi DIG, habitant of Porara vilage of Gangehwari shared their unsavory experience of putting their land on mortgage to avail debt, prior to joining the DIG.

Box 5: Salutory effect of credit linkage: story of Gulab DIG

Salutory effect of credit linkage: story of Gulab DIG

Gulab DIG is a woman group at **Village – Fatehpuri Chitra** Gajraula Block of Amroha district. The group was formed in August 2016 with a membership of eleven woman. The primary purpose of the self-help group was to improve the social economic status of these women by increasing their income through dairy activity. The women were informed about the process of group formation and the benefit that would arise from such group formation.

Observing their interest in formation of a DIG to develop their socio-economic condition SPARSH took initiative in formation of the group and also guided them for opening an account in the bank.

All the members decided to conduct a meeting of DIG, twice a month and decide that each member would deposit an amount of 200/- per month. In the first meeting of the month monthly contribution has been mobilized and in second meeting of the members took loan from group as per requirement. During the mobilization process the group members have been made aware about the benefit of the dairy activity and they were also earlier somewhat involved in the dairy activity. Keeping this in consideration, the group members has decided to invest in scaling up their dairy activity.

Keeping the saving and inter-loaning in consideration, SPARSH team has facilitated for grading and credit linkage of the DIG. After the grading process respective bank has approved CCL of Rs. 50,000 and in May 2018 bank has approved CCL of Rs. 1, 00,000 after second grading of the group. At the time of second grading total monthly saving of the group was Rs. 47,200. After approval of first CCL, initially two DIG members has taken loan to buy cattle and other members have taken smaller loan to meet the recurring expenses like to purchase cattle feed, fodder and medicine for treatment of the animal and shop for selling cattle feed. After repayment of first loan and approval of second CCL three DIG members have purchased cattle.

The group members have been trained on various aspects of animal husbandry like breed improvement, dairy cattle nutrition, feeding pattern, vaccination of the animals, fodder management, vermin compost, costing and pricing of the milk. SPARSH has also facilitated for the exposure visit of the group members to the plant of Umang Dairies Limited at Gajraula. Here members got chance to understand the requirement of sanitation in the milk industry.

After the training, DIG members have changed the feeding pattern of the cattle. They have started using mineral mixture in the cattle feed. This has resulted in the increase in, milk production from 500 ml to 1 liter per cattle. This helping them to get Rs. 15 TO Rs. 30 per day more. Due to proper sanitation milk rejection probability has reduced. Before the DIG formation and training, they used to sell their milk to local milk man who used

to pay higher rates of RS. 40-42 per liter during of session (April – June) and lower rates Rs. 25-30 per liter in the pack season (October – February). After training and exposé visit DIG member were selling milk to the VLCC established in the village, it is expected that they will get fair pricing which ranges from Rs. 33-37 per liter. Marketing of the milk is not issue for the woman as other companies also have their collection center in the village, so DIG members are free to sell their wherever they want to sell it as per their profit.

The group is progressing day by day. The group maintain cash book, loan ledger and monthly saving book with assistance and supervision of the field mobiliser of SPARSH. Till June 2018 total saving of the group was Rs. 49,200. GROUP has done inter-loaning of Rs. 2, 30,000 revolving CCL of the Rs. 1, 50,000. Group member has generated profit of Rs. 11,747 through interest paid by the DIG members. This comes as return of almost 11.47% on the saving of DIG.

6.3.7 Income generating activities, livelihood opportunities and diversification

Better access to credit may also enable HHs to diversify their income-generating activities, or to undertake their activities in those activities which are most profitable. Because the project specifically targets women, the proportion of adult women HH members engaged in income-generating activities may increase as a result of the project.

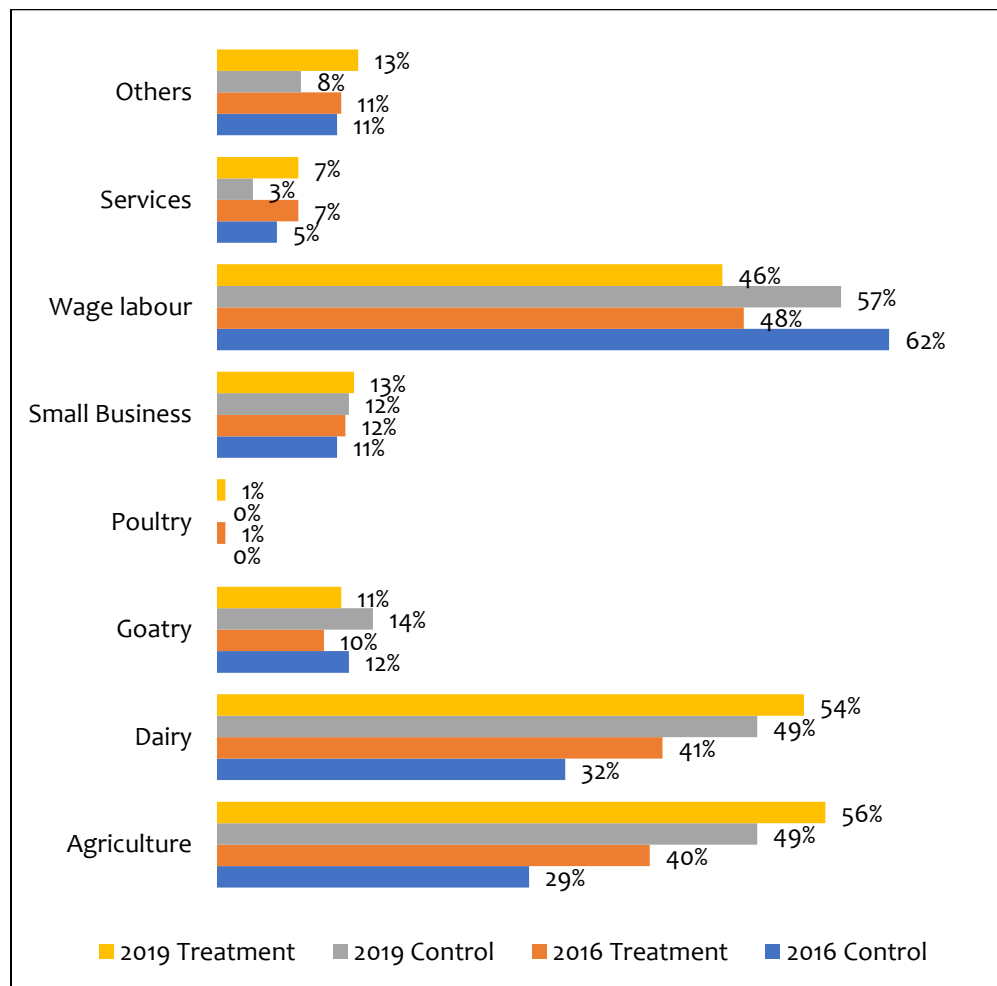
During the FGDs women reported to have invested the loans taken from DIGs for assisting their husband or children in starting a new business. Most of this financial assistance in general either goes for making a down payment for the purchase of small commercial vehicle like “Chota Haathi”, “Jugaad” and “Electric Rickshaw” or partial payment for buying/leasing a piece of land/farm equipment. One woman reported to have bought a “horse cart”. Some women have provided supported their children in starting petty businesses by purchasing DJ while others have invested in purchase/leasing agricultural land, cattle or goat. In some instances, women channeled the DIG loans to pay for the EMI of an existing loans, especially those taken for purchasing tractors and *Juggad*. There, the intervention has helped the HHs in creating livelihood opportunities for themselves and positively affected livelihood diversification and IGAs.

Figure 37 depicts a significant rise in percentage of people in agriculture and dairy for both the treatment and control group. For treatment group the percentage of people involved in dairy farming has increased from 41% in 2016 to 54% in 2019 and for agriculture it has gone up from 40% to 56%. There is a decrease in wage labor across both the groups. Although a significant change has not happened in the number of either male or female earners in the

HHs for both the treatment and control groups, but it was found that the women in DIGs have helped their family members in starting a new business.

Sutreya, 35, member of Shiv SPARSH DIG, lives in village Neeli Kheri of Dhanaura. She has taken 10 Bigha land on lease for INR 32,000. She paid INR 20,000 from the loan taken from her DIG and rest from her HH savings. With a confident tone expressing proud, hope and enthusiasm, Sutreya says she is expecting to earn INR 60,000 per year from this leased land in which she has planned to cultivate wheat.

Figure 37: Percentage of individuals engaged in different livelihood activities



Note: A substantial numbers of individuals are engaged in multiple livelihood activities such as agriculture, wage labor and dairy

Saroj, 42, a member of Jyoti DIG, habitant of Fatehpur village of Gajraula had to sell one of her cattle due to financial crisis. After joining the DIG, she has purchased a new buffalo for

INR 50,000. A large portion (INR 30,000) of this amount she paid from the loan availed from SPRASH DIG and INR 20,000 from her own savings.

Babita, 35, bought 1 bigha land from loan of INR 30,000 she availed from her DIG, Maa Ganga. This habitant of Dayawali village of Hasanpur, however, long for permanent work which can provide her a consistent source of income. She wants to learn either tailoring dona patra making. However, she has the perception that animal husbandary does not need special skills, she says “Pashu palan to har koi kar sakta hai”.

Megha, 50, took a loan of INR 20,000 from her DIG, Ekta, for her son, who was sitting idle at home without work, to start a new venture. This villager of Bhuda (Hadipur Majra) village of block Amroha happily recounts that her son has purchased a DJ and now earns an average INR 300 per day. From the same village Ruby Khatoon, a member of Sangathan DIG, proudly tells that she was able to help her husband in purchasing and starting his own work. She took a loan of INR 14,000 to support her husband in buying a new “E-Rickshaw”. Her husband now earns an average INR 300 per day.

Simran, member of Gulab DIG, hails from Chaki Madhaya village in Hasnpur block. She took a loan of INR 10,000 for husband for setting up “Kolhu” who otherwise used to sell sugarcane juice or working as daily wage labourer.

Ms. Usha from Mangroli village enthusiastically share how becoming member of DIG has helped her not only in revamping her beauty parlour business but also quality of housing. Box 6 narrates success story of Usha. Story of Saikoon at Box 7 reflects how the intervention is enabling women to come out of poverty and live a dignified life.

