

End-Line Study of Where the Rain Falls (WtRF) Project of CARE India in Jashpur District of Chhattisgarh



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List of abbreviations

Abbreviations	Full form
ACI	Adaptive Capacity index
BPL	Below Poverty Line
CACI	Composite Adaptive Capacity Index
CAP	Community Action Plan
CBA	Community Based Adaptation
GHG	Green House Gases
IAY	Indira Awas Yojana
IGA	Income Generation Activities
INM	Integrated Nutrition Management
IPCC	International Panel for Climate Change
IPM	Integrated Pest Management
JFMC	Joint Forest Management Committee
KVK	Krishi Vidhyan Kendra
MGREGA	Mahatma Gandhi National Rural Employment Generation
NABARD	National Bank for Agriculture and Rural Development
NAPA	National Adaptation Programme of Action
NAPCC	National Action Plan on Climate Change
NTFP	Non Timber Forest Products
PDS	Public Distribution System
PRI	Panchayat Raj institution
SHG	Self Help Group
SC	Scheduled Caste
SRI	System for Rice Intensification
ST	Scheduled Tribe
VDC	Village Development Committee
WEAI	Women's Empowerment in Agriculture Index
WUA	Water User Association

Executive summary

This end-line study was an attempt for measuring the extent to which the stated goals and objectives of the Where the Rain Falls (WtRF) project has been met and the extent to which it has contributed towards empowering the Adivasi women of project areas, thereby resulting in improving the resilience ability of the tribal women in the targeted areas. As highlighted across various sections of this report, it was observed that WtRF project had a positive impact on the life of Adivasi Women in intervention areas. Project activities have helped them in practicing effective agricultural activities in consideration with the climatic conditions in the area. Various initiatives undertaken as a part of WtRF project were observed to be sustainable and have a potential to be replicated in future.

Understanding of the respondents on climate change and related issues (i.e. less rain in monsoon (66.8%), increasing temperature in summer (49.0%) and sporadic/uneven monsoon rain (42.9%) has increased significantly when compared midline phases of the evaluation (less rain in monsoon (26.9%), increasing temperature in summer (19.2%) and sporadic uneven monsoon rain (1.9%). The community has developed awareness on climate change and the perceived consequences from any such change in the near future. During end-line, the difference in the awareness levels regarding climate change was observed to be statistically significant between the respondents of intervention (91.2%) and comparison areas (70.2%), with the former showing higher awareness than the latter. An observable change in the perception of the people regarding the climate change was also observed during the end-line i.e. (sun stroke due to high temperature (44.3%), decrease in crop production (59.3%) and decrease ground water availability (22.7%) and the respondents were able to recognize more clearly the changing trends over the years than midline (sun stroke due to high temperature (13.5%), decrease in crop production (20.2%) and decrease ground water availability (12.5%) . The 36.4 percent of respondents in intervention areas reported that migration pattern have reduced than 20.5 percent of respondents in comparison areas. While food insecurity still remains a major issue in the region, the CARE's intervention seems to have been playing a role in reducing its occurrence. The trainings on the modern techniques of the farming which were primarily imparted by the CARE team animators were also observed to play an important role in preparing the communities against the climate change. The respondents, who had ever received these trainings, had a different opinion in regards to the migration pattern during the last two years as compared to the ones who had not received the trainings. The trained respondents were also observed to be more prepared to successfully cope with the occurrence of the extreme climatic events viz. flood, landslide, heavy rain and drought in future.

More than half of the participants were small/marginal farmers (51.1%) and the rice (paddy) was the main cultivated crop in the region. The usage of various techniques as a part of Integrated Nutrition Management (INM) seems to have increased among the respondents. The percentage use of various INM techniques was more in the intervention areas and the associated difference in the usage percentages between intervention area and the comparison area was significant. This is an indication of a constructiveness which has resulted in the farming practices on account of CARE's intervention. Similar to the INM, a comparison of the usage statistics with the baseline figures indicates an increasing trend in the usage of various Integrated Pest Management (IPM) techniques. It was observed that the respondents belonging to the intervention areas were more frequent users of the various IPM techniques than their counterparts from the comparison areas.

One importance focus area of the CARE's intervention was to make the farmers adopt their 5% water model technique. Data indicates that the attempt has been successful as in the intervention areas, more than one-third farmers (38.4%) have adopted this technique and reportedly have a farm pond in their agricultural lands.


The increase in the associated percentages is significant as compared to midline where this percentage was less than ten percent (8%).

Adivasi Women in the intervention areas have developed capacity to practice various climate resilient agricultural practices like System for Rice Intensification (SRI) (68.3%), mixed cropping (64.2%), 5% water model (53.8%), pond preparation (55.6%), deep tilling (55.4%), land levelling (81.1%). A comparatively higher involvement of respondents from the intervention areas in most of the post-harvest management techniques was also observed with the corresponding difference with the comparison areas being statistically significant.

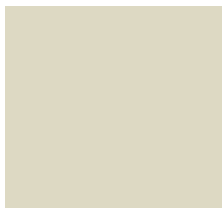
Under the WtRF project, CARE India has also helped the target group to understand and utilize natural resources like forest for alternative income generation sources. With WtRF, Adivasi women in the intervention villages have developed knowledge on various types of Non Timber Forest Products for commercial and personal usage. They were also observed to have developed the knowledge on the optimum method of collecting fruits/herbs/shrubs from the forest area without affecting the forest resources.

Apart from the above mentioned agricultural and allied activities, Adivasi women were also encouraged to move up in the market chain and deal directly with sellers and buyers of the agricultural commodities like seeds, fertilizers, manure and even selling of agricultural produce in the market. They have gained awareness about the structure and entitlements for carrying out the operations smoothly. Average number of women having a bank account and who promotes saving in bank has increased in comparison to the condition in baseline. Comparison of the statistics between intervention areas and comparison areas showed that mobility of respondents belonging to an intervention area was more than the ones who were from comparison area. This was true for all the places to which the mobility was enquired. Data also indicated that more women in the intervention areas were confident to raise the issue in public forum as compared to the ones who belonged to comparison areas. The respondents from the intervention areas were more confident in regards to independent decision making than their counterparts from comparison areas. The respondents from intervention area were also more motivated to exercise their democratic rights in the elections.

At an overall level, the women from intervention areas felt more empowered in terms of being mobile, having an ability to raise issues for discussion in a public forum, independent decision making and involved themselves more in agricultural product selling than the ones from comparison areas. These factors can be attributed as one of the major success of WtRF project.



Chapter 1: Introduction



1. Background

1.1. Introduction

This end line evaluation research study provides an overview of the impact of climate change in CARE India's intervention areas of Chhattisgarh state, India. CARE India has been implementing Where the Rain Falls (WtRF) project which is a community-based adaptation (CBA) project to increase resilience of Adivasi women to shocks and stresses around water owing to climate change in Jashpur District of Chhattisgarh State.

Climate change causes significant increase in inter-annual and intra-seasonal variability of monsoon rainfall because of which an additional stress is impeded on India's long term food security challenges as it affects food production in many ways¹. According to World Bank estimates, based on the International energy Agency's current policy scenario and other energy sector economic models, for a global mean warming of 4 degree Celsius², there will be a 10 percent increase in annual mean monsoon intensity³ and a 15 percent increase in year to year variability in monsoon precipitation⁴. As a result climate change impacts crops, livestock, forestry, fisheries causing grave social and economic consequences in the form of reduced incomes from agricultural production, eroded livelihoods, trade disruptions and adverse health impacts, accentuating health risks, and as such, posing severe risks to the development of the country.

India's economy and majority of its population is directly dependent on climate sensitive agriculture and allied sectors. Since climate change is expected to impact natural and human systems adversely by inducing changes in these systems, India can be considered highly vulnerable. Climate change is only likely to exacerbate India's already high physical exposure to climate-related disasters.

The fourth assessment report of the International Panel on Climate Change (IPCC) reported that globally, agriculture, forestry contributes 24% of the anthropogenic greenhouse gases⁵ (GHG). Agricultural practices like shifting cultivation; use of synthetic fertilizers; deep tillage and livestock keeping are examples of agricultural techniques that are commonly practiced in India and that contribute to GHG emissions. Climate change is linked with reduced crop yields, exacerbation of poverty and natural resource conflicts as witnessed in many regions of India. The National Adaptation Programme of Action (NAPA) for India estimated that increases in temperature and reduced rainfall as well as change in rainfall patterns will reduce the average yield of agricultural products which in turn will have an impact on anthropogenic greenhouse gases.

In recent years, issues related to climate change and its impact has been one of the international subjects for debate, discussion and negotiations like the Paris agreement on UNFCCC which came into effect on 4th November 2016 where it focus on to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius⁶ above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degree Celsius⁷. To minimize the climate change impacts and restoration and improvement of environment has been one of the thrust areas for international communities. As impacts of climate change are felt at multiple levels, expected and appropriate

¹ <http://www.orfonline.org/research/climate-change-and-food-security-in-india/>

² <http://www.worldbank.org/en/news/press-release/2012/11/18/new-report-examines-risks-of-degree-hotter-world-by-end-of-century>

³ <http://www.indiaenvironmentportal.org.in/files/file/variability%20of%20monsoon%20droughts%20%20India.pdf>

⁴ <http://www.ias.ac.in/article/fulltext/jess/123/05/1129-1145>

⁵ <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>

⁶ http://unfccc.int/paris_agreement/items/9485.php

⁷ http://unfccc.int/paris_agreement/items/9485.php

responses also required to be taken at different levels. Strategic interventions at local, regional, national and global level seems essential to deal with the emerging threat due to change in climatic factors. In view of its importance, India has developed the National Action Plan on Climate Change (NAPCC), 2008, addressing various sectoral aspects of climate change. The NAPCC seeks to promote understanding of climate change, adaptation, mitigation, energy efficiency and natural resource conservation while pursuing overall economic growth, i.e., measures that promote development objectives which also result in co-benefits for addressing climate change. At the same time, it is also recognized that the impacts of climate change would vary across states, sectors, locations and populations.

Changing weather patterns are already causing weather extremes, including droughts and flooding, leading to food insecurity and displacement of people. Yet, these changing weather patterns, which include less predictable seasons and increasingly erratic rainfall, are some of the most important but least understood impacts of environmental change. While erratic weather has long presented serious challenges to people dependent on natural resources for their livelihoods, increasing variability due to climate change is making farming, pastoralism and even artisanal fishing more difficult and precarious. CARE France and the UN University's Institute for Environment and Human Security (UNU-EHS), launched the 8-country program "Where the Rain Falls" in 2011 to enhance the capacity of governments, civil society and the private sector to better understand and effectively address the relationship between changing weather patterns, food security and human mobility in some of the world's most vulnerable countries and communities. The Where the Rain Falls project, through its research, advocacy and risk reduction and adaptation efforts, provides better knowledge, recommendations and practical solutions to improve the lives of vulnerable communities in developing countries around the world. In Indian context, Chhattisgarh faces similar threat of climate change and its possible impacts as a result of which CARE India intervenes in these drought prone areas like Chhattisgarh in order to facilitate the severe climatic conditions with modern and effective agricultural practices to empower the beneficiaries against such conditions.

CARE India has been implementing "Where the Rain Falls" (WtRF) project in Chhattisgarh, since 2011. Initially, WtRF in India tried to explore the relationship between climate change, human mobility and hunger through research, Community Based Adaptation (CBA) and advocacy. In January 2013, CARE India commenced the CBA phase-I in 20 villages in two blocks: Bagicha and Pathalgaon, of Jashpur district in Chhattisgarh. This phase sought to focus on building resilience of Adivasi women to shocks and stresses around water, owing to climate change. WtRF is a multi-country project, which was also implemented in Bangladesh, Peru, Tanzania and Thailand, apart from India.

Climate change poses a huge threat to sustainable availability and productivity of resources like land, water, forests and livestock, which in turn has critical and adverse gendered implications. Building on and extending this work, CARE India conceptualized and started implementing phase-II of WtRF in January 2014, to address chronic risks like water and also food insecurity arising out of climate change and impacting Adivasi women's access, comparison, and management of natural resources. Apart from the 20 villages of phase I, 20 more villages in the same two blocks have been included as project area for phase II of the project WtRF, and CARE India planned to reach out directly to 3,000 Adivasi women and their households (i.e., 15,000 beneficiaries, considering 5 members/household) in this phase. The goal of Phase II of the project is "By 2025, 3000 Adivasi women and girls are empowered, participate effectively in governance, and have enhanced resilience to chronic risks arising out of climate change". Before the project was launched a baseline study was conducted in 2015 to understand the environmental and beneficiaries issues with respect to climate change in their community. During the intervention a rapid assessment was conducted to understand the impact created among the impact population of the project in July 2016.

1.2. Where the Rain Falls (WtRF) - II Project Objectives

With above motive, the objectives of the WtRF Phase II project are as follows:

- To enhance capacities, capabilities and confidence of Adivasi women and girls to adapt and cope with environmental risks and related economic risks arising out of climate change.
- To support inclusive and effective collectives for building solidarity, promoting gender equity and facilitating access of Adivasi women and girls to opportunities, entitlements, resources, services, and markets.
- To engage with other critical actors (households, communities, government, market, local authority) to support equitable participation of Adivasi women in agriculture, markets, and decision-making related to governance of productive resources and assets.
- To facilitate governance and management of community resources with effective participation of local communities especially Adivasi women
- To generate knowledge products from field learnings to contribute to future program and advocacy strategies of CARE India and beyond

The project has adopted a three-pronged approach to achieve its objectives:

- Reducing existing vulnerabilities of Adivasi women and their households (e.g., through integrated water resources management, animal and crop conservation and protection, sustainable land development, improved soil and manure management, and enhanced access to rainfall and temperature forecasts)
- Building new forms of resilience (e.g., improved access to seeds and other inputs for diversifying crop production, setting up mechanisms for grain and seed storage, promoting forest-based and off-farm livelihoods, developing local markets, strengthening local governance and community institutions, improved systems of natural resource management and governance)
- Strengthening existing mechanisms, practices and opportunities which provide for resilience (e.g., promoting agro-biodiversity where paddy varieties are concerned, supporting revival of water storage structures, esp. the community-owned ones, promoting community institutions like SHGs, and Joint Forest Management Committee (JFMCs), strengthening linkages with government organisation (esp. agriculture and allied sector institutions and the State Forest Department) and private service providers, and ensuring access to safety nets like Mahatma Gandhi National Rural Employment Generation Scheme (MGNREGS), Public Distribution System (PDS) and minimum procurement prices of nationalized NTFPs).

1.3. Objectives of the Study

The following were the specific objectives of the end-line study:

- To assess the progress of the WtRF project towards achievements of goal, objectives, key outputs and outcomes;
- To assess the extent of improvement of coping and adaptive capacity of impact population, i.e. women;
- To assess the extent of strengthening resilience, governance and gender transformation;
- To evaluate the relevance, efficiency, effectiveness, sustainability and impact of the project on the lives of the impact population, i.e. women;
- To identify learning and challenges contributing to/hindering the success of the project; and
- To document lessons learnt from the project to inform for future intervention for the organization.

2. Research design and sampling

2.1. Research design

The research design adopted during this endline study was quasi-experimental evaluation design. As a part of data collection, we used **mixed method technique, involving both quantitative and qualitative methods of the data collection**. The quantitative interviews were done on CAPI (Computer Assisted Personal Interviewing) platform while the qualitative activities [In-depth interviews (IDIs) and focus group discussions (FGDs)] were done by trained moderator and the activities were audio-recorded.

The qualitative component of the study has essentially tried to capture gender and power relations confronted by the women in transforming them into full-fledged actors on climate change adaptation practices. The existing issues and challenges were identified and the possible ways to address them were mapped through interactions amongst a range of stakeholders.

2.2. Geographical coverage

The study was conducted in **two blocks of Jashpur district namely Pathalgaon and Bagicha**. In each of these blocks, the villages were segregated into intervention and comparison groups. A total of 80 villages - 40 each as intervention and comparison were selected and covered during the study.



2.3. Sample size estimation

2.3.1. Quantitative Component

The sample size (n) computation was done by using below mentioned formula and the key parameters:

$$n = \left\{ \frac{Z^2 \times (p) \times (1-p)}{m^2} \right\} + C$$

Where:

n = the sample size

p= current rate (assumed to be at 50%)

Z= Confidence level, for 95%, this value is 1.96

m = margin of error at 5% (standard value of 0.05)

c= non response rate (considered as close to 7%)

Based upon the calculations, the estimated sample size came out as **384**. Upon considering a non-response of close to 7%, the final sample size for intervention areas was estimated as **413**, which was considered as the quantitative sample size for the intervention areas. As study envisaged finding out the impact of the program hence a similar sample for the comparison areas was also planned. Thus, a total of **826** samples were targeted to be covered under the study.