Box 6: Asset creation and livelihood promotion: story of Usha

Asset creation and livelihood promotion: story of Usha

Properly dressed and well-groomed Usha presents herself as a role model for her profession. She has a nice beauty parlour at front of her house on the main road of Mangrouli. She has taken loan twice to furnish her beauty parlor. She details how initially she took her first loan for buying basic furniture and other material for running her parlor. She repaid that loan in less than 6 months. Then the next loan she took was also for the parlor. It helped her in improving the look of her parlor. She is hopeful to repay this loan also in next 6 months. The saved money she likes to spend on the education of her two children. She has also contributed to the building and maintenance of her house. She has also attended the training provided by Umang Dairy on animal husbandry. Though she didn't want to get into dairy business, but she enthusiastically shares that

she made notes of the common diseases of the animals, their symptoms and medicines. When probed further, she mentioned that her brothers have cows & buffaloes. She shared this list with them. She also revealed that the milk production increased due to the tips she shared with her family.

Box 7: Enabling women to come out of poverty - story of Saikoon

Enabling women to come out of poverty - story of Saikoon

Saikoon, 20, was born and brought up in poverty-stricken family belonging to 'fakir' community. Majority people of this community lives on alms. Many of her close relatives are still surviving on begging. Prior to joining the SPARSH, Saikoon used to do cutting and tailoring to pay her school fee and help her family meet some part of household expenditure. However, persistent poverty forced her to quit her studies.



Coy and meek, she was not confident enough even to move out of her home. As Saikoon recalls '*main kabhi ghar se bahar nahi nikli thi, bahut dar lagta tha, par SPARSH mein aane ke baad mujhe kisi tarah ka koi darn nahi mehsoos hota*' (Before joining SPARSH, I was scared to go out of my home, but now I do not afraid of anything). However, this coy and meek girl always had a dream to something to turn around condition of her family.

Things started changing for her when she met Ms. Jolly, a field staff of SPARSH. Saikoon was curious to know about the benefits of joining the SHGs being formed by Jolly. With the motivation of making some saving, Saikoon became member of one of the SHGs. Seeing her enthusiasm and capability she was given chance to work with SPARSH. Saikoon remembers '*mere samooch ki sirf 1000 rupye bachat hui thi ki Manoj sir ne mujhse poocha aap kitni padhi likhi ho, maine bataya ki maine dasvi paas kar ke padhai chhod di hai, tab Manoj sir ne poocha ki kya tum SPARSH ke saath kaam karna chahogi, maine kaha ki haan par pehle mummy papa se poochoongi*'. After convincing her parents, Saikoon soon joined the field team of SPARSH and since then she never looked back.

Thus far, she has formed 40 DIGs. She earns INR 6,375 per month. With a cheerful smile, Saikoon says '*jab meri salary aati hai to mummy papa ke chehre ki kosshi dekh kar bahut accha lagta hai*'. She has restarted her educational journey. She purchased a buffalo for

her parents by taking a loan of INR 30,000 which she has repaid. Earlier, she used to visit nearby villages on a bicycle or by public transport for distant villages. As the work has increased, she has bought a scooty for herself, which she proudly boasts as one of the items in her kitty she has purchased from her own savings. Seeing her sister changing her life around, Sakoon's brother has also become motivated to transform his household conditions. The brother and sister duo have repaired their house from their earnings. Recently, she was engaged for marriage and during her ring ceremony she spent INR 15,000 all from her own savings. She says before the ring ceremony she clarified with her would be husband and in-laws that even after marriage she will continue to do her job. Furthermore, Saikoon told that she would never had agreed for the engagement if she was not allowed to do a job after marriage.

With a deep sense of satisfaction, Saikoon credit SPARSH for transforming her life *'mujhe samooch aur naukri se bahut fayda hua hai, bahut kuch seekha hai, aur ghar ke haalat jo ki bahut kharab the woh ab bahut sudhar gaye hain, main kabhi SPARSH ka aehsan nahi bhool sakti jisne mujhe ghar se bahar niklne mein madad ki'*.

With high aspirations and optimism, Saikoon wants to work hard with her full potential and something more for her parents and pursue higher education in future.

6.3.8 Meaningful participation in DIG

96% of the DIG members have been found to be involved in meaningful activities such as regularly participation in meetings, monthly savings and inter-loaning. As shown in figure 38, 72% of DIG members informed that meeting of their DIGs held every fortnight.

Figure 38: Frequency of DIG meetings

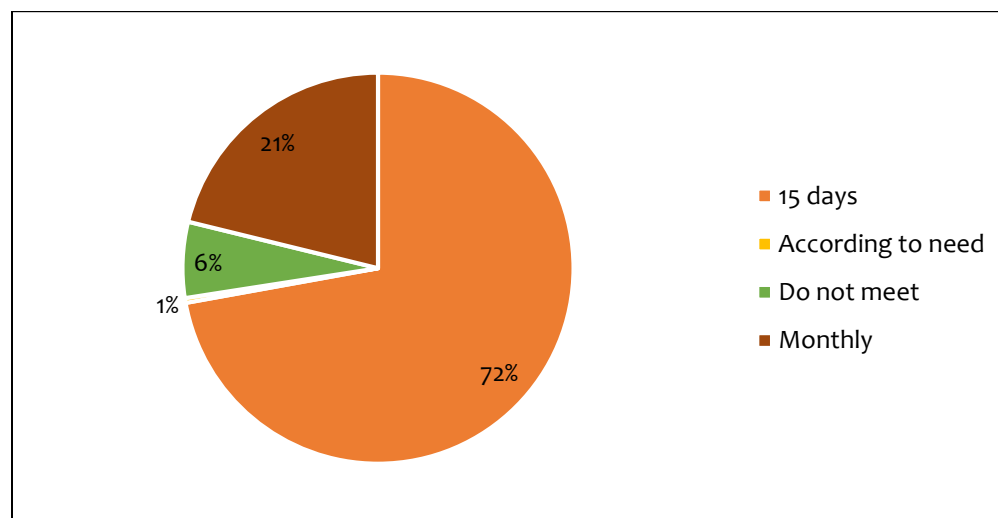
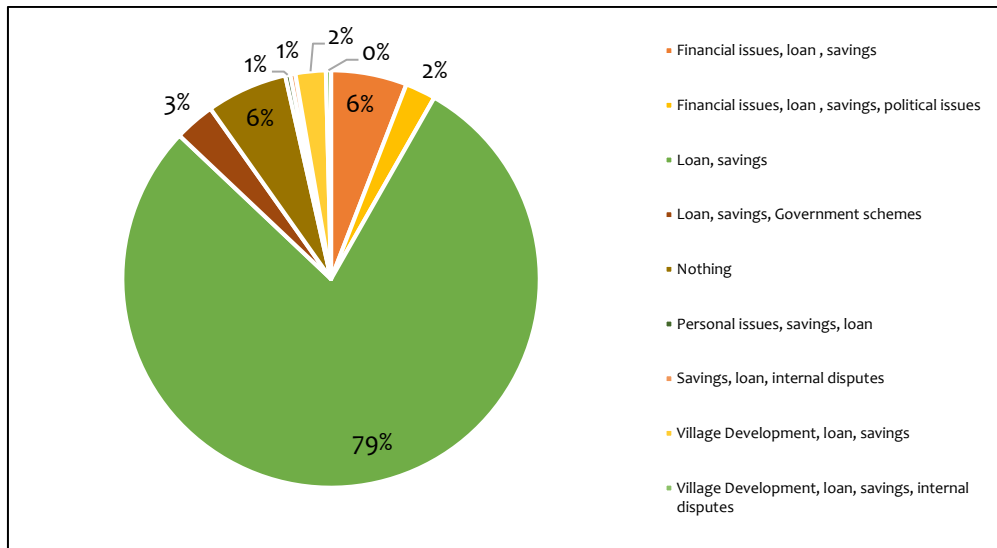
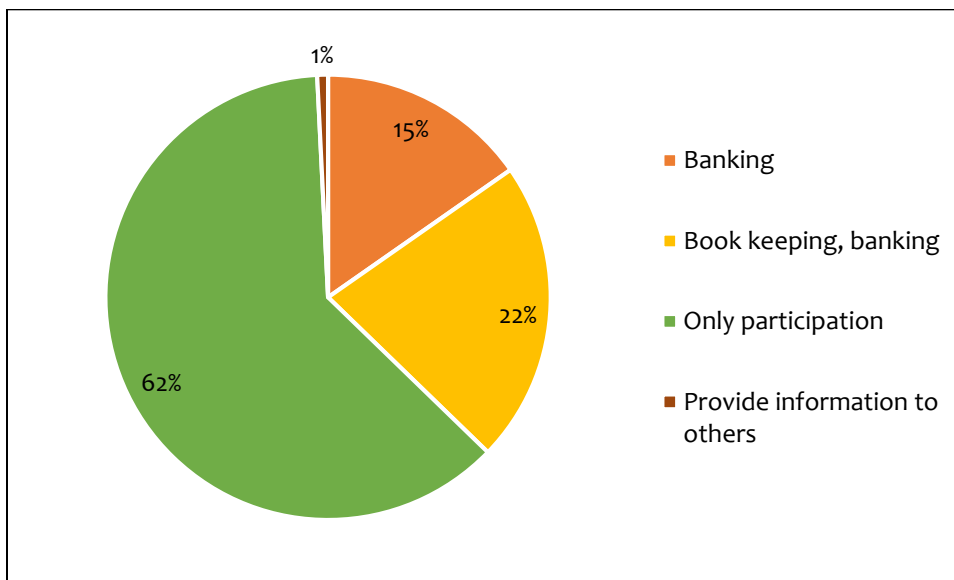


Figure 39: Issues discussed during the DIG meetings



As depicted in figure 39, 79% of the women respondent told that discussion points during the meeting are confined to those related to savings and loan. Figure 15 shows that 62% DIGs members are only capable to participating in the DIG, 22% can do both bookkeeping and banking, 15% can do only banking operations while only 1% can share information with others.

Figure 40: Level of participation in DIG



6.3.9 Skill upgradation

Under the project members of DIGs are also provided knowledge about best practices in the area of animal husbandry and dairying. 8% women in the entire sample and 10% in treatment group reported to have attended a training related to IDFP. Only a single woman in control has been found to undergo such a training. A significant ($p < 0.001$) difference has been found in the mean of treatment and control sample. Of the total 69% have received training through SPARSH, 29% from government sources and rest from other sources. The women trained by the SPARSH reported to have adopted the IDFP due to which the quantity and quality of their milk has improved. In some cases, the daily milk production capacity has increase by 2 liters per cattle.

During the FGDs and personal interviews the women were requested to share their learnings from training programs organized by SPARSH. It was found that many of the women were able to identify the cattle diseases and, in some instances, even the name of medicines such as Albendazole used for deworming. The women also reported that they have learned preparation of fodder, cleanliness of cattle and area around it. Many women also visited the UDL plant and learned about best dairy farming practices and responsible dairying by avoiding use of harmful chemicals used for increasing the milk production. Sushila from Maa Sarswati DIG of Mangroli village in Hasanpur shared her experience and the capacity she has developed though the training that has made her able to recognize good quality cattle breed just by inspecting its skin. She said the IDFP adopted by her and her HH helped her in increasing the milk production of cattle by 2 liters per cattle. There are also cases when the women expressed regret for not being able to attend the training like Rumala from Ma Ganga DIG of Dayawali Khalsa village in Hasanpur who missed a training programme due to ill health. On the other hand, Lakshmi from the same group can easily share her learning from the training like cleanliness of cattle, salt feeding to cattle, use of clean utensil for milk, deworming etc. It reflects that women find value in training provided by SPARSH. The women seemed aspired to gain knowedlge for their economic welfare like Noor Bano who hails from Porara village in Gangeshwari and a member of Khuboo DIG wants to learn cutting and tailoring with aspiration of leveraging these skills to earn some money.

Overall the women seemed satisfied with the quality and usefulness of the training provided by SPARSH. The training has also been able to develop a spirit of entrepreneurship among women as many of them expressed interested in starting a micro-enterprise. One such case is of Ms. Poonam who runs *Rama Swayam Sahayta Samooh* in Mangroli village who is interested in acquiring and running a VLC of UDL. Box 8 capture her experiences of struggle in forming and running the DIGs and entrepreneurial aspirations.

Box 8: Expanding knowledge: story of Poonam

Expanding knowledge: story of Poonam

A bright smile gets Poonam noticed even in crowd. Her confidence is palpable especially when she slowly recounts her story. She herself feels the change in her personality during last 3 years. Expressing her satisfaction with SPARSH's field team, Poonam expresses her desire to open her own milk collection center for Umang Dairy. This thought indeed is proof of change in the person who got married at the age of 17 years. She could only study till class 5th. Her husband is a daily wage laborer. She took up stitching to help sustain her family. She has been doing that before starting *Rama Swayam Sahayta Samooh* in 2016.



Poonam shares the experience, how Mr. Manoj approached her to start a DIG. She had to convince her family for this initiative. Today, she has opened 4 more DIGs in her village and nearby areas. These DGs are working for last 2 years. Her extrovert personality makes it easy for people to approach her. They trust her completely and she also does her best in keeping their trust. She resolves their conflicts and also help them in bank transactions. They also consult her for their personal problems as well. She believes they can continue working even without any continuous external help.

She attended the animal husbandry training conducted for them by Umang Dairy. Now she feels more aware about dairy business and wants to do something in the related area. Thus, she is planning to open her own milk collection center for Umang Dairy.

Box 9: Productivity improvement: story of Durga DIG

Productivity improvement: story of Durga DIG

Jai Durga DIG is a women group at **Village – Kumrala** under Gajraula Block of Amroha district. The group was formed in June 2016 with a membership of eleven-woman members. The primary purpose of the self-help group was to improve the social economic status of these women by increasing their income through dairy activity. The women were informed about the process of group formation and the benefit that would arise from such group formation.

Observing their interest in formation of a DIG to develop their socio-economic condition SPARSH took initiative in formation of the group and also guided them for opening an account in the bank.

All the members decided to conduct a meeting of DIG, twice a month and decide that each member would deposit an amount of 200/- per month. In the first meeting of the month monthly contribution has been mobilized and in second meeting of the members took loan from group as per requirement. During the mobilization process the group members have been made aware about the benefit of the dairy activity and they are somewhat involved in the dairy activity. Keeping this in consideration, the group members has decided to invest in scaling up their dairy activity.

Keeping the saving and inter-loaning in consideration, SPARSH team has facilitated for grading and credit linkage of the DIG. After the grading process respective bank has approved CCL of Rs. 60,000 to the group and by this time total monthly saving of the group was Rs 16,500. After approval of CCL, initially their DIG members have taken loan to buy cattle and other members have taken smaller loan to meet the recurring expenses like to purchase cattle feed, fodder and medicine for treatment of the animal. As these women repaid their loans, one more member has taken loan from group to buy cattle.

The group members have been trained on various aspects of animal husbandry like breed improvement, dairy cattle nutrition, feeding pattern, vaccination of the animals, fodder management, vermin compost, costing and pricing of the milk.

After the training, DIG members have changed the feeding pattern of the cattle. They have started using mineral mixture in the cattle feed. This has resulted in the increase in, milk production from 500 ml to 1 liter per cattle. This helping them to get Rs. 15 TO Rs. 30 per day more. Due to proper sanitation milk rejection probability has reduced. As one of the DIG members has established milk collection center, this is improving opportunity to other DIG members to sell their milk at the same center. Earlier they used to sell their milk to the local milk man who used to pay higher rates of Rs. 40 -42 per liter during off season (April to June) and lower rates Rs.25-30 per liter in the peck season (October to February). After the training on costing pricing which ranges from Rs.33 – 37 per liter.

The group is progressing day by day. The group maintain cash book, loan ledger and monthly saving book with assistance and supervision of the field mobiliser of SPARSH. Till May 2018 total saving of the group was Rs. 25,300. Group has done inter- loaning of Rs. 1, 80,000 revolving CCL of the Rs. 60,000. Group member has generated profit of Rs. 2,160 through interest paid by the DIG members. This comes as return of almost 7.80% on the saving of DIG.

6.3.10 Adult literacy

DIG participants are taught to sign their names so that they can handle financial transactions better. It is therefore expected that signature literacy is higher among women in DIGs. Signature literacy may also lead to more awareness among women about basic signs like bus numbers, road signs, etc.

74% of women who can now sign mentioned that they have learned the signature literacy through adult literacy programme of SPARSH.

But the intervention has no impact on basic literacy as the women in DIGs are still unable to read basic signs such as phone/bus numbers, road signs are higher in DIGs.

6.3.11 Awareness and access to government entitlements

Evaluation indicate that there is no significant difference in the level of women's awareness and access to government entitlements in respect of both the treatment and control group is minimal. Results shows that except PBY the awareness of women towards government entitlements is more in treatment sample relative to control group. In case of access to schemes, except ABY and PMUY the HHs in treatment sample perform better than the control group. However, the only significant difference has been found in the means of treatment and control sample related to usage of PDS scheme. It was found that in many cases women are availing the services but not aware about the name of schemes.

Many cases have been found where women and HHs are not aware about the scheme but have access to it. For instance, in case of *Pashudhan Bima Yojana* only 8% women in the entire sample responded positively regarding the awareness to the scheme however the 29% HHs have been found to be getting benefits of the scheme. But still, there is a substantial gap in both awareness and access to government schemes.

Moreover, even during the FGD and personal interviews women revealed inability to avail the benefits of public entitlement despite having awareness about them. Ramkali, 60 years, a widow living with her son, a vegetable seller and sole earner in the family, is a member of Gulab DIG. Her annual HH income is only INR 84,000 much below than the average annual income of treatment sample. She informed that she had applied for widow pension scheme of the state government many years back but never received a penny. She is not even aware whether her application was selected or rejected. Although she availed INR 25,000 for marriage of her daughter from the DIG and seemed quite satisfied with but is uncertain whether her group members or SPARSH may her out. Similarly, Jyoti, a member of Maa Lakshmi DIG of Dayawali village of Hansanpur applied for PMUY but has not clue about the status of her application.

Mahatab, a member of Chandni DIG, who hails from Khetapur village of Amroha block told that she is not getting ration from the PDS shop since the day machine has been used to distribute the subsidized food items. But she has no clue about the actual reason of removal of her name from the PDS list. There may be more such women seeking support to get connected with social security schemes of government. Helping such women may further increase the relevance of the intervention and add a much greater value to their lives.

6.3.12 Women empowerment: mobility, decision making and ability of taking collective action

For the analysis of women empowerment aspects like social mobility, participation in HH decision making and ability in taking collective actions have been covered under this head. The findings show that there is not much improvement in the decision making and mobility of women. Although 90% women said that they have been asked for important HH decisions but only 9% said that their decision is taken as final.

Bhagwati, member of DIG Lakshmi and habitant of Dehrachak village of Dhanaura, helped her husband in purchasing farm equipment by taking a loan of INR 20,000 from her. However, she still not much involved in HH decision making and go outside home independently. This reflects that even though women are providing timely financial support to HH, but they are still remain much divorced from HH decision making.

Jasina, 35, resident of village Porara of Gangeshwari block and a member of Ram Rahim DIG, reported that she took a loan to repay the EMI of “Juggad” purchased by her husband. Her husband took loan from informal sources to purchase the “Jugaad”. She sadly said that “mujhe nahi pata kitna or kitne mahine ka loan hai koi batata hi nahi” I do not know the amount and duration of loan, no one tells me.

There are women like Kishor, member of Lakshmi DIG, of village Porara of Gangeshwari block who told that they cannot go anywhere without permission of their husband. Their husband is also the final decision maker.

Savitri, a member of Gulab DIG of Chaki Madhaya, Hansanpur, said there was a positive change in behaviour of her HH members when she joined the DIG. However, they started behaving like earlier when no benefits were accrued due to the DIG. Her DIG became defunct due to trust deficit among the group members.

Due to participation in DIG and increased social network women are expected to have higher aspirations for the future of their children and themselves. Sunita, 40, a member of Radhe Radhe DIG, belongs to Neeli Kheri village of Dhanaura. She shared her for her girl’s education. She wants her girl to study as much as her daughter wants and become independent. She is spending INR 40,000 per year on her daughter’s education who presenting doing MA.

From the same block Rashi, MA in Sociology, a member of Yashoda DIG, and habitant of Dehrachak village has high aspirations for her son whom she has sent to Dehradun for NDA coaching for which she took INR 5,000 from her DIG and INR 1 lakh from bank. Besides other government entitlements she is also aware other schemes such as Atal Pension Yojana.