However, depending upon the non-responses, the final sample coverage differed that the targeted and is presented in the grid below.

Table 1 Sample size for quantitative component

Quantitative Sample Size Covered						
Particulars	Intervention Area		Comparison Area		Total	
	Bagicha	Pathalgaon	Bagicha	Pathalgaon	Bagicha	Pathalgaon
No. of PSUs covered	20	20	20	20	40	40
No. of HHs covered	214	202	207	205	421	407
Total	828					

2.3.2. Qualitative Component

As part of the qualitative component, the following respondent groups were interviewed using the FGDs and In-Depth interview methods of data collection. The below table provides details about the qualitative sample and respondent categories.

Table 2: Sample size for qualitative component

Qualitative Sample Size Covered						
	Intervention Area		Comparison Area		Total	
	Bagicha	Pathalgaon	Bagicha	Pathalgaon	Bagicha	Pathalgaon
Key Informant Interview						
Local PRI Member	2	2	1	1	3	3
Agriculture Extension Worker	1	1			1	1
Local Forest Officer	1	1			1	1
KVK Program Coordinator/Subject Matter Specialist (1)						1
Senior Agriculture Development Officer		1				1
Focus Group Discussion						
FGD with VDC	2	2			2	2
FGD with SHG	1	1	1	1	2	2
FGD with JFM Committee	4		1		5	
FGD Impact Group Women	2	2			2	2
FGD with men	2	2			2	2
FGD with CARE Animators	1	1			1	1
					Total IDIs= 12	
					Total FGDs=23	

2.4. Sampling methodology

This study utilized a three staged sampling methodology, as illustrated in the ensuing paragraphs:

Stage 1: Selection of the blocks

The selection of block was purposive in nature and was completely based on the blocks where the project - Where the Rain Falls (WtRF) was implemented.

Stage 2: Selection of the PSUs

It was decided to undertake endline study in the same intervention (40) and comparison (10) PSUs which was covered during baseline study. However, in order to draw comparative result between intervention and comparison, it was imperative to have equal samples, therefore in endline study, 30 PSUs for comparison areas were additionally selected by using Probability Proportion to Size (PPS) sampling technique. Thus, a total of 80 PSUs, 40 from each intervention and comparison areas were covered as a part of this study.

Step 3: Selection of the participant households

In each of the selected PSU in intervention areas, target participants (Adivasi women) were selected by systematic random sampling from the list provided by the CARE team. A total of 10 participant households were covered in each of the selected intervention PSUs. While in comparison PSUs, following steps were undertaken for the household selection:

- With the help of key persons, team supervisors first ascertained the PSU boundary and approx. total number of HHs which were present in the village to form a rough sampling frame
- In order to ensure the proper capturing of the representation of the village, the entire PSU was next divided into four natural segments based on the equal number HHs in a segment
- This approach was adopted in only those PSUs which had more than or equal to 200 households. Segmentation exercise was not opted in the PSUs which had less than 200 HHs
- The team members first located a prominent starting point in each of the segment (primary school, sub center, Anganwadi centre etc.). Next, by utilizing the right hand rule, the team members approached every [i]th household for the purpose of conducting the main interviews.

3. Project implementation and data collection

3.1. Training of Investigators

Separate trainings were conducted for quantitative and qualitative components of the study. The quantitative component consisted of a three days training of investigators in which the participants were trained on technical skills and operational protocols of the survey.

The qualitative training was a day long at Kantar Public Delhi office before the launch of the qualitative field work. During the trainings, the field teams were given in-depth understanding on the study tools along with mock exercises. Details of the CARE interventions, sampling methodology and ethical consideration were also integral part of the trainings conducted. A detailed training agenda was prepared and followed during the training sessions and different members of the teams were elaborated about their roles and responsibilities such as interviewers and supervisors. The details of the training sessions are as follows:

Table 3 Training schedule

S. No.	Component	Training Dates	Venue Details
1.	Quantitative	23 rd - 25 th January 2017	Hotel All in, Raipur, Chhattisgarh
2.	Qualitative	3 rd February 2017	Kantar Public, IMRB International, 8, Balaji Estate, Kalkaji, New Delhi

3.2. Quality Control Mechanism

The quantitative component of the study was conducted with the target beneficiaries as detailed in the sampling process section. The interviews were conducted using CAPI devices. As per the list provided by CARE team of beneficiaries in intervention villages same were identified and interviewed however in comparison villages listing was conducted in villages after which by using systematic random sampling various households were selected and interviewed accordingly.

Quality assurance steps were taken at each stage of research to ensure high-quality of data generated and processed. The quality monitoring during the course of data collection followed the protocol as given below.

Table 4 Quality comparison mechanism

Quality Comparison	Data collection quality checks	Frequency of quality updates
Team Supervisor	<ul style="list-style-type: none"> 20% accompaniments, 20% back checks and spot checks Monitoring field plan and progress report 	Daily to State Field Manager

State Field Managers	<ul style="list-style-type: none">– Overall quality at state level– At least 30% scrutiny, 10% accompaniments, 10% back checks and spot checks	Twice a week to Core Research Team
Core Research Team	<ul style="list-style-type: none">– Overall quality and coordination at central level– Smooth implementation of the study in all the states– Random scrutiny and field visits	Weekly to CARE team

Chapter 2: Socio Economic Characteristics



2. Socio Economic Characteristics

This subsection presents demographic and socioeconomic characteristics of the surveyed respondents. As a part of this study, a total of 828 households were approached for interview across two selected blocks of Chhattisgarh (Bagicha and Pathalgaon). The interviews were conducted with the women respondents in each of the selected household and primarily, the respondents were married (95.5%). Basic demographics relating to which information was captured in this study and has been presented in this section comprises of respondent's marital status, economic category, social category, type of family, family size etc.

2.1. Social category of the households and family structure

The data from Census 2011 indicates that Jashpur is a tribal dominant district with the maximum proportion of the total population in intervention areas belongs to the scheduled tribes (88.5%) and a very low percentage belonging to the scheduled caste (11.0%). The population proportions of the households covered as a part of the study were in-line with these figures and primarily, the households belonged to schedule tribe social category (76.7%) followed by schedule caste (12.9%). These percentages were evenly distributed in both the study blocks viz. Bagicha and Pathalgaon.

Table 5 Social category of the households

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (All)	419	409	214	206	205	203
Scheduled Caste (SC)	11.0	14.9	10.3	18.5	11.7	11.3
Scheduled Tribe (ST)	88.5	64.6	89.7	63.1	87.3	66.0
Other Backward Caste (OBC)	0.5	20.3	0.0	18.0	1.0	22.7
General	0.0	0.2	0.0	0.5	0.0	0.0

(Where I=Intervention; C=Comparison)

Near to two-third of the total households in intervention area reported a nuclear family structure (62.5%) and the percentage of the joint family system remained low at 37.5%. A similar family structure was also observed during the baseline study when the overall percentage of the nuclear family and joint family was 55.3% and 44.8%. The proportion of nuclear families was comparatively more in the intervention areas (62.5%) than the comparison (52.8%).

Upon cross-tabulating the type of family with the type of household, it was observed that BPL households were primarily nuclear (58.7%) while the non-BPL households were primarily joint families (51.2%).

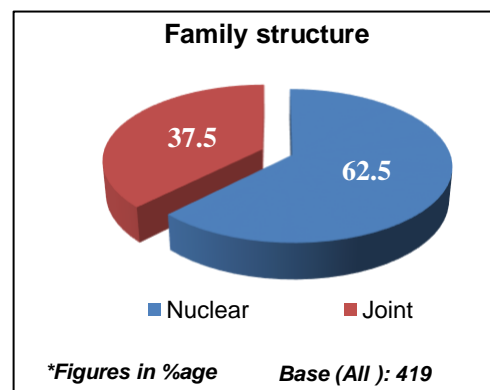


Figure 1 Family structure

2.2. Housing and facilities

2.2.1. Type of households

To classify a house as pucca, semi-pucca or kachha, the material used for constructing walls, roof and floor was observed. All the houses where all three viz. walls, roof and floor were made of high quality materials viz. burnt bricks, cement bricks, metal/asbestos sheets, stones (duly packed with lime or mortar) and concrete were classified as pucca houses. The ones where all of them - walls, roof and floor were made of low quality materials viz. grass, leaves, reeds, bamboo, mud, unburnt bricks, wood were classified as kachha houses. All the remaining houses where a mix of low and high quality materials was utilized for constructing walls,

roof and floor were classified as semi-pucca houses. The assessment of the type of construction material and thereby the type of house was based upon investigator's observation.

Overall, a majority of the households in intervention area were kachha (99.0%) followed by the ones who were pucca (0.5%) and semi-pucca (0.5%).

2.2.2. Household toilet facility

The latest statistics on the toilet construction available at the Ministry of Drinking Water and Sanitation website indicates a high percentage of toilets coverage in Jashpur district (98%)⁸. The statistics also indicates an exponential rise in the toilet construction in the region during the past two years, particularly post the launch of the Swachh Bharat Mission.

The percentages of households having toilets in our study are on the same lines and a high percentage of availability of toilets in the households could be observed as indicated in the figure below.

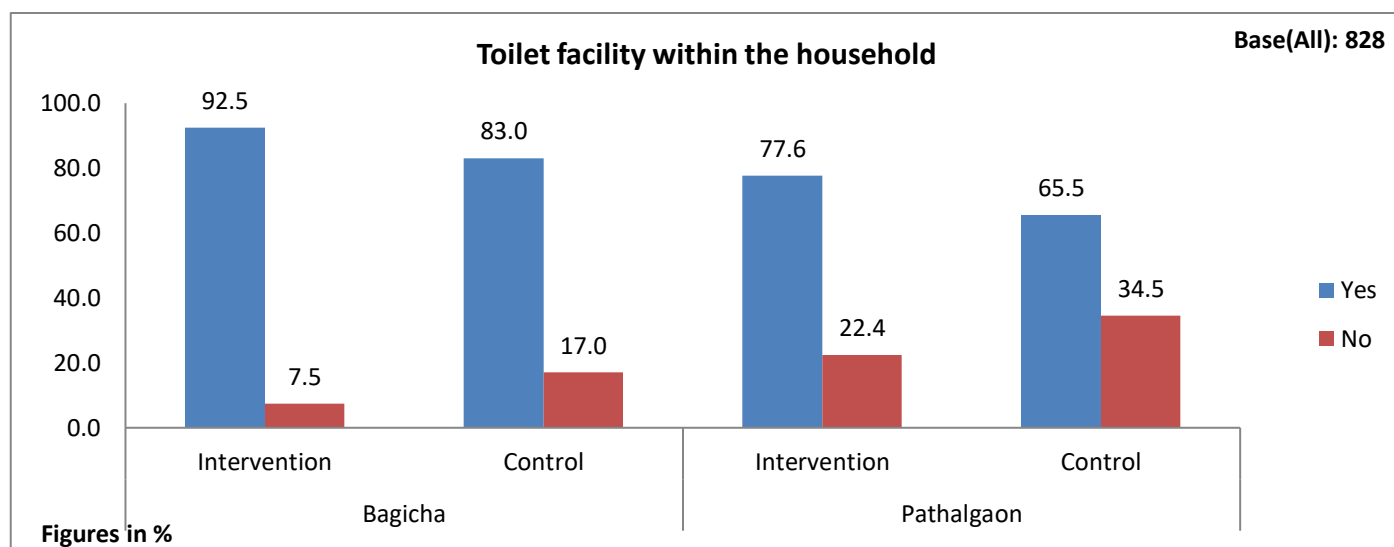


Figure 2 Type of the households

2.2.3. Households with electricity

Majority of the households (73.5%) were electrified i.e. reported having electricity in their household in the intervention areas. The percentage electrification was more in the households belonging to Pathalgaon (91.4%) than Bagicha (61.9%). This could be related to the fact that comparatively more households in the Pathalgaon were non-BPL (15.0%) than Bagicha where the percentage of non-BPL households was less than 5%. The details about the electrification could be understood from the below table.

Table 6: Electrification status of the households

⁸ Household toilet coverage, Swachh Bharat Mission, MDWS, <http://sbm.gov.in/sbmdashboard/IHHL.aspx>

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (All)	419	409	214	206	205	203
Yes	73.5	79.5	57.9	66.0	89.8	93.1
No	26.5	20.5	42.1	34.0	10.2	6.9

(I = Intervention; C = Comparison)

2.2.4. Households with solar light and availability of water sources

Noteworthy, a significant difference existed in the percentage of the households with solar light among the intervention areas (12.2%) and comparison areas (4.9%). Upon comparison of the intervention areas of both the blocks, it was observed that more intervention households in Bagicha block had solar light access (20.1%) than Pathalgaon (3.9%).

At an overall level, a little less than ten percentages of households (7.4%) reported having their own water source. This percentage is more than the baseline findings which indicated that less than five percent households (4.8%) had their own water source.

Table 7 Households with solar light and availability of water sources

Particular	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (All)	420	408	214	206	205	203
HHs with solar light	12.2	4.9	20.1	9.2	3.9	0.5
HHs with own water source	7.4	16.4	8.41	7.28	6.34	25.62

(I = Intervention; C = Comparison)

2.3. Household income levels and BPL classification

The poverty line is the minimum level of income deemed adequate in a particular country⁹. The international poverty line was updated by the World Bank in the year 2015 to US \$1.90 a day¹⁰ from existing figures of US \$1.25 a day which was based on 2005 purchasing power parity¹¹.

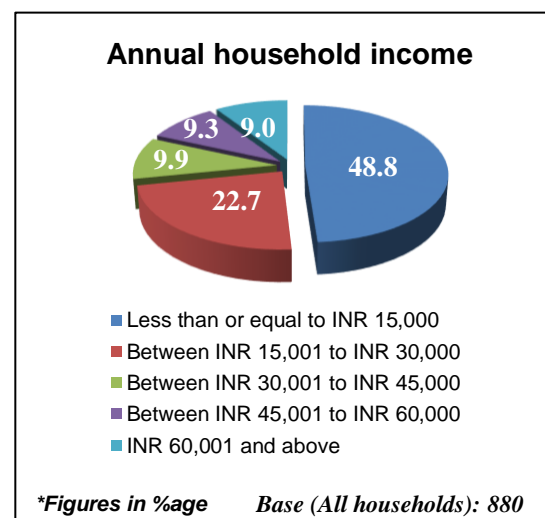


Figure 3 Annual household income

⁹ Ravallion, Martin Poverty freak: A Guide to Concepts and Methods. Living Standards Measurement Papers, The World Bank, 1992, p. 25

¹⁰ "World Bank Forecasts Global Poverty to Fall Below 10% for First Time; Major Hurdles Remain in Goal to End Poverty by 2030". www.worldbank.org. Retrieved 2015-10-06.

¹¹ Ravallion, Martin; Chen Shaohua & Sangraula, Prem Dollar a day The World Bank Economic Review, 23, 2, 2009, pp. 163-184

Mean annual income of household came out to be INR 23,192 (US\$ 355.9¹²). The adjacent graph depicts the classification of the annual household income. As could be seen, close to half (48.8%) of the households had an annual income less than or equal to INR 15,000 (US\$ 230.2) while around a little more than one-fifth (22.7%) had an annual household income between INR 15,001 (US\$ 230.2) to INR 30,000 (US\$ 460.4).

Agriculture contributed most to the annual household income followed by the contributions from daily wage. Mean average annual income of household from agriculture was INR 17,667 (US\$ 271.1) while that from daily wage was INR 2,018 (US\$ 31.0).

Respondents were also asked about weekly/monthly/annual expenditure on various items. The data indicates that food and cooking fuel were the main categories on which weekly expenditure happened. On an average, respondents spent INR 632 (US\$ 9.7) on food and INR 141 (US\$ 2.2) on cooking fuel per week. The maximum monthly expenditure happened on transport [INR 762 (US\$ 11.7)], followed by sanitary products [INR 256 (US\$ 3.9)] and electricity [INR 175 (US\$ 2.7)]. The maximum annual expenditure happened on education [INR 3,873 (US\$ 59.43)], clothing [INR 3,651 (US\$ 56.0)] and on agricultural inputs [INR 3,640 (US\$ 55.9)].

Based on the above stated international poverty levels, we classified the surveyed households as Below Poverty Line (BPL) household and non-BPL households. At an overall level, 81.6% households were observed to be BPL households based on the reported household income levels. The proportions of BPL households were more in intervention areas (87.6%) than the comparison area (75.6%). The block wise categorization of the BPL and non-BPL households could be understood from the below table.