Farmina a resident of Shahpur village of Gajraula and member of Mahak DIG wants her children to study. She is sending her children to private school and pay INR 800 per month in fees. She also aspires to purchase a piece of land and save for marriage of her girl. After coming to the DIG, she has bought a buffalo of INR 50,000, and a washing machine.

As far as women's mobility is concerned the place where a majority (56%) of women can go independently is home of their relatives, more specifically their parental home. Only 42% women are confident enough to visit a market alone, 36% can visit bank, 34% can go to hospital, 31% to their children's school, a meagre 7% and 6% to panchayat and any government office respectively.

Although 84% women reported that their confidence has improved after joining the DIG, but 53% women were not confident in bargaining and deciding the rate of their product such as raw milk. The women accept the price as being provided by the local VLC or milkman.

Through participation in DIGs it is anticipated that the women will participate in collective action to solve issues related to public services and domestic violence. Moreover, there are instances when members of DIG have taken collective action such as members of Maa Sarswati DIG of Mangroli village in Hasanpur and forced the local development authorities to construct a drainage and road in the village. This and the case of Mukesh discussed at Box shows that, at some places, the participation in DIG is enabling women to take collective action for village development and societal welfare.

Salma, 38, president of Gulab DIG, hails from Fatehpur village of Gajraula. Her simplicity and humble gesture cannot be mistaken for lack of confidence or coyness. Under her leadership her DIG has a saving of about INR 2.5 lakh. Once Salma beat up a man, high on alcohol, who was creating menace near to her home. Salma says she do not need help from any agency to run her DIG and confident enough to deal with any challenges posed against her.

73% women reported that they can express, without hesitation, their opinion during public meetings. 72% women told that they can spend their savings as per their wish. Thus, DIGs members have gained confidence and self-esteem and are able to speak their voice in public.

However, only 30% women said that they can resist any physical or verbal abuse at home. Box 10 recites the predicament of HH violence in which Kareshna, from Laxmi Swayam Sahayta Samooh of Neeli Kheri village, is living in.

In addition, women in DIGs are more confident of receiving help from their social contacts outside of their HH. 88% women said that they can ask for anything they need from SPARSH.

Box 10: Hope, despair and uncertainty: story of Kareshna

Hope, despair and uncertainty: story of Kareshna



Kareshna very beautifully explains why she has taken loan from the group and not from outside. She says if we take a loan from the outside lenders, they deduct their own fees while giving the money but charge high interest on the entire amount. According to her the existing lending rates are 10%, 7% or 5% in the open market and in the case of necessity people are forced to take the money at whatever rate it is available. Even she had taken loan for an illness at 7%. The recovery agent tells everyone that even if people have death in the family, still they will have to give their installment on the designated date.

She happily mentions that the lending rate in her group, *Laxmi Swayam Sahayta Samooh*, is just 2%. Most importantly women in the group understands each other's problems and support in the case of any kind of emergency or constraints. This mutual trust has yielded in the form savings of ₹50,000 with an interest of ₹1400 through inter-lending. Whereas the normal bank interest would have earned them only ₹400. This 3-year-old group has utilized the loans in loan repayment, buying cattle, children's education, buying land & making/ repairing houses.

She proudly claims that she manages her group well and everyone listens to her. She collects money from them and deposits it in bank. Now the bank people respect them and finish their work quickly.

When towards the end of the interaction her husband comes drunk and started his unnecessary shouting & abusing, desolated Kareshna and left a sadness on her otherwise cheerful face. She disdainfully asks **“Is this the respect at home you were asking about? I get this at the slightest mistake at home every day”**. In a forlorn tone, she puts forward a big question **‘How long will it take for women to earn respect at home?’** and **‘Can we achieve women empowerment without involving men?’**.

6.3.13 Political participation

Women's political awareness (ability to name India's President, Prime Minister, Uttar Pradesh's chief minister, local MP, MLA, Gram Pradhan) has also been tested. The findings show that there is significant difference in the mean of treatment and control sample with respect to awareness towards whether there is provision of reservation for women in panchayati raj institutions. 32% women responded positively to this question while 23% women were aware about this in control sample. However, in the past general, assembly and panchayat elections percentage of women who voted is greater in control group. Only 24% women in treatment group and 19% in control sample voted according to their own discretion otherwise most of the voted as decided by others in their HHs. An equal, 87%, of women were able to tell name of Prime Minister of India in both the groups, while 84% were able to tell name of Gram Pradhan. Only 6% women in treatment and 3% in control group were able to tell name of President of India. A significant difference has been found in awareness of treatment and control sample with respect to local MLA.

During the study the research team came across a few cases where the women expressed their political aspirations. Afsana, member of Raheem DIG, lives in Panju Sarai village of Amroha. She has contested twice in elections. In the Block Development Committee election, she lost by merely 16 votes. Her second stint was when she contested for panchayat elections, but she lost again but here too the margin loss was only 200 votes. She still has zeal to contest more elections in future, but her aspirations are compromised due to lack of enough funds. On the other, from the same village, Bhoori, a member of Rahamt DIG, wants to win an election and desire to transform her village.

6.3.14 Subjective well-being

Through effects on access to financial services, income-generating opportunities, and empowerment, the project is expected to positively affect the subjective well-being of women. During the FGDs the women were asked to rate the intervention on a scale of five to which 90% women provided maximum rating.

6.3.15 Social capital

The DIG has created a platform for women where they can meet, interact and develop social networks. These network linkages have brought a sense of confidence to deal with socio-economic challenges.

As the study has revealed women are developing capability through participation in DIGs to raise their voice and take collective actions for community development and village welfare.

Although a fewer DIG members reported to discuss personal matters during the DIGs but most (75%) of them are confident that their DIG will help them as and when a need will emerge. 88% women feel confident to receive help from SPARSH. Thus, the intervention has set-up a stage for women to develop social network and leverage its benefits.

6.4 Effectiveness

6.4.1 Factors of success

The impact evaluation study has also mapped the factors that are helping the project in creating a positive impact. The factors of success are depicted in figures 41 and explained below.

6.4.1.1 Community participation

Overwhelming response from the women to participate in the project.

6.4.1.2 Resource availability

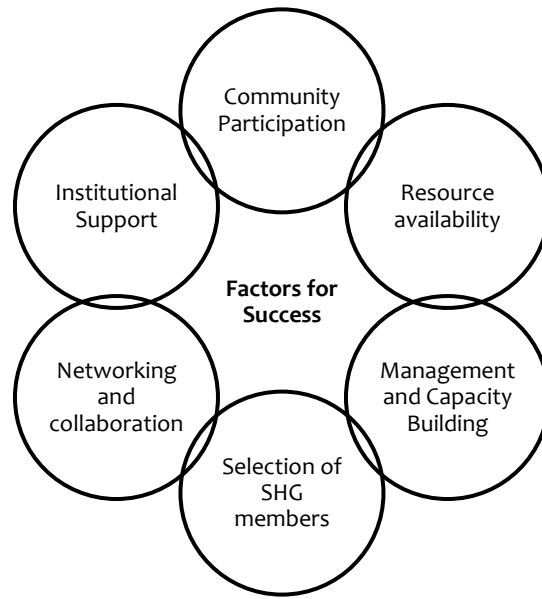
Availability of CSR funds from JK Organisation and financial support provided by NABARD and has provided a strong support to the project. The project discourages provision of revolving fund so that people do not join a group just for the sake of money received through this medium this encourages serious participants who are serious about transforming their lives through their own efforts.

6.4.1.3 Management and Capacity Building

- Handholding: The DIG members are provided consistent support by SPARSH to from groups
- Right over produce: The DIG members are free to sell their milk to any place of their liking. None of the DIG member is influenced to sell their milk to UDL or LVPFPL.
- Transparency in financial transactions: None of the officials of UDL, LVPFPL, JK Paper Limited and SPARSH are allowed to take cash from the SHGs. The members of DIGs are solely responsible for their financial transaction such as collecting instalment for monthly saving, loan repayment and depositing the same into bank account of the DIG. Therefore, a high level of transparency and trust has been maintained throughout the functioning of each DIG.

- High Quality Documentation: Maintenance of record of each DIG and bookkeeping by DIG members.

Figure 41: Factors of success



6.4.1.4 Training and Capacity Building

6.4.1.4.1 Training of field team

Continuous training of the field staff strengthen implementation and monitoring of the project.

6.4.1.4.2 Capacity Building of DIG members

- Adoption of better breed animals who can acclimatize to local environmental conditions
- Awareness about cattle health, fodder, nutrition, dietary requirements
- Milk extraction procedure
- Information on seasonal diseases and how to deal with them through homemade solutions
- Information on quality and production of milk

- Cleanliness of cattle
- Early calf death was a major issue for the dairy farmers. The training program primarily focussed towards care of calves and their diseases to reduce their mortality rate so that loss of a future assets may be avoided.
- A major issue was also existed with respect to the use of Neurotoxins to extract milk from cattle and use of chemical fertilizers and pesticides in agriculture. The fodder thus obtained and consumed by the cattle resulted in adulteration of milk with these harmful chemicals. The dangers of these chemicals to human health were also told to the dairy farmers.

6.4.1.5 Selection of DIG members

The selection criteria are also one of the key factors for the success of project. Only those women were selected for forming the DIG which fulfilled the following criteria.

- Individuals having no debt
- Not a DIG defaulter
- Husband/HH do not have an active bank loan
- No settlement bank loan in one-time settlement (OTS)

In addition, multi-level scrutiny of each DIG member by the banks. Bank approves each member to be inducted in a DIG after thorough scrutiny of banks accounts, debt etc. The bank also recommends/ disapprove a particular area being infamous for high debt or where a large number of individuals have taken a loan and/or defaulted.

6.4.1.6 Networking and collaboration

Experts from UDL, LVPFPL share best animal husbandry and dairy farming practices with members of DIGs. Moreover, agriculture extension services provided by government agencies such as veterinary doctor have given strength to the project.