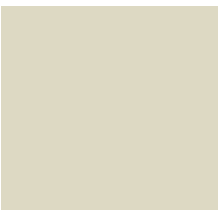
Table 8 Categorization of households into BPL and non-BPL based on household income

Particulars	Overall		Bagicha		Pathalgaon	
	Bagicha	Pathalgaon	I	C	I	C
Base (All)	420	408	214	206	205	203
HHs with solar light	91.7	71.3	94.9	88.4	80.0	62.6
HHs with own water source	8.3	28.7	5.1	11.7	20.0	37.4

(I = Intervention; C = Comparison)

¹² Value of 1 US\$ = INR 65.17, based on exchange rates prevalent on 04th April 2017

Chapter 3: Key Findings – Climate Change



3. Climate variability and related issues

3.1. Climate change

The respondents from intervention block demonstrated significantly more awareness (91.2%) than their counterparts from comparison block (70.2%). Upon analysing the intra-block variations, the difference in the awareness was significantly more among the respondents belonging to the intervention areas of Pathalgaon block, as could be seen from the below table. On the other hand, in the Bagicha block, although the awareness was higher among the respondents of intervention areas, the difference was not statistically significant as 91.3% of the respondents in comparison areas are aware of what is climate change.

Table 9 Awareness on climate change (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Yes	91.2*	70.2	94.4	91.3	87.8*	48.8
No	8.8	29.8*	5.6	8.7	12.2	51.2*

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (Undertaken only at an overall level)

Primarily, 'less rain in monsoon' (63.2%) and 'increasing temperature in summer' (51.0%) were mentioned by the respondents when they were asked, what was the meaning of climate change? Interestingly, in intervention areas, lesser proportion of the respondents mentioned 'less agriculture production' and 'more insects and pest attack to agriculture' as one of the meaning than the ones who belonged to comparison areas.

Table 10 Understanding of climate change (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all aware of climate change)	382	287	202	188	180	99
Less rain in monsoon	66.8	58.5	61.9	48.4	72.2	77.8
Sporadic / uneven monsoon rain	42.9	28.6	45.5	33.0	40.0	20.2
Less rainy days	36.9	30.7	27.2	26.1	47.8	39.4
High rainfall in less rainy days	39.5	35.9	44.6	43.6	33.9	21.2
Increasing temperature in summer	49.0	53.7	59.4	56.9	37.2	47.5
Increased temperature in winter	21.7	28.9	24.3	29.3	18.9	28.3
Less forest cover	8.1	8.0	5.5	8.5	11.1	7.1
Less surface & ground water	8.1	15.0	12.4	15.4	3.3	14.1
Less agricultural production	34.0	41.1	23.3	38.3	46.1	46.5
High agriculture production	7.3	8.0	8.4	6.9	6.1	10.1
More insect & pest attack to agriculture	23.0	25.4	32.7	29.8	12.2	17.2

(I = Intervention; C = Comparison)

A comparison of the mid line and endline findings related to the understanding of the climate change among the respondents belonging to an intervention area indicates an enhanced understanding with the difference being statistically significant in most of the categories of the responses.

On an aggregate level 74.6% of respondents understand the various facets of climate change like less rain in monsoon season, sporadic rains, less agricultural productions etc.

Table 11 Understanding of climate change during midline and end-line of the project (%)

Particulars	Midline	Endline
Base (all respondents from intervention area who were aware about climate change)	98	382
Less rain in monsoon	26.9	66.8*
Increasing temperature in summer	19.2	49.0*
Sporadic/uneven monsoon rain	1.9	42.9*
Less rainy days	44.2	36.9
Less surface & ground water	14.4	34.0*
More insect & pest attack in crops	33.7*	23.0
Increased temperature in winter	30.8	21.7
Less cold days	22.1*	8.1
More Cold Days	16.3*	8.1
Less agricultural production	33.7*	7.3

*: Significant difference at 5% significance level, $p < 0.05$

The proportion of respondents who mentioned such changes was more from the intervention area (79.2%) than the intervention area (61.2%). One possible reason could be more awareness about climate change observed among the intervention area respondents. Among the various changes mentioned by the respondents, 'less rains in the monsoon' (59.5%), 'less agricultural production' (48.5%) and 'increasing temperature in summer' (48.1%) were the top three changes.

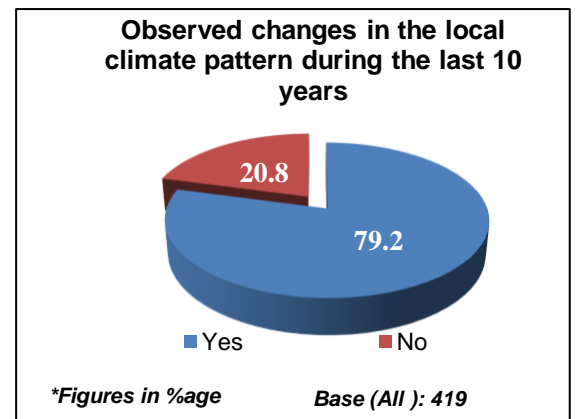


Figure 4 Changes in local climate pattern

There is an observable change in the perception of the people regarding the climate change. The respondents are now more aware about climate change and are more recognizing its changing trends over the years than midline/baseline. The respondents of the intervention areas of Bagicha block were observed to be better off in this context than the ones of Pathalgaon block.

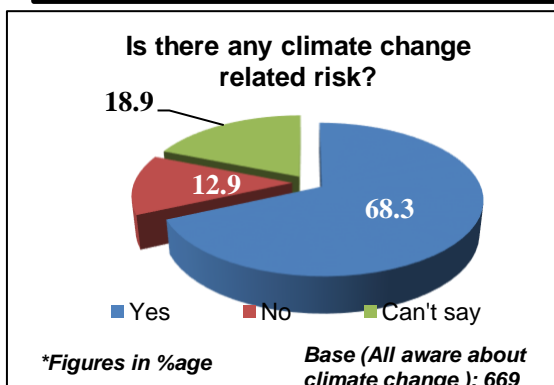


Figure 5 Existence of climate related risks

More than two-third (68.3%) respondents in intervention area who were aware about climate change, perceived risks associated with it. The proportion of such respondents was high when compared with the comparison area (39.3%).

When asked about major associated risks due to the climate change, 'decrease in crop production' (61.3%) and 'sun stroke' (46.3%) were the ones reported by more than one-third respondents at an overall level. Among other responses, 'less surface water availability for farming' (30.3%) and 'decreasing availability of ground water' (26.3%) were primary.

Table 12: Perceived risks due to climate change during midline and endline of the project (%)

Particulars	Midline	Endline
Base (all intervention area respondents)	68	273
Sun stroke due to high temperature	13.5	44.3*
Decrease in crop production	20.2	59.3*
Less surface water availability for farming	23.1	31.5
Decreasing ground water availability	12.5	22.7*
Increased pest / insect attack on crops	8.7	13.6
Frequent occurrence of drought	34.6*	18.7

*: Significant difference at 5% significance level, $p < 0.05$

As could be seen from the above table, the awareness levels of respondents belonging to intervention area have significantly increased regarding the perceived risks due to climate change than the midline.

Research has shown that climate change causes significant changes in the pattern¹³. More than three-fourth (74.1%) respondents at intervention level believed that migration either decreased or no observable changes in migration pattern happened during the past two years. **The migration pattern seems to have reduced in the intervention areas during the past two years as more than one third respondents (36.4%) belonging to intervention area opined a decrease in observable migration patterns as against one-fifth (20.5%) in the intervention areas.** Comparisons among the respondents belonging to the two blocks shows that more than half of the respondents (52.9%) belonging to the intervention areas of Pathalgaon believed that migration has decreased as compared to less than one-fifth (16.8%) from the intervention areas of Bagicha. Rather, a majority (50.4%) of such respondents believed that there has been no change in the observable patterns of migration during the last two years.

Table 13 Observable patterns of migration during the last two years (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all who perceive risk due to climate change)	286	161	131	78	155	83
Increased	25.9	19.9	32.8	28.2	20.0	12.1
Decreased	36.4	20.5	16.8	14.1	52.9	26.5
No change	37.8	59.6	50.4	57.7	27.1	61.5

(I = Intervention; C = Comparison)

Migration was observed to be more during the summers (63.0%) than any other season and primarily it was reported that whenever migration happens during such seasons, entire family migrates (67.6%). The migration of 'only men' was reported by close to one-third respondents (31.5%). A similar pattern was observed in the intervention and comparison areas.

Qualitative findings reveal that scarcity of water in the area is one of the key reasons forcing the villagers to move out of their areas. An effect of climate change on the occupation patterns was also observed and reportedly, people living in the area

"People in this area have adopted alternate occupations like picking of mahua (Madhuca Longifolia), labour to meet their financial needs"

**-SHG FGD, Jamjunwani,
Pathalgaon**

¹³ Raleigh C, Jordan L, Salehyan I. Assessing the impact of climate change on migration and conflict (2008), The World Bank Group

indulge in agricultural activities during one season and in scarcity of the water in subsequent seasons, move out of the village for work.

The fact was also indicated in quantitative findings which showed migration pattern was skewed towards one season i.e. summers and that most of the respondents understood 'less rains in monsoon' as climate change. During the discussions it also came up that the areas were drought prone and that government, on many occasions have compensated farmers for failed crops because of draught. Scarcity of water was unanimously reported as a major issue in the area in discussions with the community key influencers viz. Panchayat Raj Institutions (PRIs), forest officer, agriculture development officer etc.

Prior to the intervention, the issue of food insecurity in these areas was prominent and more than eight out of ten respondents (86.4%) feared that their household would not have enough food to eat. At an overall level, nearly one among ten such respondents (7.5%) reported the frequency of such kind of fears as 'often' i.e. more than five times in a year. The corresponding percentage among the ones belonging to the intervention areas was 6.2%. **While food insecurity still remains a major issue in the region, the CARE's intervention seems to have been playing a role in reducing its occurrence.** Data indicates that in the intervention areas, an often occurrence of such fears has come down. In the intervention areas of Pathalgaon block, it has reduced to zero while it has reduced to 3.2% in the intervention areas of Bagicha block. At an overall level too the total frequency of such fears occurring 'often' i.e. more than five times in a year has come down to 3.7%.

3.2. Trainings

At an overall level, around seven out of ten respondents (68.9%) asserted ever receiving any training on modern techniques of farming to cope with the harsh climatic conditions in the intervention areas, as could be seen from the adjacent figure. A significantly higher percentage of respondents from an intervention area reported ever receiving such trainings than their comparison counterparts (15.4%). Within the intervention areas, the percentages were higher among the ones from the Bagicha block (72.9%) than the Pathalgaon block (64.9%). The mean number of such trainings attended by the respondents upon computation came out as 2 (SD=1.2).

Figure 7: Type of trainings received on modern techniques of farming

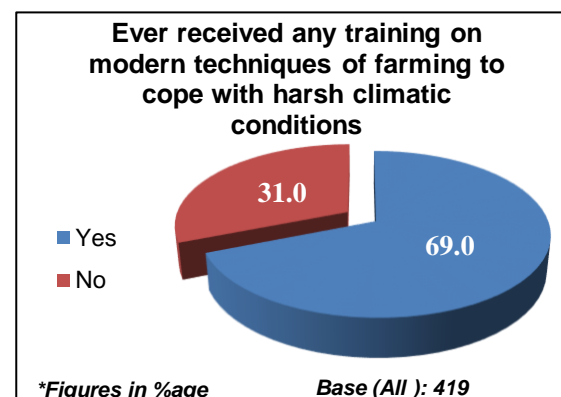
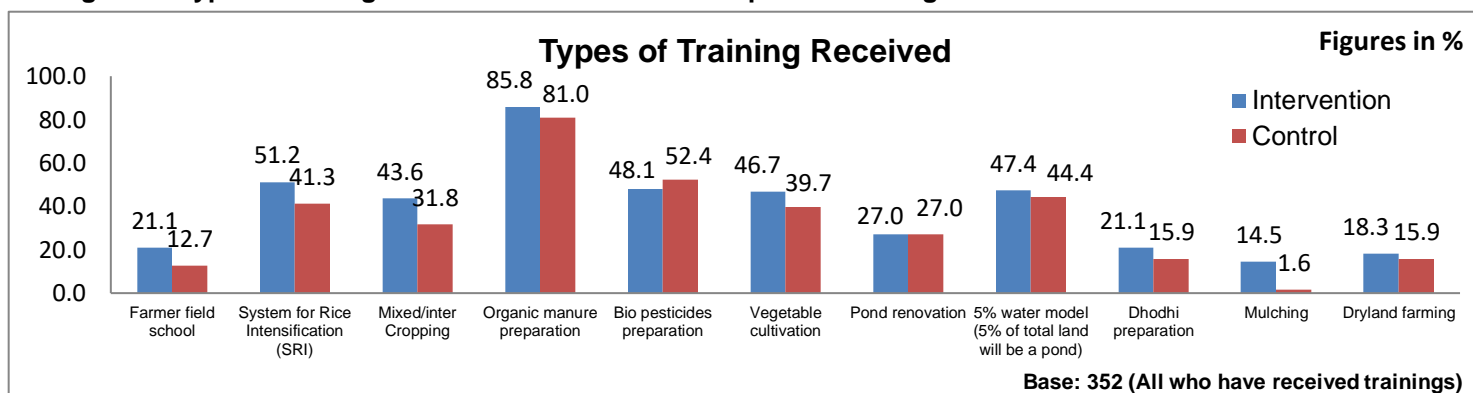


Figure 6 Ever received training on modern techniques of farming



Primarily, the respondents reported receiving training on ‘organic manure preparation’ (85.8%) followed by ‘system for rice intensification (SRI)’ (68.3%) and ‘bio pesticides preparation’ (48.1%) in intervention areas. At an aggregate level 67.6% of respondents quoted to be have trained on more than 3 sectors like system for rice intensification, mixed/intercropping, organic manure and bio-pesticides preparation etc.

Data indicates that **the main sources of these trainings were CARE team animators** and around 85.5% of the respondents mentioned them as the one who had conducted these trainings. Government officials (17.3%) were the others who had imparted the trainings. Close to half of the respondents (50.5%) mentioned the frequency of such trainings as at least once in every quarter, indicating the efforts of the program team.

Almost all the respondents mentioned a usage of the techniques taught during the trainings in their daily lives. In line with the training percentages, the organic manure preparation is the technique which is being regularly used by the farmers (80.4%) followed by the ‘system of rice intensification’ (68.3%). Data indicates that **the trainings were also observed to be positively affecting the life of the respondents**, evident from the facts that nearly two-third (61.9%) believed that these trainings will help them to adapt to any harsh climatic condition in near future and more than three-fourth (66.5%) believed that these trainings have helped them in increasing their household income. Respondents in the intervention villages has reported to make use of the weather forecast system (60.7%) to plan their short and medium term activities accordingly.

3.2.1. Impact of the trainings in the intervention areas

Attending these trainings was also observed to have impacted the opinion of the respondents in the intervention area. As could be seen from the below table, the respondents who had ever received these trainings, had a different opinion in regards to the migration pattern during the last two years as compared to the ones who had not received the trainings. A belief regarding decreased migration pattern during the last two years was predominant among the ones who had received the trainings (38.5%).

Table 14 Participation in the training and the belief regarding the pattern of migration

<i>Ever received any training on modern techniques of farming so as to cope with harsh climatic conditions in your area?</i>		Base	What patterns of migration have been observed in the last two years?		
			Increased	Decreased	No Change
	Yes	221	47 21.3%	85 38.5%	89 40.3%
	No	65	27 41.5%	19 29.2%	19 29.2%

The respondents who attended the trainings were also observed to be more prepared to successfully cope with the occurrence of the extreme climatic events viz. flood, landslide, heavy rain and drought in future.

Table 15 Participation in the training and the ability to cope with extreme climatic events

<i>Ever received any training on modern techniques of farming so as to cope with harsh climatic conditions in your area?</i>		Base	<i>If one extreme climatic event (flood, landslide, heavy rain and drought) was to occur in my area tomorrow, my household would be able to successfully cope with the associated threats?</i>				
			Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
	Yes	289	46 15.9%	44 15.2%	58 20.1%	97 33.6%	44 15.2%
	No	130	23	27	42	29	9

			17.7%	20.8%	32.3%	22.3%	6.9%
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As a result of CARE interventions women in the intervention areas believe that they are capable enough and have developed resilience against changing climate.

3.3. Qualitative findings – coping mechanism

When respondents were asked about the coping mechanisms before CARE intervened, people from the SHGs across villages said that there was a high dependence on rainfall for crop production. Farming methods were conventional and there were no coping strategies as such. This is in sharp contrast to the coping mechanisms existing among the respondents at the moment. It was told that at the moment, many villagers have come up with solutions to deal with the issue such as conserving water for lean periods, doing line cropping and alternate cropping. The villages reportedly also use better quality certified seeds and fertilizers provided by the government. Efforts of CARE in terms of promoting natural seeds, mixed cropping and soil testing were also highlighted. It also came up during discussions that people have made ponds in their fields to conserve water.

“With the support of CARE India, people in the community have started using the KETHUA compost and learning the Line cropping system which is profitable for them.”