6.4.1.7 Institutional support

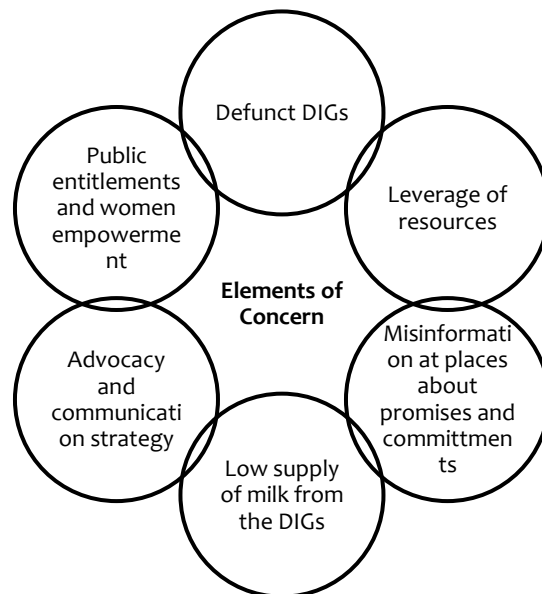
Financial support provided to DIGs by formal financial Institutions such as NABARD, Prathma Bank, Syndicate Bank and Punjab National Bank.

6.4.2 Elements of concern

The elements of concern are shown in figure and listed below.

- i. Defunct DIGs
- ii. Leverage of resources for setting up a model micro-dairy farm and upscaling of project
- iii. Address issues related to misinformation the DIG members have about gap in promises and commitments
- iv. Compared to the procurement requirements the amount of milk supplied needs drastic improvement. UDL needs to develop the length of its milk route and set-up more VLCs in villages where DIGs are operational.
- v. More efforts are needed to empower women and connecting them with public schemes.
- vi. The study has revealed that only 41% of women knew about any of the organisation from SPARSH, UDL, JK Paper Limited or LVPFPL.
- vii. Overdependence over SPARSH for matters such as bookkeeping may compromise long-term sustainability of the project. As many women during the FGDs and personal interviews reported that their DIG would stop functioning if a particular field staff of SPARSH stops working then the DIG would become defunct.

Figure 42: Elements of concern



6.5 Sustainability

The sustainability of project entails that the impact of the projects to continue into far future even when the support of implementing agency cease to exist. Sustainability of the project lies in the absorption of the project system and processes by the members of DIGs. It also necessitates that the DIG members have the affinity, commitment and clear understanding towards project objectives, system and processes which motivates and enables them to maintain and scale the impact of project.

The relevance of the initiative and benefits accrued due to the intervention have created a strong affinity for the project among DIG members. However, capacity of women to take the intervention forward is matter of concern. 63% of the women said that they would not be able to run their DIG in case the implementing agency exits. During the FGDs women were asked what would happen to the DIG if SPARSH exit. The most spontaneous answer of women to this question was that the DIGs will stop functioning and become defunct. Even though the DIG members are aware about all the function carried out in the group but 62% are not able to do bank work, bookkeeping etc. However, the women have increased level of trust, drive, confidence, enthusiasm and solidarity.

It is high time to craft a robust exit strategy. At present stage, without handholding support, the process may not sustain itself. However, a blueprint has been developed which may be one of the building blocks leading to sustainability. SPARSH is setting up a micro dairy plant and its success may have demonstrative effect for other DIGs to go for it. They are also planning to establish a model cattle farm and motivate DIG members to also develop similar farms so that the increased and quality milk production could lead to larger benefits for the community and society. These are building blocks for ensuring sustainability but in view of present conditions, hand holding support for a longer period cannot be ruled out.

7. Conclusions

Following conclusions can be made from the findings of study.

- i. Intervention has positive impact on economic conditions of women.
- ii. Process is rigorous, and systems are in place which may produce better results in future.
- iii. There is strong project team who are in regular touch with the target group.
- iv. 59% women don't know about role of Umang Dairies Limited and SPARSH and they have got impression that all these things are being done by field staff.
- v. Linkages with NABARD and banks are very good, and they own the project. These linkages are also major contributors to the effects of the project.

- vi. Awareness about social welfare schemes is minimal.
- vii. It was also observed members of the project teams are never canvassing to members of groups to supply milk to UDL and LVP.
- viii. Repayment of loans to the banks is almost one hundred percent.
- ix. NABARD, main funder of the project, very much appreciative of project implementation and outcomes.

8. Recommendations

- i. As there is very much positive feeling, management of dairy should explore and straighten milk routes so that willingly many more groups can join the supply chain.
- ii. As project is under implementation and has created positive environment, it is high time that members of the DIGs are made aware about their entitlements and schemes of the state and central governments.
- iii. During the next phase of the project a transition process needs to be worked out wherein the handholding of the DIGs by SPARSH needs to be the self-holding of by the group.
- iv. The interface of the DIGs with the officials of SPARSH and companies is good but with company is inadequate therefore the brand image is not visible. Therefore, there is a need of developing robust communication strategy for brand promotion of UDL, LVPFPL and J. K. Organisation.
- v. Adoption of IT tools for monitoring and follow-up.
- vi. In future, handholding support may be provided to these groups in developing such farms in each village and multiple locations. Doing so will also enable UDL to procure more raw milk through new VLCs and increasing the length of their milk route at a very marginal cost. Therefore, motivating and collectivization of DIG members for opening dairy microenterprises is imperative for creating 'Shared Value' that will ensure quality and sustained supply of milk to UDL while larger economic benefits for the women and boosting the entire rural economy of the region. For this purpose, SPARSH has already devised its future strategy where a demonstration farm will be set-up in 1 Bigha land with an investment of INR 20 lakh. A dairy structure has already been formed. SPARSH will purchase 12 buffalos. The electricity requirement will be met through solar power. The organization wants to motivate the DIG members to set-up 40 such model dairy farms in near future. The organisation expect production of around 100 liter of raw milk per day from each such farm. According to the company officials, the recurring cost of each plant is estimated to be INR 9 lakh/year and the estimated sale will be around INR 11 lakh per year. The organization estimate that from the 4th year onwards a profit of around INR 7 lakh will be generated from each such model dairy farm.

- vii. Though very difficult, but efforts should be made by project team to explore possibility that a few groups may undertake economic activity in collective manner.
- viii. A view may be taken to bring purchase price of milk by UDL at par with other dairies operating in the area.
- ix. For upscaling and ensuring continuation of support to DIGs, strategy needs to be evolved for leveraging of resources and forming partnerships with other companies.
- x. Emphasis need to be given for promoting leadership among DIGs.

Annexure I: Number of DIGs formed in each block

S. No.	Block	No of SHG	SHG – Bank Linked	SHG- credit Linked	SHG – un-linked
1	Amroha	151	120	39	31
2	Hasanpur	123	101	39	22
3	Gangeshwari	117	92	36	25
4	Dhanaura	127	105	52	22
5	Gajraula	95	73	42	22
		613	491	208	132

Annexure II: DAC criteria for evaluating development assistance

Criterion	Explanation
Relevance	<p>The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.</p> <p>In evaluating the relevance of a programme or a project, it is useful to consider the following questions:</p> <ul style="list-style-type: none"> • To what extent are the objectives of the programme still valid? • Are the activities and outputs of the programme consistent with the overall goal and the attainment of its objectives? • Are the activities and outputs of the programme consistent with the intended impacts and effects?
Effectiveness	<p>A measure of the extent to which an aid activity attains its objectives.</p> <p>In evaluating the effectiveness of a programme or a project, it is useful to consider the following questions:</p> <ul style="list-style-type: none"> • To what extent were the objectives achieved / are likely to be achieved? • What were the major factors influencing the achievement or non-achievement of the objectives?
Efficiency	<p>Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.</p> <p>When evaluating the efficiency of a programme or a project, it is useful to consider the following questions:</p> <ul style="list-style-type: none"> • Were activities cost-efficient? • Were objectives achieved on time? • Was the programme or project implemented in the most efficient way compared to alternatives?
Impact	<p>The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators. The examination should be concerned with both intended and unintended results and must also include the positive and negative impact of external factors, such as changes in terms of trade and financial conditions.</p> <p>When evaluating the impact of a programme or a project, it is useful to consider the following questions:</p> <ul style="list-style-type: none"> • What has happened as a result of the programme or project? • What real difference has the activity made to the beneficiaries? • How many people have been affected?
Sustainability	<p>Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.</p> <p>When evaluating the sustainability of a programme or a project, it is useful to consider the following questions:</p> <ul style="list-style-type: none"> • To what extent did the benefits of a programme or project continue after donor funding ceased? • What were the major factors which influenced the achievement or non-achievement of sustainability of the programme or project?

Annexure III: Strategy for analysis

i) Difference-in-Differences (DID) and Regression

DID is the difference in average outcome in the treatment group before and after treatment minus the difference in average outcome in the control group before and after treatment.³

The DID method estimates the project effect ($\hat{\delta}_{DD}$) in the following manner:

$$\hat{\delta}_{DD} = (Treatment_{2019} - Control_{2019}) - (Treatment_{2016} - Control_{2016})$$

It is common to find DID estimators presented in a table of the following form.

	Pre	Post	Post-Pre-Difference
Treatment	$\alpha + \beta = \bar{Y}_0^T$	$\alpha + \beta + \gamma + \delta = \bar{Y}_1^T$	$\hat{\delta}_1 = \bar{Y}_1^T - \bar{Y}_0^T$
Control	$\alpha = \bar{Y}_0^C$	$\alpha + \gamma = \bar{Y}_1^C$	$\bar{Y}_1^C - \bar{Y}_0^C$
T-C Difference	$\bar{Y}_0^T - \bar{Y}_0^C$	$\hat{\delta}_2 = \bar{Y}_1^T - \bar{Y}_1^C$	$\hat{\delta}_{DD} = \bar{Y}_1^T - \bar{Y}_1^C - (\bar{Y}_0^T - \bar{Y}_0^C)$

where,

\bar{Y}_0^T = sample average of the outcome for the treatment group before treatment

\bar{Y}_1^T = sample average of the outcome for the treatment group after treatment

\bar{Y}_0^C = sample average of the outcome for the control group before treatment

\bar{Y}_1^C = sample average of the outcome for the control group after treatment

$\hat{\delta}_{DD}$ = estimated difference-in-differences

The DID is calculated by estimating the following regression model

$$Y_i = \alpha + \beta T_i + \gamma t_i + \delta(T_i \cdot t_i) + \epsilon_i$$

where,

Y_i = outcome variable

i = represents each observation from 1, ..., N ; individuals will typically have two observations each, one pre-treatment and one post-treatment.