**-PRI Member IDI,
Jabla, Bagicha**

“CARE is promoting natural seeds, natural compost, mixed cropping and soil testing”

**-Animator FGD,
Kharkhata, Pathalgaon**

When the discussions revolved around a recent extreme case of calamity, people primarily talked about drought condition three years back and how government gave them compensation. During one of these discussions in the intervention villages, respondents said that they now receive an early forecast of weather which is helpful in warning the people in advance, something which did not come up in the discussions in the comparison areas. “As per quantitative findings 33.4% and 14.3% of women in intervention areas said that they receive early warning intimations from televisions and mobile SMS for harsh climatic conditions”.

“Now farmers are coming for a soil testing to understand what is lacking in their field. They also come to understand what can be done to get proper yield and do better farming”

- KVK Programme Coordinator, Pathalgaon

“Now farmers use the new technology as they become aware and want to learn new things from department”

-Senior Agriculture Development Officer, Pathalgaon

☞ There is a marked change in the coping strategy and the ability to deal with adverse climatic conditions. CARE has trained people on alternate livelihood options like fish farming, poultry farming, vermin composting and so on. New methods of farming liked mixed method has helped in improving the soil fertility and has elongated the duration of land usage for variety of crop production. CARE has also spread awareness regarding conservation of forest and trees for the future.

Chapter 4: Key findings - Agriculture



4. Agriculture

4.1. Land holding pattern

The standard classification adopted for size of holding has been referred to define the land holding patterns¹⁴. More than half of the participants were small/marginal farmers (50.6%) and possessed the agricultural land area of less than or equal to 2.0 hectares. Little more than one-third of the respondents (35.1%) were medium farmers having agricultural land area between 2.0 to 5.0 hectares. The percentage of the large farmers with more than five hectares of land was 14.3% in the intervention area.

The crop cultivation is dependent entirely on the rains and irrespective of the agricultural land ownership, rice (paddy) is the main cultivated crop. The main crop being cultivated in the region is paddy (rice) with a mean production of 39.3 quintals per hectare in the intervention areas. The mean agricultural land ownership came out to be 1.5 hectares and out of the total agricultural land owned by farmers, on an average 0.81 hectares was irrigated. Land ownership by a woman was low and in less than ten percent (8.7%) of the surveyed households, land was owned by a woman in the family.

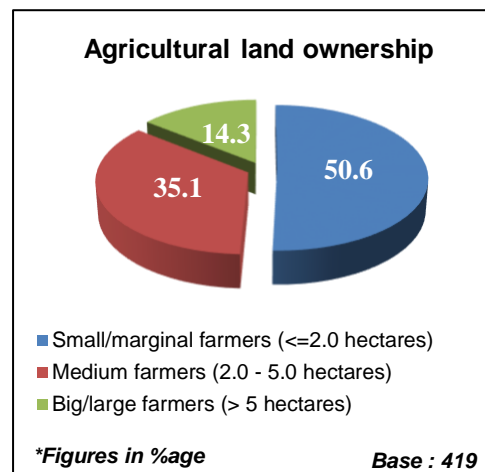


Figure 8 Agricultural farm land ownership

4.2. Integrated Nutrition Management

The integrated nutrition management (INM) comprises of various techniques being adopted by the farmers to improve the nutritious value of the soils. These techniques comprises of soil testing, application of manure as per the soil test, use of organic manures, maximum use of synthetic fertilizer, application of vermin compost, green manuring, azolla/blue green algae application, bacterial culture treatment and cultivation of nitrogen fixing crops.

The baseline findings indicated that the farming system which was earlier being used by the farmers in the study areas was more traditional in nature and normally, the recommended package of nutrition management practices was not adopted by the farmers. On the contrary, the end line data shows an increased use of various techniques of INM among the farmers of the surveyed areas.

☞ **The percentage use of various INM techniques is more in the intervention areas. Also, the associated difference in the usage percentages between intervention area and the comparison area is significant. Together, both of these points indicate a constructiveness which has resulted in the farming practices on account of CARE's intervention.**

At an overall level, the percentage of the households which had the soil tested of their agricultural lands (either annually or crop specific) was close to thirty percent (29.7%). However, the percentages significantly varied between the intervention area (42.2%) and comparison area (16.9%). Within the intervention areas, the soil testing was observed to be more prominent among the households of the Bagicha where six out of

¹⁴ <http://dolr.nic.in/dolr/mpr/mastercodes/sizeofholdingcodes.pdf>

every ten household (60.1%) reportedly engaged in the soil testing. Analysis of the trends across the various project stages (i.e. baseline, midline and endline) also shows a significant upsurge in the soil testing among the intervention households (refer the adjacent figure).

The percentage use of various techniques as a part of INM could be seen from the below table. Use of 'organic manure only' during farming seems to be a common practice as reported by high percentage of households, both in the intervention area (74.5%) and comparison area (63.2%). Among other techniques, 'adopting a maximum use of synthetic fertilizer' (51.3%) and 'application of manure as per the soil test' (33.9%) was reportedly high. In respect of the practice of fertilizer application, use of both organic and synthetic fertilizer has shown an increase over the earlier rounds of the study. The usage of vermin composting and its application for selected crop has gone up from 2.4% during the baseline study to 14.6% during the endline. Farmers are also increasingly cultivating the nitrogen fixing crops (intervention areas: 12.9%; comparison areas: 11.3%).

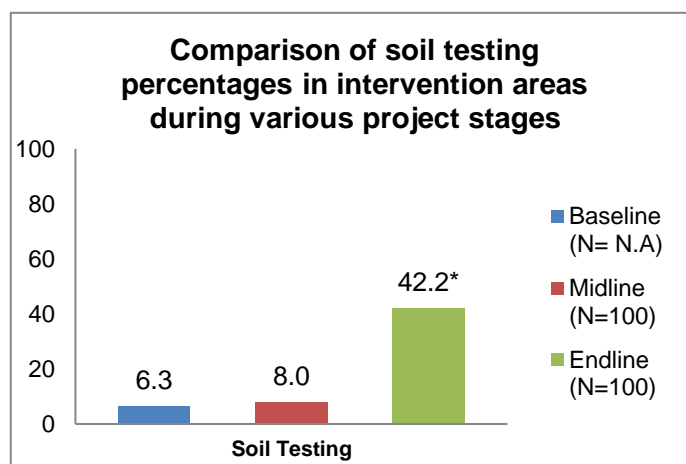


Figure 9 Comparison of soil testing % in intervention areas during various project stages

Table 16: Use of various techniques of Integrated Nutrition Management (INM) (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Use of organic manure only	74.5*	63.2	77.6	68.9	71.2	57.6
Use of synthetic fertilizer	45.3	57.5*	21.5	51.0	70.2	64.0
Application of manure as per soil test	41.3*	26.4	50.5	30.6	31.7	22.2
Application of vermin compost	11.0*	18.3	5.6	4.9	16.6	32.0
Green Manuring	6.2	8.6	5.6	8.3	6.8	8.9
Cultivation of Nitrogen Fixing Crops	12.9	11.3	17.8	10.7	7.8	11.8

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

4.3. Integrated Pest Management (IPM)

Among various techniques adopted under Integrated Pest Management (IPM), primarily, the respondents were observed to be using synthetic/inorganic sprays (55.6%) and organic spray (45.8%) in the intervention areas. Biological treatment, mechanical pest treatment (manual) and pheromone trapping were other methods of IPM which were reportedly being used by 27.4%, 21.2% and 14.3% of the respondents respectively.

Similar to the INM, a comparison of the usage statistics with the baseline figures indicates an increasing trend in the usage of various IPM techniques.

Upon comparing the usage of various techniques of IPM at an overall level in the endline, it was observed that **the respondents belonging to the intervention areas were more frequent users of the various**

IPM techniques than their counterparts from the comparison areas. Within the intervention areas, the usage was high among the Pathalgaon respondents, as could be seen from the below table.

Table 17 % usage of different Integrated Pest Management techniques

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Synthetic / inorganic spray	55.6	52.6	28.0	41.3	84.4	64.0
Organic spray	45.8	39.4	32.2	39.8	60.0	38.9
Biological treatment	27.5	17.6	22.9	10.7	32.2	24.6
Mechanical pest treatment (manual)	21.2	18.1	14.5	18.0	28.3	18.2
Pheromone trapping	14.3	9.3	2.3	0.0	26.8	18.7
Light trapping	9.5	3.4	6.1	1.9	13.2	4.9

(I = Intervention; C = Comparison);

4.4. Irrigation

Availability of water and management of irrigation system are important to enhance agricultural activities and related production / productivity. It becomes important under the scenario wherein a majority of the farmers are dependent on the rain water for irrigation. During the baseline study, it was reported that water management practice at the farm yard was more traditional in nature i.e. the usage of advanced techniques in irrigation was low. On the contrary, the data from the end-line indicates an increasing usage of various advanced techniques such as sprinkler irrigation, drip irrigation etc.

The piped channel for irrigation, a technique which minimizes the transportation related water loss, was the main irrigation technique being used by more than one-third of the respondents (38.9%) in the intervention areas. This becomes an interesting observation as the usage of this technique was significantly lower during the baseline survey and in fact, the baseline report had categorically recommended directing the efforts towards increasing the usage of this technique. The use of other techniques viz. drip irrigation system, sprinkler irrigation system, flood irrigation etc. have also upsurge as compared to the baseline statistics, as could be seen below.

Table 18 Use of different irrigation techniques during baseline and end-line of the project (%)

Particulars	Baseline	End-line (Intervention)
Base (all)	--	419
Drip Irrigation	9.4	22.2
Sprinkler Irrigation	8.1	21.7
Pipe Channel	13.2	38.9
Flood Irrigation	8.4	10.3

If one analyses the usage of the prominent irrigation technique viz. piped channel for irrigation, a significant difference could be observed among the respondents of the intervention areas and the comparison areas, across both the blocks. Particularly in Pathalgaon, more than half of the respondents (54.2%) of the intervention areas were reportedly using it as an irrigation technique.

The below table lists down the percentage usage of various irrigation techniques and bifurcates the usage among the intervention and comparison areas within each of the blocks. As could be seen from the below table, the use of various agricultural techniques was comparatively higher among the participants belonging to the intervention areas than the comparison. A couple of techniques viz. flood irrigation and drip irrigation were being used marginally more in the comparison areas, although the associated difference in usage between intervention areas and comparison areas was not significant.

Table 19 Use of different irrigation techniques (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Drip irrigation	22.2	22.5	22.4	11.7	22.0	33.5
Sprinkler irrigation	21.7	21.5	22.0	11.7	21.5	31.5
Pipe channel for irrigation	38.9*	26.7	24.3	12.6	54.2	40.9
Flood Irrigation	10.3	11.7	2.3	1.5	18.5	22.2

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

One importance focus area of the CARE's intervention was to make the farmers adopt their 5% water model technique. Data indicates that the attempt has been successful as in the intervention areas; more than one-third of the farmers (38.4%) have adopted this technique and reportedly have a farm pond in their agricultural lands. The increase in the associated percentages is significant as compared to midline where this percentage was less than ten percent (8%).

Table 20 Adoption of farm pond in agricultural land (%)

Particulars	Overall		Bagicha		Pathalgaon	
	Midline	End-line	Midline	End-line	Midline	End-line
Base (all intervention respondents)	100	419	50	214	50	205
Farm pond in agriculture land	8	38.4*	12	41.1	4	35.6

*: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

Dug well (16.6%) and bore well (5.8%) were the two other sources of irrigation being adopted by the farmers, apart from the farm pond.

4.5. Water Management

At intervention level, more than one third of the respondents (37.0%) were observed to have adopted the water waste reduction method in the farming. However same number of respondents in intervention area observed to have adopted the same at the household level (37.2%). **The corresponding percentages of adopting the water management methods (either in farming or at household level) remained higher among respondents belonging to intervention areas** with the corresponding difference being statistically significant at 95% confidence interval.

At an overall level, the respondents belonging to Bagicha block were observed to be more frequent adopters of the water waste management technique (39.5% in farming; 38.3% in household) than the ones belonging to the Pathalgaon block (16.4% in farming; 21.8% in household).

Table 21 % adoption of water waste management

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Water waste management in farming	37.0*	19.1	50.5	28.2	22.9	9.9
Water waste management in household	37.2*	23.0	50.5	25.7	23.4	20.2

*: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

To reduce the water wastage, primarily two methods viz. 5% water model (53.2%) and pond preparation techniques (54.9%) were reportedly being used by the respondents in intervention area. At an aggregate level 70.0% of respondents have said to practice water wastage reduction methods like 5% water model and pond preparation techniques. Among other methods, plant spacing method (35.5%) and line spacing methods (23.9%) were predominant.

A high percentage of respondents (63.9%) in the intervention areas were using 5% water model. The corresponding usage percentage was higher among the respondents of Bagicha block than Pathalgaon block. Such a high percentage in regards to the adoption of the technique which was sspecially promoted by the program is indicative of the efforts put in by the CARE program team.

Table 22 Water Wastage Reduction Techniques in Farming (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all who adopted water wastage reduction techniques in farming)	155	78	108	58	47	20
Pond preparation	52.9	59.0	55.6	74.1	46.8	15.0
5% water model	63.9*	32.1	66.7	37.9	57.5	15.0
Plant spacing method	35.5	53.9*	38.9	53.5	27.7	55.0
Line spacing method	23.9	39.7*	25.9	39.7	19.2	40.0
Pitcher irrigation technique	10.3	18.0*	7.4	19.0	17.0	15.0

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

The presence of any association on water management was observed to be low at intervention and close to one-fourth of the respondents (24.6%) mentioned that they have any such association in their villages. Block wise analysis reflected that such associations were primarily located in Bagicha (33.0%) as compared to Pathalgaon (6.1%).

Noteworthy, these associations were highly active in imparting trainings to the villagers in the areas where they were functional. This is indicative from the fact that more than three-fourth (76.1%) respondents said that the association had imparted any training in their village. The trainings were more frequent in intervention areas (82.5%) than the comparison areas (65.0%).

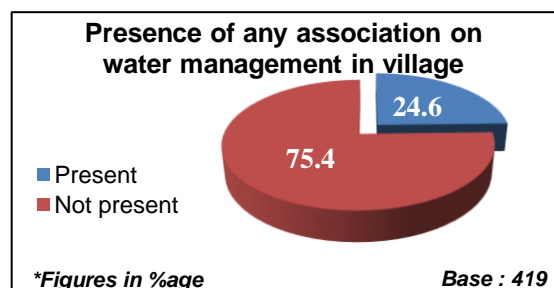


Figure 10 Presence of any association on water management in village

In regards to the main sources of drinking water, bore well (58.8%) and well (41.3%) were the two main sources quoted by the respondents. This fact was also supported during the qualitative discussions. Additionally, during discussions, participants indicated a significant drop in water levels as well.

4.6. Soil Moisture Conservation

For arable soils, the most effective conservation practices for reducing water loss through surface evaporation are those that provide some degree of surface cover for the soil. A cover can be best provided by mulches or by tillage practices that leave plant residues on the soil surface (Jamieson et al. 2001). Mulch is any material placed on a soil surface for the purpose of reducing evaporation, retaining moisture, reducing soil erosion, suppressing weed growth and providing plant nutrients as the material decomposes. Mulches act as barriers to movement of moisture out of the soil and mulching (installing mulches) can help to improve crop yield and optimize water use.

Mulching, as a soil moisture conservation practice is being used by eleven percent of the farmers (11.2%). Primarily, the farmers use mulching in specific crops (10.7%) and the percentage use of mulching in all crops was very low (0.5%) in intervention areas. The percentage use of mulching has increased as compared to the baseline findings where the close to 6% respondents had mentioned that they use mulching. **In line with the percentages corresponding to the usage of other agricultural practices, the respondents from the intervention area demonstrated a comparatively higher usage of mulching than their counterparts from the comparison areas.** The respondents, who reported using mulching for specific crops, primarily used it on Rabi crops (69.0%) than the Kharif crops (31.0%).

Table 23 % use of mulching during baseline and endline of the project

Particulars	Baseline	End-line (Intervention)
Base (All)	-	419
Mulching in all crop	0.3	0.5
Mulching in specific crop	5.9	10.7

4.7. Farming Practices

Mixed cropping or co-cultivation, is a type of agriculture that involves planting two or more of plants simultaneously in the same field. In general, planting multiple crops at once allows the crops to work together. Mixed cropping provides multiple benefits such as balancing input and outgoing of soil nutrients, keeping down weeds and insect pests, resisting climate extremes (wet, dry, hot, cold), suppressing plant diseases, increasing overall productivity while using scarce resources to the fullest.