α = constant term

³ https://eml.berkeley.edu/~webfac/saez/e131_s04/diff.pdf

β = treatment group specific effect (to account for average permanent differences between treatment and control)

T_i = defines the treatment status and takes the value 1 for treatment HH and 0 if it is a control HH. β represents the difference between the control and treatment group means in the reference time period.

γ = time trend common to control and treatment groups

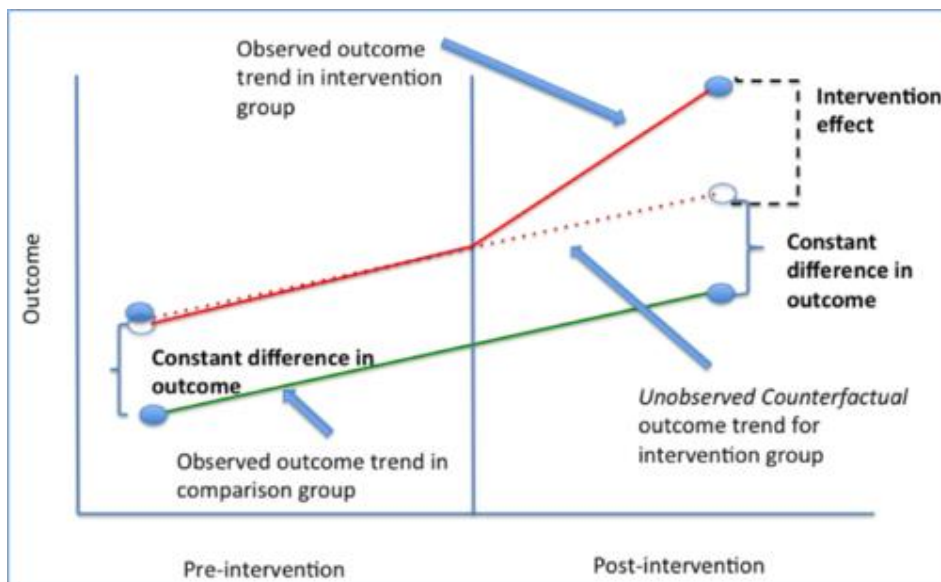
t_i = is a dummy variable that takes the value 1 if the sample value has been recorded after the treatment and value 0 if the sample was recorded before treatment. γ represents the change in the outcome variable that can be attributed purely to time.

δ = true effect of treatment

$\delta(T_i, t_i)$ = is an interaction variable between the year of the sample value and whether the HH is control or treatment. The coefficient of interest in this regression is δ that yields the effect of the intervention, known as treatment effect.

ϵ_i = is a random, unobserved "error" term which contains all determinants of Y_i which our model omits.

A graphical representation⁴ of DID is shown in the figure below.



⁴ <https://www.mailman.columbia.edu/research/population-health-methods/difference-difference-estimation>

DID-Regression models used to measure impact of intervention on outcome variables

1. General model

$$Y_i = \alpha + \beta T_i + \gamma t_i + \delta(T_i \cdot t_i) + \epsilon_i$$

2. Heterogeneity study

a) Effect of intervention on individuals from Schedule Caste (SC) category

$$Y_{SC_i} = \alpha + \beta T_i + \gamma t_i + \tau SC_i + \mu(SC_i \cdot T_i) + \varphi(SC_i \cdot t_i) + \delta(T_i \cdot t_i \cdot SC_i) + \epsilon_i$$

b) Effect of intervention on individuals belonging to minorities (M)

$$Y_{M_i} = \alpha + \beta T_i + \gamma t_i + \tau M_i + \mu(M_i \cdot T_i) + \varphi(M_i \cdot t_i) + \delta(T_i \cdot t_i \cdot M_i) + \epsilon_i$$

c) Effect of intervention on landless (LL) HHs

$$Y_{LL_i} = \alpha + \beta T_i + \gamma t_i + \tau LL_i + \mu(LL_i \cdot T_i) + \varphi(LL_i \cdot t_i) + \delta(T_i \cdot t_i \cdot LL_i) + \epsilon_i$$

d) Effect of intervention on individuals in different age categories

$$Y_{AG_i} = \alpha + \beta T_i + \gamma t_i + \tau AG_i + \mu(AG_i \cdot T_i) + \varphi(AG_i \cdot t_i) + \delta(T_i \cdot t_i \cdot AG_i) + \epsilon_i$$

Annexure IV: List of villages and DIGs covered under the study

Block	Village	DIG
Amroha	Bhuda (Hadipur Majra)	Ekta DIG
		Sangathan DIG
	Khetapur	Chandni Suraj mukhi
Dhanaura	Dehrachak	Chamunda Lakshmi Radhe Krishna Sita Yashoda
		Neeli Kheri
	Tajpur	Akash DIG
Gajraula	Fatehpur	Gulab Jyoti Kamal Mahek Radha Tringa
		Shahpur
	Shakurabad	Chaman Pragti Safi Sangam
Gangeshwari	Porara	Aarus Ganga DIG Gulab DIG Jai Mahabli Jaiguru

		Jyoti
		Khushboo
		Lakshmi SPARSH
		Maha Lakshmi
		Meera SPARSH
		Nai Disha
		Najma
		Nisha DIG
		RamRahim
		Ruchi SPARSH
		Gulab
	Chaki Madhaya	Kamal
		Pooja
		Chandni
	Dayawali	Maa Ganga
		Maa Lakshmi
		Maa Sarswati
		Ambedkar
	Kaneta	Jenab
		Lakshmi
		Krishna
		Maa Sarswati
	Mangroli	Madhu
		Mahi SPARSH
		Rama
		Simran
		Guru
	Satera	Lakshmi

Annexure V: Survey questionnaire

क्रमांक	उत्तरदाता का विवरण				
1	स्वयं सहायता समूह और गाँव का नाम				
2	सदस्य का नाम				
3	घर में सदस्यों की संख्या				
4	आप कितने साल से समूह से जुड़े हैं				
5	उम्र				
6	वैवाहिक स्थिति	विवाहित	अविवाहित	विधवा	तलाकशुदा
7	पढाई	अशिक्षित	केवल हस्ताक्षर	साक्षर	5 वीं 8 वीं
		10 वीं	12 वीं	ग्रेजुएशन	पोस्ट ग्रेजुएशन
8	आपने हस्ताक्षर करना और पढ़ना लिखना कहां से सीखा	पहले से आता था		समूह में आकर सीखा	
9	वर्ग	सामान्य	पिछड़ा वर्ग	अनुसूचित जाति	अनुसूचित जनजाति
10	धर्म	हिन्दु	मुस्लिम	अन्य	

	वार्षिक आय	समूह में शामिल होने से पहले		अब	
11	घर की कुल वार्षिक आय				
12	आय के स्रोतों कौन कौन से हैं (एक से ज्यादा चुन सकते हैं) और उनसे होने वाली आय	खेती	गाय/ भैस	खेती	गाय/ भैस
		बकरी	मुर्गी	बकरी	मुर्गी
		छोटा-मोटा व्यवसाय	दिहाड़ी मजदूर	छोटा-मोटा व्यवसाय	दिहाड़ी मजदूर
		नौकरी (सरकारी व निजी)	अन्य	नौकरी (सरकारी व निजी)	अन्य
आय के स्रोतों पर प्रभाव					
13	घर में कमाने वालों की संख्या	पुरुष		महिला	
		समूह में शामिल होने से पहले	अब	समूह में शामिल होने से पहले	अब
14	मुख्य कमाने वाले का आय स्रोत	डेरी व्यवसाय	खेती	छोटा-मोटा व्यवसाय	दिहाड़ी मजदूर
		नौकरी (सरकारी व निजी)	अन्य _____		
15	खुद क्या काम करती हैं	डेरी व्यवसाय	खेती	छोटा-मोटा व्यवसाय	दिहाड़ी मजदूर

		नौकरी (सरकारी व निजी)	अन्य _____		
16	घर में कुल कितने व्यवसाय किये जाते हैं				
17	व्यवसाय से होने वाला मुनाफा	सबसे अच्छे महीने में	सबसे खराब महीने में	साधारण महीने में	

18	सालाना खर्च	समूह में शामिल होने से पहले	अब		
	कुल सालाना खर्च				
	शिक्षा				
	स्वास्थ्य				
	घर				
	यात्रा				
	मनोरंजन				
	त्योहार				
	मोबाईल फोन				
	अन्य				

लेन-देन और बचत की आदत सम्बन्धी					
19	क्या घर बचत कर पाता है	हाँ	पता नहीं	नहीं	
20	घर की कुल सालाना बचत	समूह में शामिल होने से पहले			अब
21	क्या आप खुद पैसों की बचत कर पाती है	हाँ	पता नहीं	नहीं	
22	क्या आप समूह में जुड़ने से पहले बचत कर पाती थीं	हाँ	नहीं		
23	आप कितने पैसे औसतन हर महीने बचाती है	१००	२००	२०१ से ५००	५०० से ज्यादा
24	आप समूह में जुड़ने से पहले औसतन हर महीने कितने बचाती थीं	१००	२००	२०१ से ५००	५०० से ज्यादा
25	बचाए हुए पैसे आप कहाँ रखती है	बैंक	SHG खाते में	घर में	अन्य _____
26	बचाए हुए पैसे समूह में जुड़ने से पहले आप कहाँ रखती थी	बैंक	SHG खाते में	घर में	अन्य _____
27	घर में कुल कितने बचत खाते हैं				
28	सबसे पुराना खाता कितने साल पुराना है				

29	क्या आप अपनी बचत की राशी अपने अनुसार खर्च कर पाती है	हाँ	पता नहीं	नहीं	
30	क्या आपका बैंक खाता है	हाँ	पता नहीं	नहीं	
31	क्या आप बैंक खाता स्वयं प्रयोग करना जानती है	हाँ	पता नहीं	नहीं	
32	क्या स्वयं सहायता समूह से जुड़ने के बाद आपकी बचत में वृद्धि हुई है	हाँ	पता नहीं	नहीं	
ऋण के बारे में जानकारी					
33	क्या आप पर अभी कोई ऋण है	हाँ	पता नहीं	नहीं	
34	अभी कुल कितने लोन चल रहे हैं				
35	लोन कहां से लिया है	SHG	बैंक	अन्य _____	
36	अभी कुल कितना लोन बचा हुआ है	SHG	बैंक	अन्य _____	
37	क्या आपने ऋण के लिए कुछ गिरवी रखा है	हाँ	पता नहीं	नहीं	
38	आपने ऋण क्यों लिया था	शादी के लिए	जमीन खरीदने के लिए	घर की मरम्मत के लिए	बीमारी के लिए
		नए कारोबार के लिए	शिक्षा के लिए	खेती से जुड़ी चीजों के लिए	पशु खरीदने के लिए
		अन्य _____			
39	ऋण की राशी कितनी थी (एक से ज्यादा ऋण हो तो उनको अलग अलग लिखें)				
40	ऋण पर ब्याज दर क्या थी	2%	3%	3 और 5% के बीच	5% से ज्यादा
41	ऋण की अवधि	6 महीने	1 साल	ज्यादा _____	
42	आप लोन कब तक चुकाने की उम्मीद रखते हैं	3 महीने से कम	3 से 6 महीने तक	1 साल के भीतर	1 साल से ज्यादा
ऋण का प्रतिस्थापन					
43	क्या आपने अपने किसी बाहर के लोन को समूह के लोन से चुकाया है?	हाँ	पता नहीं	नहीं	
44	ऋण की राशी कितनी थी				

45	कर्ज पर ब्याज दर क्या थी	
46	SHG में शामिल होने के बाद आपको लोन बदलने में कितना समय लगा	
47	आपको SHG की सहायता के बिना राशि चुकाने में कितना समय लगता	

सरकारी योजनाओं की जानकारी					
48	आपको किन किन सरकारी योजनाओं की जानकारी है	प्रधानमंत्री जीवन ज्योति बीमा योजना/ 330 Rs वाला (PMJJBY)	सरकारी राशन वितरण Public Distribution System (PDS)	प्रधानमंत्री सुरक्षा बीमा योजना/ 12 Rs वाला (PMSBY)	उज्ज्वला योजना
		प्रधानमंत्री उज्ज्वला योजना (गैस वाला) (PMUY)	स्वच्छ भारत अभियान (शौचालय के लिए)	पशुधन बीमा योजना	अन्य _____
49	अपने इनमें से किन सरकारी योजनाओं का लाभ लिया है या ले रहे हैं	प्रधानमंत्री जीवन ज्योति बीमा योजना/ 330 Rs वाला (PMJJBY)	सरकारी राशन वितरण Public Distribution System (PDS)	प्रधानमंत्री सुरक्षा बीमा योजना/ 12 Rs वाला (PMSBY)	उज्ज्वला योजना
		प्रधानमंत्री उज्ज्वला योजना (गैस वाला) (PMUY)	स्वच्छ भारत अभियान (शौचालय के लिए)	पशुधन बीमा योजना	अन्य _____

संपत्ति वर्धन					
50	समूह से जुड़ने के बाद क्या आपने कुछ खरीदा है	खेत/ जमीन	घर का सामान	रोजगार के लिए कोई उपकरण	घर की मरम्मत
		गाड़ी _____	पशु _____	अन्य _____	घर
	घर की गुणवत्ता	समूह में शामिल होने से पहले		अब	
51	घर में कमरों की संख्या				
52	पक्का फर्श				
53	पक्की छत				
54	पक्की दीवारें				

55	क्या आपने घर की मरम्मत में 5000 रूपये से ज्यादा खर्च किये है पिछले 1 वर्ष में	हाँ	पता नहीं	नहीं	
56	शौचालय	समूह में शामिल होने से पहले		अब	
		खेत	घर में	खेत	घर में
		सार्वजनिक शौचालय	बताना नहीं चाहते	सार्वजनिक शौचालय	बताना नहीं चाहते

स्वयं सहायता समूह के बारे में विचार				
57	यह महिलाओं को जरूरी सुचना बांटने का अवसर प्रदान करता है	हाँ	पता नहीं	नहीं
58	आर्थिक विकास के लिए मदद करता है	हाँ	पता नहीं	नहीं
59	सदस्यों की आय बढ़ी है	हाँ	पता नहीं	नहीं
60	स्वयं के आत्मविश्वास में वृद्धि	हाँ	पता नहीं	नहीं
61	बैंक का नजरिया स्वयं सहायता समूह के प्रति सकारात्मक है	हाँ	पता नहीं	नहीं
62	कर्ज चुकाने की दर खराब है	हाँ	पता नहीं	नहीं
63	कर्ज लेने हेतु जटिल कागजी प्रक्रिया से गुजरना पड़ता है	हाँ	पता नहीं	नहीं
64	स्वयं सहायता समूह के टूटने के कारण	पैसों से सम्बंधित गड़बड़ी	आपस में विश्वास नहीं होना	आपसी लड़ाई
		अलग धर्म या जाति का होना	समूह के सदस्यों और फील्ड कोऑर्डिनेटर या समूह बनानेवाली संस्था के बीच तालमेल की कमी	

स्वयं सहायता समूह में भागीदारी				
65	क्या आप आपस में कर्ज देते हो	हाँ	पता नहीं	नहीं
66	कर्ज का ब्यौरा रखते है	हाँ	पता नहीं	नहीं
67	स्वयं सहायता समूह के कार्यों को जानते है	हाँ	पता नहीं	नहीं
68	क्या आपका स्वयं सहायता समूह बाहरी व्यक्तियों को भी कर्ज देता है	हाँ	पता नहीं	नहीं

69	क्या आप बैंक, जे के डेरी, मिल्स, नाबार्ड, या स्पर्श के साथ स्वयं सहायता समूह के सम्बंधित होने की जानकारी रखते है	हाँ	पता नहीं	नहीं	
70	क्या आपने पिछले एक वर्ष में स्वयं सहायता समूह से किसी आपातकालीन स्थिति में मदद मांगी है	हाँ	पता नहीं	नहीं	
71	क्या स्वयं सहायता समूह ने मदद की है	हाँ	पता नहीं	नहीं	
72	क्या आप दूसरों को स्वयं सहायता समूह से जुड़ने की सलाह देंगे	हाँ	पता नहीं	नहीं	
73	सदस्यों की स्वयं सहायता समूह से सम्बंधित मीटिंग कितने समय अन्तराल में होती है	साप्ताहिक	मासिक	15 दिन में	
		6 महीने में	जरूरत के अनुसार		
74	आप समूह की बैठकों में क्या-क्या चर्चा करते हैं	वित्तीय मुद्दे	राजनीतिक मुद्दे	बचत	अंतर ऋण
		ऋण	ग्राम विकास/सामुदायिक विकास मुद्दे	समूह संबंधित विवाद	व्यक्तिगत मुद्दे
		सरकारी योजनाओं	बचत बैंक शेष	अन्य	
75	आप समूह किस काम में स्वतंत्र रूप से कर सकते हैं	पढ़ना लिखना	कुछ भी नहीं	अन्य	

सशक्तिकरण				
76	क्या स्वयं सहायता समूह से जुड़ने के बाद से घर के निर्णयों में आपकी भागीदारी बढ़ी है	हाँ	पता नहीं	नहीं
77	क्या स्वयं सहायता समूह से जुड़ने के बाद से बच्चों से सम्बंधित निर्णय लेने में आपकी भागीदारी में बढ़ी है	हाँ	पता नहीं	नहीं

78	क्या स्वयं सहायता समूह से जुड़ने के बाद से पारिवारिक आकस्मिक खर्चों के लिए स्वयं को तैयार महसूस करते हैं	हाँ	पता नहीं	नहीं
79	क्या आप अपने जीवन के जरूरी निर्णय अपने आप ले सकते हैं	हाँ	पता नहीं	नहीं
80	क्या आपको लगता है की आप अपने जरूरत की वस्तुएं सहयोगी संस्था से मांग सकते हैं	हाँ	पता नहीं	नहीं
81	क्या आप कार्य से सम्बंधित उत्पाद का मूल्य निर्धारण और खरीद बिक्री का निर्णय अपने आप करते हैं	हाँ	पता नहीं	नहीं
82	क्या आपकी सहयोगी संस्थाएं आपको किसी विशेष निर्णय के लिए प्रोत्साहित करती है	हाँ	पता नहीं	नहीं
83	क्या आपको मीटिंग्स में जाने के लिए घर वालों से अनुमति लेनी पड़ती है	हाँ	पता नहीं	नहीं
84	क्या आप मीटिंग्स में या सार्वजनिक जगहों पर अपनी बात खुल कर रख सकती हैं	हाँ	पता नहीं	नहीं
85	क्या आपके घर वालों का व्यवहार स्वयं सहायता समूह से जुड़ने के बाद आपके प्रति पहले से ज्यादा अच्छा हुआ है	हाँ	पता नहीं	नहीं
86	क्या आप ने किसी शारीरिक , मानसिक एवं मोखिक प्रतारणा का विरोध किया है	हाँ	पता नहीं	नहीं
87	क्या आपने कभी राशन की दुकान या सरकारी कार्यालयों या विद्यालयों में किसी	हाँ	पता नहीं	नहीं

	पक्षपात का कभी विरोध किया है				
88	घर के मामलों में आपकी राय भी मांगी जाती है	हाँ	पता नहीं	नहीं	
89	घर में किसका फैसला अन्तिम होता है	आपका	घर के किसी अन्य सदस्य का	अन्य	
90	पिछले एक साल में आप कौन-कौनसी जगह अकेले गयी हैं	पंचायत घर	किसी सरकारी कार्यालय	बैंक	बाजार
		रिशतेदार के घर	अस्पताल	बच्चों के स्कूल	अन्य

राजनीतिक भागीदारी					
91	क्या आप जानते हैं की महिलाओं के लिए ग्राम पंचायत एवं नौकरियों में आरक्षित सीट होती है	हाँ	पता नहीं	नहीं	
92	क्या आपने अभी के लोकसभा चुनावों में मतदान किया है	हाँ	पता नहीं	नहीं	
93	आपने इनमें से पिछले कौन-कौनसे चुनाव में मतदान किया है	विधानसभा	पंचायत		
94	आप इनमें से किस-किस के नाम जानती हैं	राष्ट्रपति	प्रधान मंत्री	मुख्यमंत्री	
		आपके सांसद	विधानसभा सदस्य	ग्राम प्रधान	
95	आपने जो मतदान किया वह	केवम अपनी सुझ-बुझ से	परिवार की सहमति से	अन्य	