Inter cropping on the other hand, refers to the process of growing the crops along with the main crops in the additional space between the main crops. The inter crops are usually of small duration than the main crops and the inter crops are grown in separate rows not along with the main crops. Intercropping is a strategy to increase production, optimal use of environmental resource, reduction of pests and weed damage, stability in uniformity in yield and improving soil fertility and increase in nitrogen content of the soil. Intercropping can also be regarded as an adaptation strategy to minimize climate change related risks.

It was observed that primarily the farmers were involved in mixed cropping (64.2%) as compared to the intercropping (5.2%) at intervention level. The proportion of the farmers indulging in mixed cropping was significantly higher than the baseline statistics. In regards to the different seasons, indulgence in the mixed cropping was equally split among Kharif (22.2%) and Rabi (25.8%) seasons.

The percentage of mixed cropping was significantly higher among the respondents of intervention areas than comparison areas.

A majority of the farmers in the Jashpur district have marginal/small land holdings and do not possess the mechanized farm equipment. This was observed to have an impact on the usage of different farming techniques and a high percentage of farmers in intervention area reportedly used manual weed treatment in their farms (90.2%). The use of modern farming techniques such as 'crop rotation' (14.1%), 'bund plantation' (19.1%) was also observed to be low. The shifting cultivation is also not a popular technique since the farmers do not own multiple lands to cultivate or carry out agricultural activities. Shifting cultivation is being practiced by more than ten percent (12.4%) of the total respondents in intervention area.

The only modern technique which had a high usage was the System for Rice Intensification (SRI) and more than two third of the respondents in intervention area (68.3%) reportedly used this in their farms. This was possibly impacted by the fact that the rice/paddy was the major crop being cultivated in this region.

Table 24 Various Farming Techniques

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base	419	409	214	206	205	203
Mixed Cropping	64.2*	37.4	57.9	32.5	70.7	42.4
Intercropping	5.3	5.9	4.2	1.9	6.3	9.8
System for Rice Intensification SRI	68.3*	51.3	53.3	41.3	83.9	61.6
Manual Weed treatment	90.2*	81.2	95.3	91.8	84.9	70.4
Crop Rotation	14.1	12.5	17.3	13.6	10.7	11.3
Bund Plantation	19.1*	12.0	22.9	3.9	15.1	20.2
Shifting cultivation	12.4*	5.1	8.4	1.5	16.6	8.9

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at overall level) (%)

The qualitative discussions reflected that various trainings received on farm activities have given women more exposure through trips outside the villages and have aided their learnings.

Rice is the most common cultivated crop (97.8%) followed by vegetables (61.8%), pulses (33.9%), maize (25.1%) and wheat (21.2%) in intervention areas. It was also observed that the villagers shift from regular cropping pattern during extreme climatic conditions in the region. Close to one third of the respondents in intervention area (32.8%) reported that they switch to low water consuming crops during the time when they face water scarcity. In such times, the cultivation of rice was observed to drop to 60.5% while the cultivation of wheat and maize increased to 35.8% and maize 33.9% respectively.

4.8. Land Treatment

As a part of the study, the respondents were asked about the usage of various land treatment techniques viz. summer tilling/ploughing, land levelling, land bunding, deep tilling/ploughing and soil amendment/treatment.

More than three-fourth of the farmers in intervention were found to be practicing land levelling (81.1%) followed by the percentage who were indulged in land bunding (79.2%). Among other land treatment techniques, summer tilling was observed to be a common practice in the study areas with close to two-third

farmers (64.8%) indulged into it. More than half of the farmers also preferred using deep tilling (55.4%). Less than one-fifth (18.1%) respondents also mentioned that they treat the soil for its acidic or alkaline character.

☞ **Use of prominent land treatment techniques viz. land levelling and land bunding was observed to be significantly higher among the respondents of an intervention area than comparison area.**

Table 25 Various Land Treatment Techniques

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Summer Tilling / Ploughing	64.0	65.8	79.4	85.0	47.8	46.3
Land Levelling	81.2*	65.3	93.9	87.9	67.8	42.4
Land Bunding	79.2*	71.9	95.8	94.2	62.0	49.3
Deep Tilling	55.4	48.7	58.4	54.9	52.2	42.4
Soil Amendment (Acidic/Alkaline)	18.1	13.9	30.4	13.1	5.4	14.8

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

4.9. Crop loan, insurance and farm mechanization

Crop loans, also called short term loans, are helpful for seasonal agricultural operations. Crop loans are generally provided to the farmers by banks or non-banking financial institutions at lower interest rate to support their short term needs so that the production and harvest procedure is carried out smoothly.

Low percentages of the respondents (5.5%) were found to have taken any crop loan in intervention area. This represents a marginal increase than the baseline, the findings of which had stated the accessibility to agricultural credit (crop loan) as 5.2%. The prime reason for taking loan among the farmers who reportedly took at least one loan was – ‘for cultivation of major cereal crop’ (4.5%). Banks (29.4%) and friends/relatives (17.7%) were the main sources of the crop loans. Close to two-third (69.6%) of the respondents who took loan repaid it back on time.

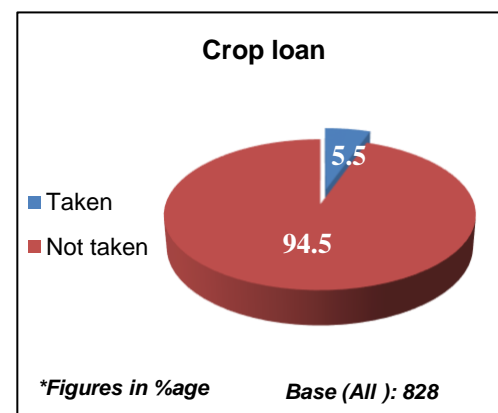


Figure 11 Respondents who took a crop loan

Crop insurance refers to an insurance which insures farmers against their loss of crops due to natural disasters such as drought, floods etc. The overall percentage of the respondents who have taken crop insurance was low (1.4%) in intervention areas. However, a marginal increase in the associated percentages was observed from the baseline where less than one percent (0.6%) of respondents had taken crop insurance. Most of the respondents are dependent on the traditional farm equipment and close to ten percent (9.3%) mentioned having modern farm mechanization. **It can be clearly observed that even if few women but they do have awareness towards various aspects of agriculture like crop loan and insurance facility, which can be considered as a result of CARE awareness and intervention program.**

☞ **Low percentages of the respondents were observed to be using crop loans or insurances. Therefore, spreading awareness and improving the availing of the crop loans and insurance could be a possible focus area for the future. Necessary inclusions in the Community Action Plan (CAP) should also be done thereby enabling providing the required orientation to the community.**

4.10. Post-harvest management

After the crop is fully grown on the field, it still needs to be harvested and sent to the market. Post-harvest management is important to improve the shelf life of the agricultural produces and making it more marketable, adhering to common marketing standards. Post-harvest management includes washing, cleaning, drying, grading and proper storage of harvested crops. At times, due to lack of basic facilities of storage and transportation many farmers stay unable to store their produce in an effective manner and accordingly incur losses. Data showed that cleaning was the most common post-harvest management technique (98.3%) followed by drying (98.3%) and grading (87.8%) in intervention areas.

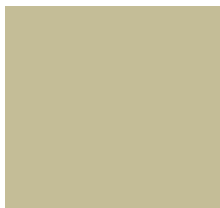
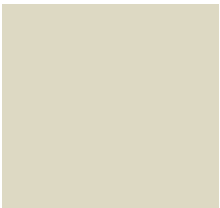
A comparatively higher involvement of respondents from the intervention areas in most of the post-harvest management techniques was observed and the corresponding difference was also found out to be statistically significant.

Table 26: % use of post-harvest management techniques

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Cleaning	98.3*	87.5	98.1	92.7	98.5	82.3
Drying	98.3*	83.4	99.1	93.2	97.6	73.4
Grading	87.8*	79.7	86.0	82.0	89.8	77.3
Treatment of produce for storage	80.7*	70.2	80.8	82.0	80.5	58.1
Washing	87.1*	58.9	82.2	65.1	92.2	52.7

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

Chapter 5: Findings – Forest Resources



5. Forest Resources

5.1. Non Timber Forest Products (NTFP)

Majority of the families at an overall level (57.8%) were involved in the collection of non-timber forest products from the nearby forests in intervention areas. The percentage of the NTFP collection was comparatively more reported among the respondents of the Bagicha block (93.1%) than those of the Pathalgaon (15.2%) at an overall level. One possible reason behind the same could be more forest coverage in the areas of Bagicha block than Pathalgaon¹⁵. Within the Bagicha block, the respondents belonging to intervention areas were significantly more involved in the NTFP collection (97.7%) than those of the comparison areas (88.4%). In the families where NTFP was reportedly collected, it was observed that normally both men and women were involved in NTFP collection (85.1%) followed by only women members of the household (13.2%) at an overall level in intervention areas.

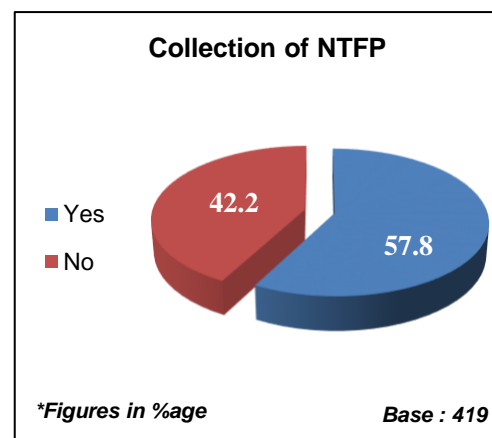


Figure 12 Involvement in NTFP collection

Table 27: Collection NTFPs by Gender

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all families collecting NTFPs)	242	211	209	182	33	29
Women Members Only	13.2	16.1	13.4	15.4	12.2	20.6
Male Members only	0.4	3.8	0.5	2.2	0.0	13.8
Both Male and Female	85.1	79.6	84.7	81.9	87.9	65.5
Children	0.4	0.5	0.5	0.6	0.0	0.0

(I = Intervention; C = Comparison)

Women in the households are involved in allied activities to support in household income generation, hence in the above table it can be seen that women members solely are collecting NTFPs products in both intervention and control areas in both the respective blocks.

Close to three fourth of the respondents (74.3%) reported facing problems during NTFP collection in intervention areas. Primarily facing of the problem was reported on account from the restriction in the forest accessibility by the forest department (77.2%). Among other problems, restrictions by Van Suraksha Samiti (VSS)/ Joint Forest Management Committee (JFMC) (53.9%) and restrictions imposed by local/nearby gram panchayat (39.4%) were prominent.

The respondent's whose families were involved in collecting the NTFPs were further asked the methods of plucking/harvesting the forest products in context of fruits and herbs/shrubs. In case of collection of fruits, plucking only mature fruits from the tree without affecting the tree or tree branches was observed in major cases (94.6%). Cutting branches for collecting fruits (38.0%) and plucking both mature and immature fruits (17.2%) was also observed to be in practice. In respect to the collection of herbs/shrubs, plucking only the essential part of a plant was the key practice reported by 97.1% of the respondents while uprooting the plant

¹⁵ Geography of Jashpur region, The national portal of India - <http://jashpur.gov.in/geograph.htm>

for collection was reported by (45.8%) respondents in intervention areas. It indicates that **the respondents who were involved in the NTFP collection have developed the knowledge on the optimum method of collecting fruits/herbs/shrubs from the forest area without affecting the forest resources.**

In regards to the changing availability of NTFPs, primarily the respondents mentioned that the NTFP availability has not changed (30.8%). However, close to one-third of respondents (30.5%) also indicated a decreasing availability of NTFPs, majorly in the products such as aromatic flowers, fruits (*aawla*) and medicinal plants. The key reason which came up behind a decrease in the availability was deforestation in the intervention areas.

In line with the collection trends, both male and females were primarily involved in the selling of the NTFPs (79.3%) and as such no such division of labour was observed. Primarily, the collected NTFPs were being used for self-consumption (73.1%). Respondents also mentioned that the NTFPs were being sold directly in the market (33.8%) or were sold through local traders (27.7%) which are less from comparison group where the sale through local traders is 34.1%. Selling of NTFPs through SHGs remained low at one-fifth proportion (20.2%) at intervention level.

The corresponding difference in the prevalence of the trainings was significantly higher in intervention areas (39.7%) than the comparison areas (19.4%), as could be seen in the below table. The ones who were trained on NTFPs were primarily given information on 'use of NTFPs' (72.3%) and 'collection of NTFPs' (68.6%).

Table 28: Training on NTFPs

Particulars	Overall			Bagicha		Pathalgaon	
		I	C	I	C	I	C
Base (all families collecting NTFPs)		242	211	209	182	33	29
Received training		39.7*	19.4	43.1	22.5	18.2	0.0
Did not receive training		60.3	80.6*	56.9	77.5	81.8	100.0

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

5.2. Joint Forest Management Committees (JFMCs)

At an intervention level, the presence of Joint Forest Management Committees (JFMCs)¹⁶ remained low and less than one-fifth (12.7%) respondents said that they had a JFMC in their village. Close to one-third respondents (28.2%) also expressed their unawareness when asked if their village had a JFMC. Majorly the JFMCs were observed to exist in the Bagicha block as 82.4% respondents reported the existence of JFMC in their village in intervention areas when compared with 57.6% of respondents reported the same in control villages. As stated earlier, one possible reason could be more forest coverage in the areas of Bagicha block than Pathalgaon. The JFMCs were primarily composed of both male and female members (92.2%). The involvement of either the respondent or their family members in the JFMC was low and while 9% respondents were a part of JFMC, the corresponding percentage of their family members being a part of the JFMC was 18%. The meetings of JFMCs were observed to be organized on a need basis and primarily 'as and when required' was the response garnered against the question – how many times JFMC meets? Organizing of meetings on a monthly basis was reported by 16.7% respondents. The key issue that was observed to be discussed within these meetings was discussion on forest conservation practices.

¹⁶ Joint Forest management scheme received national importance in legislation of 1988 and thrust in guidelines of 1990



Chapter 6: Women Empowerment



6. Women empowerment

6.1. Financial Services and Accessibility

In around 40% of the surveyed households, at least one woman member was a member of a Self Help Group (SHG). In one-fifth (20.7%) of all such households, the women members were involved in income generating activities. Selling of NTFP products was a primary income generating activity and more than seven out of ten (70.4%) respondents involved in income generating activity, reported doing it.

More than three-fourth of the respondents (82.6%) had a bank account in their name in the intervention area which is significantly more than 71.1% of comparison area. This percentage was significantly more than the statistics reported during the baseline where 56.7% respondents mentioned that they had a bank account in their name. Hence women awareness level in the areas of saving the money can be clearly seen majorly in intervention areas of Bagicha in comparison to other regions.

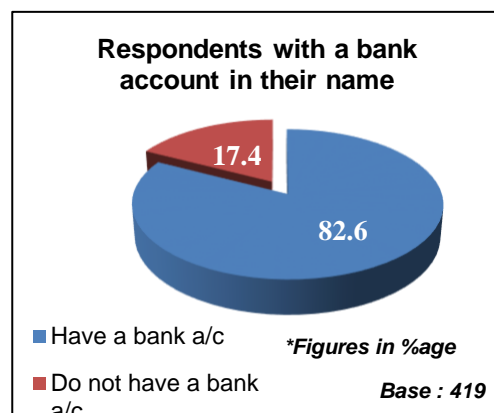


Figure 13 Respondents with a bank account in their name

Table 29: Ownership of own bank account

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Own a bank account	82.5*	71.1	93.9	83.5	70.7	58.6

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

An analysis of the year of opening bank account reflected that the **most of these accounts (72.1%) were opened post 2014**. Regular saving in the bank was reported in close to half of the households (48.8%). In-house savings was the most common practice (85.1%) adopted by people followed by the savings in bank (51.9%). The families of very low percentage of respondents (2.4%) reportedly took credit (January 2014 to December 2016) and the base was low to report any associated findings.

“Women are getting more knowledge about the banking system, new technique of farming and how to save the money within the group”.

-Female, Jabla (Bagicha)

During the qualitative discussions it came up that nowadays, women have gained the knowledge of bank operations which is being helpful in saving money for the future. It was also highlighted that with regard to finances, people now have a local financial body (SHG) to fall back on in case of emergency like shortage of funds at time of sowing, harvesting or irrigating crops, lack of money to buy fertilizers and to facilitate other allied agricultural activities etc. in such cases SHGs provide short term loans at 2% interest rate and also primarily encourage saving funds. Collectives were observed to be instrumental in the study areas for empowering people in respect of better methods of employment and income generation. Through these collectives, the financial stability of people has

improved. ***This is especially true for women as they have started saving money and have started utilizing it for improved farming methods.***

6.2. Women's mobility and social interaction

Mobility and social interaction of women with different stakeholders are among the key indicators of women empowerment. Ensuring a high mobility and social interaction becomes important in areas such as Bagicha and Pathalgaon which are having lower socio-economic statistics. One of the major focus areas of the intervention was to enhance the empowerment statistics of women in the area and CARE has focused on increasing the involvement of women in higher value and market chain of agricultural based activities i.e. women involvement in buying and selling of agricultural input and output products.

As could be seen from the below table, **a high mobility of women was observed in the study areas**. Banks (92.4%), Post offices (83.2%) and GP office (87.9%) were the places where the maximum mobility of the respondent's was reported. Also at an aggregate level 49.9% of respondents have visited places like banks, post offices and gram panchayat offices. **Comparison of the statistics between intervention areas and comparison areas show that mobility of respondents belonging to an intervention area was more than the ones who were from comparison area. This was true for all the places to which the mobility was enquired.** In fact, the difference in the mobility was statistically significant at most of the places, as could be seen from the below table.

Table 30 Women's mobility

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Bank	96.2*	88.5	98.1	96.6	94.1	80.3
Post office	88.8*	77.5	98.1	94.7	79.0	60.1
GP office	95.2*	80.4	100.0	93.2	90.2	67.5
Block level offices	76.4*	69.0	81.8	82.0	70.7	55.7
District level offices	67.5	64.6	71.5	75.2	63.4	53.7
Office of local NGO	26.7	23.2	31.8	26.7	21.5	19.7
To other districts	26.3*	14.2	24.3	9.2	28.3	19.2
To state capital	28.6*	20.1	28.5	20.4	28.8	19.7

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

In order to access the independence during mobility, the respondents were also enquired about the companionship during the mobility. Accompaniment by the male member of the family was the most quoted response across all the categories and travelling on own/self was reported by comparatively lower percentage of the respondents.

In terms of confidence regarding raising the issues for discussion in a public forum, more than half of the respondents (58.5%) in intervention area agreed that they were confident to raise the issue which is significantly more than comparison group where only 35.2% of the respondents believe that they can speak up in public forums. **Data also indicated that more women in the intervention areas were confident to raise the issue in public forum as compared to the ones who belonged to comparison areas.**

Table 31 % respondents who can raise issue for discussion in a public forum

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Agree	58.5*	35.2	58.0	29.6	59.0	40.9
Neither agree nor disagree	27.2	33.3	33.2	40.3	21.0	26.1

Disagree	14.3*	31.5	8.9	30.1	20.0	33.0
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(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

The participation in the various group meetings during the past one month though remained low across most of the groups and primarily Gram Sabha meetings (62.1%) and SHG meetings (18.8%) were the ones which were attended by the respondents during the past one month.

6.3. Independent decision making capacity

A high percentage of women reportedly felt confident in respect to independent decision making with regards to various aspects of finance and agricultural practices. As could be seen from the table below, the respondents from the intervention areas were more confident in regards to independent decision making than their counterparts from comparison areas. In a couple of categories, the difference in the responses was also statistically significant.

Table 32 Agree % in respect to independent decision making – agree (%)

Particulars	Overall			Bagicha		Pathalgaon	
	Total	I	C	I	C	I	C
Base (all)	828	419	409	214	206	205	203
I can take independent decisions on choice of crop to harvest	46.7	50.4*	43.0	48.1	42.7	52.7	43.4
I can take independent decisions in buying farm equipment	41.6	46.3*	36.7	43.5	34.0	49.3	39.4
I can independently buy, sell and transfer assets owned by women	43.1	46.1	40.1	45.3	40.3	46.8	39.9
I can take independent decisions on how to use the family income	58.0	55.1	60.9	55.1	56.8	55.1	65.0
I can independently take decisions on taking or giving money on credit to others	47.8	49.6	46.0	50.5	41.8	48.8	50.3

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

6.4. Involvement in agricultural product selling

The awareness was equally spread among intervention area respondents (63.0%) and comparison area respondents (62.4%), the ones who belonged to Bagicha's intervention area had more awareness (80.4%) than Pathalgaon's intervention areas (44.9%).

The practice of dealing directly with the buyers and sellers of agricultural commodities in their respective areas was observed to be prevailing among close to one-fifth of the respondents (22.6%).

The respondents who were from an intervention areas were observed to be more involved in dealing directly with the buyers and sellers of agricultural commodities (26.3%) than the ones who were from a comparison area (18.8%). The corresponding difference in the percentages was statistically significant as well. High percentage (70.6%) of the ones who were dealing directly with the buyers and sellers, believed that they were capable of dealing with buyers and sellers in the agricultural commodity market. Also, it was reported that the families

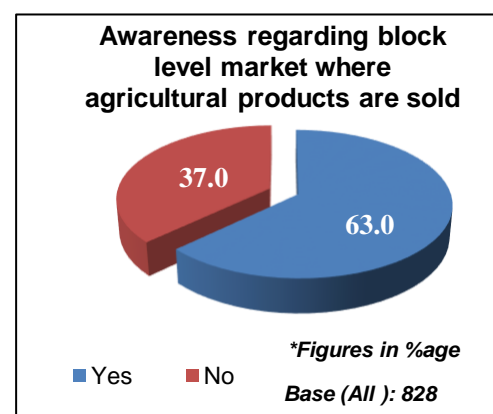


Figure 14 Awareness about block level market selling agricultural products

of such respondents were supportive of the respondent's going out and interacting with the different buyers and sellers.

☞ Data indicates that the women from intervention areas felt more empowered in terms of being mobile, having an ability to raise issues for discussion in a public forum, independent decision making and involved themselves more in agricultural product selling than the ones from comparison areas. These factors can be attributed as one of the major success of WtRF project.

6.5. Women empowerment – Qualitative findings

The qualitative data findings indicate that **it is not only social solidarity that has improved through CARE's effort but the exposure and training is also leading to personal development and personality development. People, especially women have become vocal, confident and articulate. Their participation in local bodies of the villages has improved.**

“Earlier women did not participate in the meetings of Gram Sabha, Doing the training enhance knowledge of women...now they go in Panchayat and are ready to talk with people in village and Government offices”.

-Female, Simardih (Bagicha)

In the gender perspective, women's decision making ability and freedom to decide have been important. When men and women were asked about decision making rules they follow within their HH, it emerged that areas of decision making that fall under the purview of male and female followed a traditional trend. Women mostly took independent decisions that related to the HH like kitchen, children's education etc. while men focused on bigger and more important decisions related to finances like buying of land. Respondents also said that men and women take joint decisions in certain situations. CARE animators were also, confident that they have been able to bring changes in the villages with regard to decision making.

“Now female are coming forward to participate in community decision. Generally we say that India is a male dominated country but now this is changing day by day”.

-CARE Animator, Simardih (Bagicha)

“Women consider themselves capable of taking decisions regarding the agriculture. Earlier women did not participate in agricultural activities”.

-Male FGD, Jamjunwani (Pathalgaon)

On further discussion and probing, **the effects of the CARE intervention came out to be much stronger and well-focused.** Men and women respondents equally felt that women have a sense of empowerment and that they have a stronger role in decision making now. The boundaries of male-dominated-areas of

“Women don't have freedom but they go out without permission. There is no restriction as such. They go to the market, they go to the school, go to sell Mahua (Madhuca Longifolia)”.

-Male FGD, Simardih (Bagicha)

“More women are seen the market. After joining the group they know how to negotiate”.

-Male FGD, Simardih (Bagicha)

decision making have become more permeable for women. This includes women's involvement in agricultural activities and financial decisions like paying children's school fee.

CARE's intervention was also instrumental in enhancing mobility of women. Now, women are freer to move out of the house independently, may it be to visit her children's school or to buy or sell vegetables in the market. When spoken with men and women on the issue mobility, it emerged that more than the independence to be mobile, it is the independence of thought that women have gained. Women now do not seek male-permission to go out of the house, as before. These improved decision making skills among women have also improved their negotiation skills in the market when they go to sell vegetables.

Women in the surveyed villages have been dually empowered-mentally and physically. They have broken the gender stereotype that women cannot do hard labor. They are now participating in all activities of agriculture starting from ploughing the land to sowing seeds and harvesting the crop. On the contrary, men in FGDs still expressed this opinion that women do less hard working chores in the field while they take on the tough areas.

“Earlier women worked like a worker without salary but now she work like a boss or owner of the field”.

**-Male FGD, Simardih
(Bagicha)**

Interestingly, when inquired about changing role of women in agriculture, women in all the villages felt that there hasn't been much change in the way they work in the fields. However, in most villages except Simardih and Bagicha, men appreciated women's enhanced participation in agricultural activities and attributed the credit to CARE intervention.

“Everyone has a happy family. Women work outside the house and men even cook. It is not women's responsibility to do HH chores...we do it as well”.

**-Male FGD, Kharkhata
(Pathalgaon)**

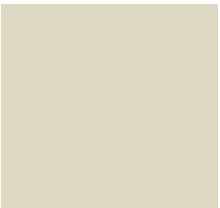
Quality on changing gender roles is interesting. Most men and women felt that women should and are actively involved income generation. Simardih, Bagicha was exception where men still held the belief that income generation is man's responsibility and household management should be women's priority. There is a role reversal on the side of men as well. Many men and women noted that men are now actively participating in household chores and sharing responsibilities, which were seen as women's domain previously. Men are not shy of these responsibilities and they talk about them openly.

With the changing role of women at the household level, there is a new image that women have carved in the society. Women have become articulate and aware about the programs that can bring positive change in society and their lives. They have been demanding new development projects in the village to make their lives better. They have gained the ability to stand in PRI meetings and put forth their demands.

In spite of the existing and continuing restrictions, overall status of women in the society has improved, with respect to dignity and respect. They seemingly have a greater role in the society now- as a decision maker and income contributor.



Chapter 7: Governance



7. Governance

7.1. Participation in Local Governance

In most of the GPs in intervention areas, the Gram Sabha is organized (84.7%). It was also reported that the Gram Sabha's are being organized frequently and more than three-fourth respondents (76.8%) mentioned that the Gram Sabha is organized 'more than three times in a year'. **Overall, sixty percent of the respondents (60.7%) mentioned that they participate in the Gram Sabha with the participation being more among the respondents of the intervention areas (71.8%) than the comparison areas (49.3%). The difference in the associated percentage of participating in the Gram Sabha was observed to be statistically significant.** The mean number of participation in the Gram Sabha during the last one year came out to be four.

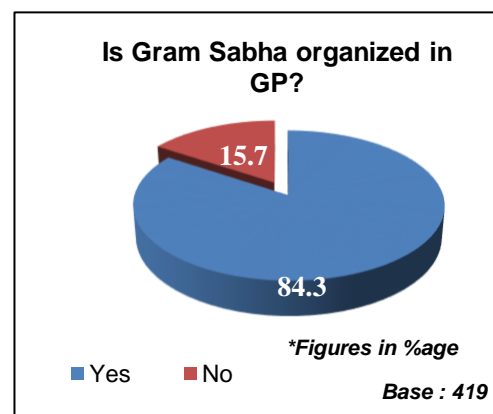


Figure 15 Organizing Gram Sabha in GPs

Table 33 Participation in the Gram Sabha (%)

Particulars	Overall (Jashpur)			Bagicha		Pathalgaon	
	Total	I	C	I	C	I	C
Base (respondents who reported that Gram Sabha are organized in their GPs)	698	355	343	203	184	152	159
Participated in the Gram Sabha	60.7	71.8*	49.3	88.2	60.9	50.0	35.8

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

The baseline statistics revealed that two-third respondents (67%) raised different issues in the Gram Sabha. As per the current data trends, this percentage has gone up and is currently at 72.1% i.e. close to three-fourth of the respondents who were surveyed, mentioned that they generally raise issues for solution in Gram Sabha. **The data shows that the respondents from the intervention areas were significantly more active in seeking solutions during the Gram Sabha than the ones from the comparison areas.** Some of the common issues raised during the Gram Sabha were drinking water (86.5%), MGNREGA (38.9%), irrigation (38.6%), village sanitation (34.7%), agricultural (26.1%) and NTFPs (25.1%).

A high percentage of the respondents were also observed to be practicing their voting rights, indicative from the high percentages who reportedly vote during the last elections. At an aggregate level 72.1% of respondent have voted in all the elections. Analysis of the data between the intervention and the comparison areas shows that voting tendency was evenly spread across intervention areas and comparison areas. It was also reported by majority of the respondents that the decision to cast their vote was a self-decision and was not influenced by other members of the family/community.

Table 34 Frequency of voting among the respondents (%)

Particulars	Overall	
	I	C
Base (all)	419	409
Gram panchayat election	99.3	97.8
Block election	73.0	75.1
Zila parishad election	72.8	75.1
Assembly election	98.3	97.1

Lok Sabha election	95.9	96.8
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(I = Intervention; C = Comparison)

☞ **A comparatively higher participation in Gram Sabha of the respondents from intervention areas indicates the efforts of the CARE program representatives in sensitizing the community members.**

The qualitative findings indicate that the women have become more articulate, active and are acting as change agents in the villages. The CARE's intervention has empowered them and has made them confident to demand for their rights. Now, the women are voicing their concerns and demanding new programs for the betterment of the village. During one of the qualitative discussion, presence of a woman sarpanch in the village was also mentioned by the respondent which is an indication of the changing times.

"There is a woman 'sarpanch' in the village. We are very happy that there is a female head after 15 years. Women now participate in the meetings of Gram Sabha. They share their opinions and put forward their suggestions".

-Male FGD, Jamjunwani (Pathalgaon)

7.2. Schematic Enrolment and Entitlement

The enrolment percentages in respect to various schemes of the government remained low and only against two schemes – (i) Mahatma Gandhi National Rural Employment Generation (MGNREGA and (ii) ICDS (Take Home Ration), the enrolment figures were reported to be more than ten percent. At an aggregate level 66.9% of respondents have reported to be a part of more than 10 entitlement like IAY, old age pension scheme, PDS, widow and disabled pension, MGNREGA are some of the major ones.

Table 35 Schematic enrolments of the families (%)

Particulars	Overall		Bagicha		Pathalgaon	
	I	C	I	C	I	C
Base (all)	419	409	214	206	205	203
Indira Awas Yojana (IAY)	6.0	4.2	4.7	7.8	7.3	0.5
Old Age Pension Scheme	2.9	7.3*	2.8	8.3	2.9	6.4
Subsidized Target Public Distribution System	10.0	7.3	16.4	11.7	3.4	3.0
Widow Pension	2.4	4.2	1.9	4.9	2.9	3.5
Disabled Pension	0.5	0.0	0.5	0.0	0.5	0.0
Job Card (MGNREGA)	61.6*	48.7	84.1	76.2	38.1	20.7
Emergency Feeding	1.9	0.0	3.3	0.0	0.5	0.0
Take Home Ration	21.5	20.5	35.5	36.4	6.8	4.4
Child Education Facility	6.2	8.3	11.2	16.0	1.0	0.5
Crop Insurance	0.0	0.5	0.0	1.0	0.0	0.0

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

7.3. Village Development Committee and its functioning

In all the intervention villages, there is a Village Development Committee (VDC). However, the awareness of respondents in regards to the presence of VDC in the intervention villages was found out to be low (42.2%). The associated percentage was similar to the baseline which also had reported 42% awareness regarding the VDCs. Close to one-fifth respondents (17.7%) also said that they were not aware about the presence of VDC in the village. Existence of VDC was observed to be more prominent in Bagicha (48.1%) than Pathalgaon (36.1%).

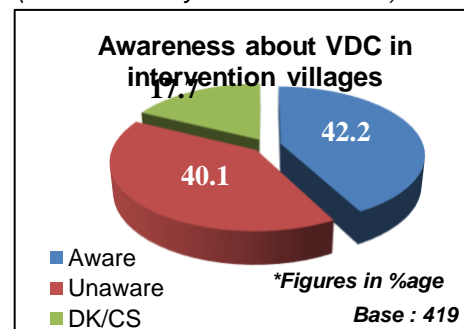


Figure 16: Awareness about VDC

The composition of VDCs was primarily 'mixed' and more than nine out of ten respondents (91.5%) stated that the VDC comprises of both male and female members. Membership of the VDC was observed to be among 18% respondents and the corresponding percentages were more in the Bagicha block than the Pathalgaon block. Monthly meeting of VDCs (29.9%) and meeting as per the requirement (56.5%) were the key responses reported in context of the frequency of the VDC meetings.

Data indicates that discussions on climate change were integral to the VDC meetings and a high percentage (80%) quoted raising the issue during the meetings. Among various points related to climate change, drinking water (89.1%), changing cropping pattern (64.1%), rain water harvesting (51.6%) and efficient irrigation facility (34.4%) were the key points.

During the qualitative discussions with the officials of VDCs, information in regards to the functioning of the committee and about various ground level activities being undertaken by the VDCs was communicated. It came out that the VDCs are helping the villagers by helping them construct debris to conserve water and keep the lower farms moist. Additionally, the VDCs also counsel men in the families if a case of dispute is encountered. The VDC officials highlighted the contribution of CARE in terms of teaching 'Siri Vidhi' farming technique, vermin composting and preparation of local and natural pesticides. Additionally, it was also mentioned that CARE team has helped them to construct the percolation tanks for conserving the water.