दूध की बिक्री					
96	क्या आप दुग्धुत्पादन करती हैं	हाँ	पता नहीं	नहीं	
यदि उपरोक्त प्रश्न का उत्तर "हाँ" है तभी आगे जाये अन्यथा आने वाले प्रश्न छोड़ दें					
97	पशुओं की संख्या	गाय	भैंस	बछीया	बछड़ा
	दुधारू दूध नहीं देने वाले				
98	कुल दुग्धुत्पादन (लीटर)	गाय (लि.)	भैंस (लि.)	उपयोग (लि.)	बिक्री (लि.)
99	आप अपने पशुओं का दूध कहा बेचते हो	गाँव के घरों में	शहर के बाजार में	डेरी एजेंट/ कलेक्सन सेंटर को	दुधिया को

		घर में ही उपयोग हो जाता है	अन्य		
100	प्रति लीटर दूध की दर	रूपए			
	गाय				
	भैंस				
	अन्य				
101	क्या आप दूध उमंग डेरी को बेचते हो	हाँ	नहीं		
102	उमंग डेयरी दूध का क्या दाम				
103	आपकी डेयरी दूध का दाम कितना देती है	मार्केट से कम	मार्केट की बराबर	मार्केट से अधिक	
कृत्रिम गर्भाधान					
104	स्रोत	स्पर्श	सरकार	अन्य	
105	लागत (रूपये में)				
टीकाकरण					
106	स्रोत	स्पर्श	सरकार	अन्य	
107	लागत (रूपये में)				
दुग्धत्पादन से जुड़े सालाना आय और खर्च					
108	दुग्धत्पादन से आय				
109	पशुओं के चारा खर्च				
110	पशुओं के सेहत पर खर्च				
प्रशिक्षण					
111	क्या आपने दुग्धत्पादन या पशुपालन को बेहतर बनाने के लिये कोई प्रशिक्षण लिया है	हाँ	नहीं		
112	यदि हाँ तो किससे	स्पर्श	सरकार	अन्य	
113	क्या आपको प्रशिक्षण उपयोगी लगा	हाँ	नहीं		
114	आपने क्या-क्या सीखा				

Annexure VI: Summary statistics for demographic and socio-economic variables

Variable N = 346	Full sample	Treatment	Control	Difference in means Treatment vs Control
Average age of woman respondent	35.032	35.565	33.538	2.026
Average size of the HH	5.902	5.918	5.857	0.061
Caste of woman				
<i>General</i>	0.055	0.051	0.066	-0.015
<i>OBC</i>	0.801	0.776	0.868	-0.092
<i>SC</i>	0.136	0.161	0.066	0.095***
<i>ST</i>	0.009	0.012	0.000	0.012*
Religion of woman				
<i>Hindu</i>	0.645	0.667	0.582	0.084
<i>Muslim</i>	0.353	0.329	0.418	-0.088
<i>Others</i>	0.003	0.004	0.000	0.004
Education				
<i>Illiterate</i>	0.332	0.329	0.341	-0.011
<i>Signature literacy</i>	0.263	0.275	0.231	0.044
<i>Literate</i>	0.179	0.169	0.209	-0.040
5 th	0.055	0.063	0.033	0.030
8 th	0.066	0.071	0.055	0.016
10 th	0.035	0.027	0.055	-0.027
12 th	0.026	0.020	0.044	-0.024
<i>Graduate</i>	0.035	0.039	0.022	0.017
<i>Postgraduate</i>	0.009	0.008	0.011	-0.003
Marital Status				
<i>Married</i>	0.882	0.882	0.879	0.003
<i>Unmarried</i>	0.078	0.071	0.099	-0.028
<i>Widowed</i>	0.006	0.004	0.011	-0.007
<i>Divorced</i>	0.035	0.0431	0.011	0.0321*
Land Holding				
<i>HH having land</i>	0.410	0.431	0.352	0.080
<i>Landless HH</i>	0.590	0.569	0.648	-0.080
<i>Average size of land (in Bigha)</i>	3.071	3.606	1.571	2.034***
Animal husbandry and dairying (AHD)				
<i>No. of women engaged in AHD</i>	0.509	0.522	0.473	0.049
<i>Average no. of livestock per HH</i>	3.210	3.068	3.651	-0.583
<i>Average no. of milch cattle</i>	1.051	1.105	0.884	0.222
<i>Average no. of non-milch cattle</i>	0.795	0.654	1.233	-0.578

Average no. of female calves	0.682	0.699	0.628	0.071
Average no. of male calves	0.636	0.602	0.744	-0.143
Average milk production (liters/day) by each HH	4.074	4.301	3.372	0.929
Average milk production (liters/cattle/day)	3.876	3.891	3.816	0.075
Amount of milk (liters/day) consumed within HH	1.047	1.062	1.000	0.062
Amount of milk (liters/day) sold	3.057	3.263	2.419	0.845*
Average rate (INR/liter) of cow milk	27.765	27.895	26.833	1.062
Average rate (INR/liter) of buffalo milk	33.505	33.545	33.375	0.170
Average rate (INR/liter) of milk provided by UDL	30.377	30.457	30.133	0.323
No. of women received dairying and animal husbandry training	0.075	0.098	0.011	0.087***
SPARSH	0.692	0.680	1.000	-0.320
Government	0.269	0.280	0.000	0.280
Others	0.038	0.040	0.000	0.040
No. of woman selling milk to UDL	0.3125	0.308	0.326	-0.017

Note: ***Indicates significant difference at $p < 0.01$, ** at $p < 0.05$, and * at $p < 0.10$.

Annexure VII: Difference-in-Differences (DID) and regression analysis

DID and regression analysis for average monthly savings of women

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	129.12	37.56	3.438	0.000622	***
Treatment	41.08	43.75	0.939	0.348166	
Time	41.76	53.12	0.786	0.432071	
Treatment:Time	89.81	61.88	1.451	0.147110	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					
Multiple R-squared: 0.03578, Adjusted R-squared: 0.03158					

DID and regression analysis for average annual HH savings

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	10450	3252	3.213	0.00137	**
Treatment	5247	3788	1.385	0.16643	
Time	1078	4599	0.234	0.81474	
Treatment:Time	1893	5357	0.353	0.72399	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					
Multiple R-squared: 0.00946, Adjusted R-squared: 0.005141					

DID and regression analysis for average annual HH income

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	116294	7082	16.421	<2e-16	***
Treatment	12471	8249	1.512	0.131	
Time	4986	10015	0.498	0.619	
Treatment:Time	4799	11666	0.411	0.681	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					
Multiple R-squared: 0.01351, Adjusted R-squared: 0.009207					

DID and regression analysis for average annual HH income of minorities

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	123273	9284	13.278	<2e-16	***
Treatment	8027	10626	0.755	0.450	
Time	4506	13130	0.343	0.732	
Rel	-16713	14367	-1.163	0.245	
Treatment:Time	1822	15027	0.121	0.904	
Treatment:Rel	9016	16956	0.532	0.595	
Time:Rel	1148	20318	0.056	0.955	
Treatment:Time:Rel	9344	23980	0.390	0.697	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					
Multiple R-squared: 0.01832, Adjusted R-squared: 0.008276					

DID and regression analysis for average annual HH income from dairying

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	18618	3598	5.175	3.86e-07	***
Treatment	4018	4138	0.971	0.332	
Time	1121	5088	0.220	0.826	
Treatment:Time	2397	5853	0.410	0.682	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.01334, Adjusted R-squared: 0.004834

DID and regression analysis for average annual HH expenditure

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	74238	4662	15.923	<2e-16	***
Treatment	5531	5431	1.018	0.309	
Time	4220	6594	0.640	0.522	
Treatment:Time	1739	7681	0.226	0.821	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.007897, Adjusted R-squared: 0.003571

DID and regression analysis for average annual HH expenditure on education

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	7924.2	1432.7	5.531	4.53e-08	***
Treatment	839.7	1668.9	0.503	0.615	
Time	273.6	2026.1	0.135	0.893	
Treatment:Time	514.5	2360.1	0.218	0.827	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.001895, Adjusted R-squared: -0.002457

DID and regression analysis for average annual HH expenditure on entertainment

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	99.74	93.32	1.069	0.286	
Treatment	152.81	108.70	1.406	0.160	
Time	76.92	131.97	0.583	0.560	
Treatment:Time	-30.26	153.72	-0.197	0.844	

Multiple R-squared: 0.005635, Adjusted R-squared: 0.001299

DID and regression analysis for average annual HH expenditure on food

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	42197.8	3035.4	13.902	<2e-16 ***
Treatment	1834.4	3535.8	0.519	0.604
Time	973.6	4292.8	0.227	0.821
Treatment:Time	995.8	5000.4	0.199	0.842

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.002192, Adjusted R-squared: -0.002159

DID and regression analysis for average annual HH expenditure on health

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	9358.2	1390.4	6.731	3.56e-11 ***
Treatment	2017.6	1619.6	1.246	0.213
Time	313.7	1966.3	0.160	0.873
Treatment:Time	222.1	2290.4	0.097	0.923

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.005333, Adjusted R-squared: 0.0009958

DID and regression analysis for average annual HH expenditure on mobile

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	1248.51	110.72	11.276	<2e-16 ***
Treatment	61.10	128.97	0.474	0.636
Time	73.54	156.58	0.470	0.639
Treatment:Time	57.93	182.39	0.318	0.751

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.004588, Adjusted R-squared: 0.0002478

DID and regression analysis for average annual HH expenditure on other things

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	39.56	130.65	0.303	0.762
Treatment	234.17	152.18	1.539	0.124
Time	72.53	184.76	0.393	0.695
Treatment:Time	-52.92	215.22	-0.246	0.806

Multiple R-squared: 0.005653, Adjusted R-squared: 0.001317

DID and regression analysis for average annual HH expenditure on travel

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	4427.47	654.30	6.767	2.82e-11	***
Treatment	-49.43	762.16	-0.065	0.948	
Time	106.59	925.32	0.115	0.908	
Treatment:Time	502.82	1077.86	0.466	0.641	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Multiple R-squared: 0.001986, Adjusted R-squared: -0.002366

Annexure VIII: Impact sheet: summary of results

Outcome	Direction of Impact
Savings	+
Loan	+
Informal borrowings	-
Income	+
Expenditure	+
Livelihood diversification	+
Dairy farming	+
Dairy income	+
Income generating activities	+
Shared value	no impact
Quality of housing	no impact
Asset creation	+
Signature literacy	+
Political participation	no impact
Women empowerment	no impact