"Now we have become aware. Even if CARE does not remain we are now aware & self-reliant to go on our own to the concerned department as per our needs for example to procure seeds or in a bank etc."

-VDC FGD, Kharkhata (Pathalgaon)

7.4. Collective Social Action

The instances of taking collective action at a village level during the past two years were mentioned by one-fifth (20.7%) respondent. **The respondents from an intervention area were reportedly more involved in collective actions and the associated difference with the comparison area was statistically significant.**

Table 36 % action taken collectively at the village level

Particulars	Overall (Jashpur)			Bagicha		Pathalgaon		
	Total	I	C	I	C	I	C	

Base (all)	828	419	409	214	206	205	203
Action taken collectively at the village level	20.7	25.5*	15.7	15.4	14.5	36.1	16.7

(I = Intervention; C = Comparison); *: Significant difference at 5% significance level, $p < 0.05$ (undertaken only at an overall level)

The three key issues on which the collective action was taken were village sanitation (50.3%), water for household use (43.9%) and anti-liquor initiative (39.8%). These actions were primarily taken by SHGs (59.1%) and villagers as a whole (56.7%).

The respondent's intention to participate in these collective actions was also asked and at an overall level, four out of ten respondents (42%) expressed their desire to participate in any of the collective action. Drinking water issue (65.3%), women right issue (44.4%) and irrigation issues (41.7%) were the top three actions in which respondent's expressed their intention to participate.

One-fourth of the respondents (25.2%) reported to have participated in the Community Action Plan (CAP) meetings organized by the CARE team. The participation was higher in Pathalgaon block (27.0%) than the Bagicha block (21.2%).

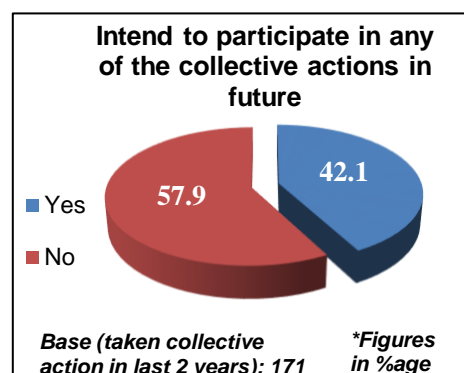


Figure 17 Future participation in any of the collective

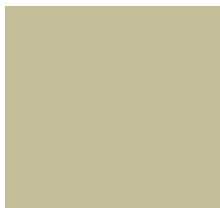
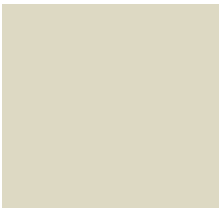
7.5. Governance of Community Resources

Majority of the community sources was available in the surveyed areas and they were easily accessible. Drinking water was observed to be the most available community resource (84.4%) followed by agricultural land (79.6%), timber from forest (77.8%), pond (66.8%) and local forest (66.2%). Most of the resources were accessible to both male and female members of the family, as could be seen from the high percentages indicated in the table below.

Table 37 Availability and accessibility of community resources

Particulars	Availability		Accessibility			
	Base (all)	%	Base (all available)	Only Male (%)	Only Female (%)	Both (%)
Drinking sources	828	84.4	699	1.0	32.1	67.0
Agricultural land	828	79.6	659	18.5	3.3	78.2
Timber from forest	828	77.8	644	11.8	5.6	82.6
Pond	828	66.8	553	4.3	2.4	93.3
Local forest	828	66.2	548	9.5	3.5	87.0
Pasture / Grazing land	828	59.1	489	31.9	0.8	67.3
NTPF from forest	828	57.7	478	4.8	3.8	91.4
Irrigation sources	828	48.0	397	12.3	2.5	85.1
Community hall	828	41.6	344	12.8	4.7	82.6
Temple / Religious place	828	39.5	327	2.1	6.4	91.4
Village library	828	5.1	42	7.1	7.1	85.7

Chapter 8: Women Empowerment in Agriculture Index (WEAI) and adaptive capacities



8. Adaptive capacity and WEAI

8.1. Adaptive Capacity Index

For computing the Adaptive Capacity Index (ACI) 83 indicators were selected from different areas which are critical to calculate the ACI are as follows:

1. Agriculture (Land levelling technique, Soil testing, Manures, Pest management, Nutrition management);
2. Irrigation (Sources of Irrigation, techniques of irrigation);
3. Water Management (Farm and Household level, Water user association);
4. Common household facilities (electricity, water, toilets, water source etc.);
5. Awareness on climate change (Basic understanding on Climate Change, related Issues and perceived risks, observed changes);
6. Village Institutions (VDC / JFMC);
7. Collective Action by the Community (Issues raised);

All the indicators in each of the above mentioned areas were first normalized using the range equalization method, thereby distributing the index values between 0 to 1 (representing the worst performing and best performing areas respectively). Post-normalization, each indicator is assigned an equal weight to maintain objectivity. Finally, by taking an average of all indices, a composite index is computed.

$$I(r/u) = (X_i - X_{min}) / (X_{max} - X_{min})$$

Where: $I(r/u)$: normalized indicator for rural (I_r) and urban (I_u) areas

X_i : the indicator value

X_{max} and X_{min} : the indicator's maximum and the minimum values

8.1.1. Key Findings for CACI

Almost all the intervention villages are having low ACI, i.e., below the mean value of 0.500. It indicates that all the villages are deficient in adaptive capacity to deal with climate change related risks in future. So, adaptive capacity of Adivasi families has to be enhanced to cope with the climate variability and related risks. In ACI, Jamjunwani village ranked one with highest index value of 0.467 (rank 1) and Dumarpani Village is having the lowest rank (rank 40) with index value of 0.042. Most of the villages are in the index (value) range of 0.200 to 0.100 which indicates that similar type of effort may be required across the entire project villages with certain degree of variability by adaptive components / indicators. All the weighted index value of the villages along with their rank is presented in the Table below (Villages are arranged in Lexicographical order):

Table 38 List of Composite Adaptive Index with Village Ranking

List of Composite Adaptive Capacity Index with Village Ranking					
S. No	Village Name	End-line CACI Scores		Baseline CACI Scores	
		Composite Adaptive Capacity Index	Rank of the Villages	Composite Adaptive Capacity Index	Rank of the Villages
1.	Ambatoli	0.177	22	N/A	
2.	Bartoli	0.214	19	N/A	
3.	Batura Bahar	0.398	2	0.404	7
4.	Bend	0.149	26	N/A	
5.	Butanga	0.173	23	0.418	4
6.	Chandagarh	0.343	4	0.374	23
7.	Chaura Ama	0.076	36	N/A	
8.	Dahidand	0.281	9		
9.	Dumarpani	0.042	40	0.411	5
10.	Ghichapani	0.226	17	N/A	
11.	Gowasi	0.149	27	N/A	
12.	Jabla	0.220	18	N/A	
13.	Jamjunwani	0.467	1	0.321	36
14.	Jampani	0.129	30	N/A	
15.	Jhakadpur	0.165	24	0.399	8
16.	Jurudand	0.243	14	0.427	2
17.	Khardhodhi	0.358	3	0.347	33
18.	Kharkata	0.104	34	0.344	34
19.	Kudekela	0.273	10	N/A	
20.	Kuhapani	0.256	11	N/A	
21.	Kurhatepna	0.119	31	N/A	
22.	Majhgaon	0.299	7	N/A	
23.	Makkapur	0.248	12	N/A	
24.	Maratarai	0.142	29	N/A	
25.	Mauhadarha	0.204	21	0.325	35
26.	Mirzapur	0.284	8	0.365	29
27.	Mudapara	0.326	6	0.382	18
28.	Pandripani	0.333	5	0.396	10
29.	Patarapali	0.246	13	0.381	19
30.	Pirai	0.207	20	0.371	25
31.	Raghunathpur	0.042	39	0.353	31
32.	Rajpur	0.097	35	N/A	
33.	Rangpur	0.147	28	N/A	
34.	Silipakhana	0.072	37	N/A	
35.	Simardih	0.055	38	N/A	
36.	Surajgarh	0.236	15	0.419	3
37.	Sutri	0.115	32	0.392	11
38.	Tambakachhar	0.156	25	0.377	22
39.	Tirsonth	0.234	16	0.382	17
40.	Turua Ama	0.114	33	0.409	6

8.2. Women Empowerment in Agriculture Index

Similar approach was utilised to calculate the Women's Empowerment in Agriculture Index (WEAI) as used in calculating the ACI. However in calculating the WEAI 16 indicators were selected from different areas which are critical to calculate the ACI are as follows:

1. Production;
2. Resources;
3. Income;
4. Time;
5. Leadership;

8.2.1. Key Findings for WEAI

Jamjunwani village has shown significant improvement in both the indexes, also the overall WEAI value is way more than .500 values. Apart from Jamjunwani there are six other villages with its value more than .500. On an overall level there are still 33 villages which are deficient in scoring well in women's empowerment in agriculture index. In WEAI, Jamjunwani village ranked one with highest index value of 0.832 (rank 1) and Kharkata Village is having the lowest rank (rank 40) with index value of 0.023. Most of the villages are in the index (value) range of 0.300 to 0.500 which indicates that the villages is developing themselves on these indicators and further more efforts are required to strengthen these indicators. All the weighted index value of the villages along with their rank is presented in the Table below (Villages are arranged in Lexicographical order):

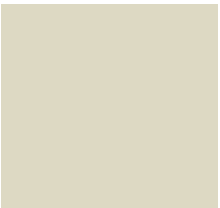
Table 39 List of Women's Empowerment in Agriculture Index with Village Ranking

List of Women's Empowerment in Agriculture Index with Village Ranking			
S. No	Village Name	Women's Empowerment in Agriculture Index	Rank of the Villages
1.	Ambatoli	0.283	30
2.	Bartoli	0.263	31
3.	Batura Bahar	0.462	11
4.	Bend	0.418	17
5.	Butanga	0.542	5
6.	Chandagarh	0.772	2
7.	Chaura Ama	0.111	37
8.	Dahidand	0.437	14
9.	Dumarpani	0.061	38
10.	Ghichapani	0.413	18
11.	Gowasi	0.037	39
12.	Jabla	0.127	36
13.	Jamjunwani	0.832	1
14.	Jampani	0.513	7
15.	Jhakadpur	0.249	32
16.	Jurudand	0.656	4
17.	Khardhodhi	0.447	13
18.	Kharkata	0.023	40
19.	Kudekela	0.475	10
20.	Kuhapani	0.408	19
21.	Kurhatepna	0.334	23
22.	Majhgaon	0.491	9
23.	Makkapur	0.329	25

List of Women's Empowerment in Agriculture Index with Village Ranking			
S. No	Village Name	Women's Empowerment in Agriculture Index	Rank of the Villages
24.	Maratarai	0.323	27
25.	Mauhadarha	0.498	8
26.	Mirzapur	0.347	21
27.	Mudapara	0.535	6
28.	Pandripani	0.419	16
29.	Patarapali	0.434	15
30.	Pirai	0.380	20
31.	Raghunathpur	0.127	35
32.	Rajpur	0.295	29
33.	Rangpur	0.330	24
34.	Silipakhana	0.197	33
35.	Simardih	0.165	34
36.	Surajgarh	0.323	26
37.	Sutri	0.306	28
38.	Tambakachhar	0.337	22
39.	Tirsonth	0.455	12
40.	Turua Ama	0.709	3



Chapter 9: Recommendations and Conclusion



9.1. Programmatic recommendations

Overall we found that Adivasi women have been trained on modern agricultural techniques and allied activities. Apart from the social change, target population was also empowered to use the techniques useful for sustainable and efficient agricultural produce like SRI, mixed/inter cropping, 5% water model, pond renovation, mulching, pest and nutrition management, post-harvest storage techniques, soil fertility enhancing techniques. While the usage of few of the above techniques was high it was observed that respondents were not making use of all of these methods. Hence it is required that certain medium should be introduced in these areas from where the targeted population can avail such techniques easily. Use of cost effective techniques should be promoted in agriculture. For example, use of mulching technique is not very much popular among the target population and hence it can be promoted especially when the area is prone to severe drought conditions.

Targeting women as sole beneficiary for interventions is an important first step; however, research studies have proved that women centric interventions have much more efficient results if the male counterparts are engaged equally in those interventions especially to ensure the favourable conditions for increasing the empowerment level of women. Relatively simple design features can be embedded in social programmes to harness more sustainable and effective progress in poverty reduction by transforming unequal gender relations, and supporting women's empowerment and improving the effectiveness of social programming on the ground. Many of these focus on the hugely successful livelihood interventions that have shown the most visible gains for women's empowerment, viz., cash and asset transfers, public works programmes, and subsidies. It is insufficient to increase women's social status within and outside the household (for instance by improving their bargaining or decision-making power, contributing to more equitable intra-household relations and improving women's self-esteem).

Having stated this, as the number of small and marginal farmers in these area is more and due to their financial conditions, it is highly recommended that they should be made aware of the financial tools like crop loan and insurance so as to increase the agricultural production and also to provide better infrastructural facilities post harvesting the crops. It is only then that the true impact of the efforts on women social and economic upliftment can be commented upon.

From the basis of the qualitative activities, the following recommendations are being made:

- **Regular Training:** Training for animators and villagers should be on a regular basis. This will refresh what they have already learnt, rectify their methods (if they are doing anything wrong) and update them on new techniques. Also, training of key community influencers could be beneficial. Through these trainings, CARE can envisage greater role of community influencers to make the intervention more sustainable and long-term.
- **Generating more employment opportunities:** People should be encouraged and supported to take up alternate employment opportunities. CARE can provide skill and equipment for occupations like fishing and poultry farming.
- **Training future generations:** Since the effect of climate change will worsen over a period, it is important to prepare young men and women and make them more resilient for the upcoming adversities. Periodic, non-formal interventions at the school level will be helpful in this regard.
- **Strengthening a chain of CARE Animators:** Female community influencers, who have been trained, empowered and have taken on leading role should be identified and appointed as animators. This will act as an incentive for the society and will motivate others to work well too.

9.2. Conclusion

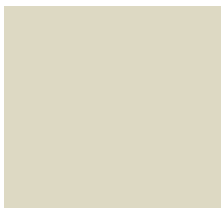
CARE India's WtRF project aims to empower the Adivasi Women in their major and minor occupations and also to elevate the social status of the women within the community. The current study, 'end-line study of Where the Rain Falls (WtRF) project' was an attempt to assess the impact of the interventions on respondent's life and the level of change that has been brought into their lives and also to identify the efficiency of the intervention among the beneficiaries.

The major climate change issue in the area is of water scarcity, which in turn is affecting agriculture and thus regular income. CARE has intervened and taught people improved farming techniques (including provision of fertilizer and promoting mixed farming), alternate methods of employment, weather forecast and adversity planning, and awareness generation about environment. The change which has entered these villages is appreciated and noticed by most of the stakeholders in the study. Interestingly, these changes are also percolating to the nearby villages which haven't received any such intervention. There is a domino effect of these interventions.

Effectiveness of WtRF project was observed across the surveyed villages and the intervention villages performed better in relation to various impact indicators viz. increase in agricultural produce, use of modern agricultural techniques, social and economic empowerment of Adivasi women etc. as compared to the comparison villages. In relation to modern agricultural technique indicators, a larger awareness versus lower usability was observed among the targeted population and it was found that it was not completely adopted by the respondents. In context of awareness on climate change, the respondents in intervention villages were found out to be comparatively more aware of the possible risks that may affect them to a larger extent in comparison to the comparison villages. Also the respondents from intervention villages feel empowered enough to cope with extreme climatic conditions and also to recover at a much rapid speed from any such calamities when compared with comparison villages. The women from intervention areas felt more empowered in terms of being mobile, having an ability to raise issues for discussion in a public forum, independent decision making and involved themselves more in agricultural product selling than the ones from comparison areas. Based on all these points, overall, a significant improvement was observed among the respondents of the intervention villages in comparison to their status during the baseline and midline study.



Annexure



Annexure-1: Sampled villages

S. No	Sampled Villages			
	Bagicha		Pathalgaon	
	Comparison	Intervention	Comparison	Intervention
1	Odaka	Ambatoli	Basantpur	Batura Bahar
2	Rokda	Bartoli	Tarekela	Chandagarh
3	Tora	Bend	Rokbahar	Chaura Ama
4	Gaybuda	Butanga	Khajaridhap	Ghichapani
5	Gailunga	Dahidand	Sureshpur	Jamjunwani
6	Mudhi	Dumarpani	Rairuma Kalan	Jhakadpur
7	Sardhapath	Gowasi	Pemla	Khardhodhi
8	Kopa	Jabla	Tamta	Kharkata
9	Gudalu	Jampani	Kokiyakhar	Kudekela
10	Sardih	Jurudand	Saraitola	Makkapur
11	Champa	Kuhapani	Godhikalan	Maratarai
12	Saraipani	Kurhatepna	Kadro	Mauhadarha
13	Kurrog	Majhgaon	Muda Bahla	Mirzapur
14	Kamarima	Pandripani	Bagbahar	Mudapara
15	Sanna	Pirai	Kukur Bhuka	Patarapali
16	Maini	Rajpur	Pakargaon	Raghunathpur
17	Kurdeg	Rangpur	Pangswa	Silipakhana
18	Patrapara	Simardih	Karmitikra	Surajgarh
19	Bimda	Sutri	Tukupakhna	Tirsonth
20	Jurgum	Tambakachhar	Katanjor	Turua Ama

Annexure-2: Map of indicator in comparison with baseline and midline

S. No.	End-line Indicators : Outcome Level Indicators	Baseline	Midline	End-line	End-line Data Block wise intervention and comparison type break up			
					Bagicha		Pathalgaon	
					Intervention	Comparison	Intervention	Comparison
1.	Adivasi women who understand climate change related risks to their households and communities (% of HH)	72.2	68	80.8	94.4	91.3	87.8	48.8
	Adivasi Women Voicing at least one vulnerability : In Gram Sabha							
2.	Irrigation	18	8	38.6	43.5	35.1	37.1	30.0
3.	Agriculture	7.2	23	26.0	20.4	37.7	18.6	37.5
4.	Forest and NTFP	7.2	0	43.4	54.4	66.2	4.3	27.5
	Adivasi Women Voicing at least one vulnerability : In VDC							
5.	Changing Cropping Pattern	1.8	2	69.7	67.4	93.8	55.6	66.7
6.	Afforestation	1.1	8	31.4	26.1	18.8	38.9	83.3
7.	Efficient Irrigation	0.7	0	36.0	30.4	50.0	44.4	16.7
8.	Drinking Water	.7	5	87.2	89.1	87.5	88.9	66.7
	Adivasi Women Adopting Sustainable Agricultural Practices : Integrated Nutrition Management							
9.	Soil Testing	3.1	8	29.7	60.3	25.7	23.4	7.9
10.	Organic Manure	76.5	98	68.9	77.6	68.9	71.2	57.6
11.	Synthetic manure	41.8	91	54.1	28.0	41.3	84.4	64.0
12.	Application of Vermin Compost	2.4	9	14.6	5.6	4.9	16.6	32.0
13.	Green Manuring	3.2	8	7.4	5.6	8.3	6.8	8.9
14.	Nitrogen Fixing Crops	25.1	53	12.0	17.8	10.7	7.8	11.8
	Adivasi Women Adopting Sustainable Agricultural Practices : Water Management							
15.	Drip Irrigation	11.1	10	22.3	22.4	11.7	22.0	33.5
16.	Sprinkler	9	4	21.6	22.0	11.7	21.5	31.5
17.	Use of Pipe Channel	12.3	57	32.8	24.3	12.6	54.2	40.9
18.	Farm Pond	6.7	8	25.9	41.1	14.6	35.6	11.8

S. No.	End-line Indicators : Outcome Level Indicators	Baseline	Midline	End-line	End-line Data Block wise intervention and comparison type break up			
					Bagicha		Pathalgaon	
					Intervention	Comparison	Intervention	Comparison
19.	Well in Farm land	13.3	9	22.9	19.6	12.1	37.5	22.6
20.	Use of Mulching	6.3	24	9.8	8.9	6.8	13.7	9.8
21.	Mixed Cropping	30.1	80	50.9	57.9	32.5	70.7	42.3
22.	Inter-cropping	4.4	73	5.5	4.2	1.9	6.3	9.8
23.	Integrated Farming System	13.6	4	23.3	21.5	10.7	29.8	31.5
24.	Crop Rotation	4.5	7	13.3	17.3	13.6	10.7	11.3
25.	Bund Plantation	3.6	7	15.6	22.9	3.9	15.1	20.2
26.	System of Rice Intensification	4.3	22	59.9	53.3	41.2	83.9	61.6
27.	Summer Tilling	77.2	93	64.8	79.4	85.0	47.8	46.3
28.	Land Levelling	44.3	32	60.1	84.1	62.1	65.4	27.6
29.	Land Bounding	78	97	75.6	95.8	94.2	62.0	49.3
30.	Deep Tilling	60.9	39	52.0	58.4	54.9	52.2	42.4
31.	Soil Amendment	.4	1	16.0	30.4	13.1	5.4	14.8
	Adivasi women harvesting managing trees and forest resources following scientific methods and protocols for harvesting NTFPs							
32.	Fruit collection through appropriate means	37.4	27	92.4	95.2	89.6	90.9	93.1
33.	Herbs collection through appropriate means	7.6	31	96.0	97.6	94.5	93.9	96.6
	Adivasi women taking up at least one new income generation activity							
34.	No. of Households in SHG	10.1	34	39.1	49.9	32.0	40.9	33.0
35.	Women in IGA	12	6	8.6	7.0	18.5	3.9	4.9
36.	Adivasi women voicing climate adaptation in panchayat platforms	.7	13	20.4	23.1	29.9	5.7	17.5
	Adivasi women who have access to at least one new entitlement							
37.	Indira Awas Yojana (IAY)	6.7	17	5.0	4.7	7.7	7.3	.5
38.	Old Age pension	15.2	17	5.0	2.8	8.2	2.9	6.4
39.	Widowhood Pension	7.9	7	3.7	1.8	4.8	2.9	3.4
40.	Disable Pension	3	5	.2	0.5	0.0	0.5	0.0
41.	MGNREGA	36.2	79	55.2	84.1	76.2	38.1	20.7

S. No.	End-line Indicators : Outcome Level Indicators	Baseline	Midline	End-line	End-line Data Block wise intervention and comparison type break up			
					Bagicha		Pathalgaon	
					Intervention	Comparison	Intervention	Comparison
42.	Child Education	13.3	44	7.2	11.2	16.0	1.0	0.5
43.	Public Distribution System	73.7	60	8.7	16.4	11.6	3.4	2.9
	Voted in PRI and Lok Sabha Election							
44.	Gram Panchayat	59.7	100	98.5	99.5	98.5	99.0	97.0
45.	Panchayat Samiti	51.8	100	74.0	99.5	98.1	45.4	51.7
46.	Zila Parishad	50.4	73	73.9	99.5	98.1	44.9	51.7
47.	Assembly Election	99.3	96	97.7	99.5	98.0	97.0	96.0
48.	Parliament Election	98.9	94	96.3	97.6	97.6	94.1	96.0
	Increase in membership of Adivasi Women in Active/functional collectives							
49.	Women in VDC	10.8	11	3.3	1.9	3.2	5.4	2.9
50.	Women in JFMC	1.8	4	.72	0	0	33.3	0
51.	Adivasi women attending VDC meetings	21.4	3	42.1	54.4	33.8	32.4	41.1
52.	Adivasi women accessing loans from banks	2.9	5	2.4	.5	1.0	.5	7.9
53.	Adivasi women participating in collective social action	44.6	48	42.1	57.6	46.7	36.5	35.3

Annexure-3: Composite Adaptive Capacity Index (CACI)

COMPOSITE ADAPTIVE CAPACITY INDEX									
Villages	AGRICULTURE Composite Index	IRRIGATION COMPOSITE INDEX	WATER MANAGEMENT COMPOSITE INDEX	COMMON HOUSEHOLD FACILITIES - COMPOSITE INDICATOR	CLIMATE CHANGE COMPOSITE INDICATOR	VILLAGE INSTITUTION - COMPOSITE INDEX	COLLECTIVE SOCIAL ACTION - COMPOSITE INDEX	OVERALL ACI	Rank
Jamjunwani	0.307	0.322	0.531	0.351	0.376	0.933	0.448	0.467	1
Batura Bahar	0.298	0.417	0.691	0.250	0.721	0.349	0.061	0.398	2
Khardhodhi	0.425	0.368	0.412	0.360	0.551	0.234	0.155	0.358	3
Chandagarh	0.205	0.454	0.613	0.284	0.600	0.174	0.071	0.343	4
Pandripani	0.367	0.472	0.100	0.185	0.633	0.070	0.502	0.333	5
Mudapara	0.373	0.270	0.206	0.352	0.393	0.365	0.319	0.326	6
Majhgaon	0.221	0.287	0.030	0.618	0.379	0.172	0.389	0.299	7
Mirzapur	0.238	0.293	0.107	0.139	0.427	0.078	0.707	0.284	8
Dahidand	0.313	0.291	0.477	0.132	0.436	0.193	0.122	0.281	9
Kudekela	0.227	0.301	0.616	0.248	0.292	0.227	0	0.273	10
Kuhapani	0.252	0.146	0.407	0.174	0.575	0.198	0.043	0.256	11
Makkapur	0.147	0.329	0.080	0.151	0.399	0.100	0.529	0.248	12
Patarapali	0.333	0.480	0.095	0.176	0.357	0.007	0.276	0.246	13
Jurudand	0.156	0.467	0.536	0.156	0.383	0.000	0	0.243	14
Surajgarh	0.138	0.323	0.110	0.310	0.419	0.058	0.293	0.236	15
Tirsonth	0.198	0.382	0.055	0.148	0.182	0.065	0.606	0.234	16
Ghichapani	0.192	0.204	0.219	0.384	0.388	0.050	0.143	0.226	17
Jabla	0.232	0.248	0.266	0.210	0.189	0.185	0.212	0.220	18
Bartoli	0.195	0.289	0.284	0.282	0.261	0.163	0.026	0.214	19
Pirai	0.276	0.087	0.274	0.158	0.387	0.079	0.185	0.207	20
Mauhadarha	0.267	0.133	0.124	0.312	0.314	0.000	0.280	0.204	21
Ambatoli	0.186	0.195	0.314	0.247	0.223	0.073	0	0.177	22
Butanga	0.195	0.000	0.224	0.214	0.469	0.109	0	0.173	23
Jhakadpur	0.161	0.067	0.329	0.273	0.267	0.060	0	0.165	24
Tambakachhar	0.123	0.312	0.018	0.157	0.284	0.055	0.141	0.156	25
Bend	0.171	0.023	0.156	0.172	0.313	0.166	0.040	0.149	26
Gowasi	0.209	0.250	0.144	0.083	0.141	0.007	0.207	0.149	27
Rangpur	0.150	0.204	0.038	0.288	0.253	0.007	0.089	0.147	28
Maratarai	0.154	0.242	0.000	0.105	0.358	0.052	0.081	0.142	29

COMPOSITE ADAPTIVE CAPACITY INDEX									
Villages	AGRICULTURE Composite Index	IRRIGATION COMPOSITE INDEX	WATER MANAGEMENT COMPOSITE INDEX	COMMON HOUSEHOLD FACILITIES - COMPOSITE INDICATOR	CLIMATE CHANGE COMPOSITE INDICATOR	VILLAGE INSTITUTION - COMPOSITE INDEX	COLLECTIVE SOCIAL ACTION - COMPOSITE INDEX	OVERALL ACI	Rank
Jampani	0.067	0.286	0.114	0.239	0.147	0.053	0	0.129	30
Kurhatepna	0.127	0.023	0.000	0.221	0.304	0.058	0.098	0.119	31
Sutri	0.074	0.079	0.029	0.336	0.223	0.007	0.057	0.115	32
Turua Ama	0.241	0.193	0.033	0.297	0.036	0.000	0	0.114	33
Kharkata	0.122	0.075	0.057	0.110	0.042	0.053	0.270	0.104	34
Rajpur	0.133	0.039	0.000	0.196	0.266	0.047	0	0.097	35
Chaura Ama	0.136	0.000	0.048	0.117	0.146	0.000	0.086	0.076	36
Silipakhana	0.087	0.106	0.050	0.157	0.106	0.000	0	0.072	37
Simardih	0.126	0.056	0.072	0.083	0.046	0.000	0	0.055	38
Raghunathpur	0.139	0.017	0.019	0.083	0.030	0.008	0	0.042	39
Dumarpani	0.113	0.050	0.009	0.011	0.027	0.081	0	0.042	40

Annexure- 4: Women Empowerment in Agriculture Index (WEAI)

WOMEN EMPOWERMENT IN AGRICULTURE INDEX							
VILLAGES	PRODUCTION - COMPOSITE INDEX	RESOURCES - COMPOSITE INDEX	INCOME - COMPOSITE INDEX	TIME - COMPOSITE INDEX	LEADERSHIP - COMPOSITE INDEX	OVERALL ACI	RANK
Jamjunwani	1.000	0.792	1.000	0.729	0.640	0.832	1
Chandagarh	0.871	0.917	0.857	0.682	0.531	0.772	2
Turua Ama	0.871	0.874	0.715	0.748	0.338	0.709	3
Jurudand	0.917	0.685	0.929	0.547	0.204	0.656	4
Butanga	0.742	0.576	0.715	0.415	0.261	0.542	5
Mudapara	0.481	0.564	0.501	0.791	0.336	0.535	6
Jampani	0.606	0.599	0.715	0.398	0.246	0.513	7
Mauhadarha	0.644	0.592	0.428	0.585	0.241	0.498	8
Majhgaon	0.557	0.617	0.285	0.527	0.472	0.491	9
Kudekela	0.651	0.611	0.501	0.267	0.346	0.475	10
Batura Bahar	0.610	0.379	0.428	0.508	0.385	0.462	11
Tirsonth	0.390	0.503	0.357	0.719	0.308	0.455	12
Khardhodhi	0.780	0.433	0.501	0.235	0.287	0.447	13
Dahidand	0.436	0.318	0.572	0.629	0.231	0.437	14
Patarapali	0.553	0.503	0.357	0.482	0.277	0.434	15
Pandripani	0.349	0.448	0.285	0.748	0.265	0.419	16
Bend	0.564	0.497	0.428	0.326	0.273	0.418	17
Ghichapani	0.522	0.492	0.428	0.358	0.264	0.413	18
Kuhapani	0.436	0.318	0.357	0.735	0.196	0.408	19
Pirai	0.397	0.451	0.572	0.374	0.104	0.380	20
Mirzapur	0.349	0.318	0.214	0.570	0.282	0.347	21
Tambakachhar	0.439	0.346	0.357	0.316	0.225	0.337	22
Kurhatepna	0.512	0.180	0.143	0.583	0.254	0.334	23
Rangpur	0.436	0.447	0.285	0.300	0.182	0.330	24
Makkapur	0.220	0.216	0.357	0.660	0.192	0.329	25
Surajgarh	0.306	0.240	0.357	0.540	0.173	0.323	26
Maratarai	0.470	0.240	0.214	0.540	0.150	0.323	27
Sutri	0.436	0.270	0.357	0.374	0.092	0.306	28
Rajpur	0.394	0.240	0.285	0.556	0.000	0.295	29
Ambatoli	0.261	0.412	0.214	0.180	0.346	0.283	30

WOMEN EMPOWERMENT IN AGRICULTURE INDEX							
VILLAGES	PRODUCTION - COMPOSITE INDEX	RESOURCES - COMPOSITE INDEX	INCOME - COMPOSITE INDEX	TIME - COMPOSITE INDEX	LEADERSHIP - COMPOSITE INDEX	OVERALL ACI	RANK
Bartoli	0.386	0.162	0.285	0.374	0.106	0.263	31
Jhakadpur	0.261	0.216	0.214	0.482	0.071	0.249	32
Silipakhana	0.272	0.216	0.143	0.316	0.039	0.197	33
Simardih	0.182	0.149	0.214	0.136	0.144	0.165	34
Raghunathpur	0.137	0.126	0.143	0.150	0.079	0.127	35
Jabla	0.083	0.096	0.071	0.182	0.201	0.127	36
Chaura Ama	0.000	0	0.000	0.439	0.117	0.111	37
Dumarpani	0.087	0.054	0.071	0.030	0.063	0.061	38
Gowasi	0.000	0	0.000	0.136	0.048	0.037	39
Kharkata	0.000	0.042	0.000	0.000	0.073	0.023	40

Annexure- 5: Case Study (I)

CARE....All thanks...It has changed my life

Indrani, a 28 year's old married woman with two children. She resides in the village of Kharkhata in Pathalgaon. A simple woman, leading her life as a homemaker and a farmer's wife, was confined to the boundaries of her house. As other women of her age, she was also itching to step out of the house, explore the surroundings and get more worldly-wise.

Care animator Kalyani gave Indrani this opportunity. When Kalyani approached her, she didn't think twice in becoming an active and a regular member of the CARE collective. She loved meeting people on her frequent tours outside the village. Thereafter, in her own words, her journey has been *"empowering, motivating and self-satisfying"*.

Indrani didn't only become aware of her rights as a woman; she overnight became the decision maker in her strongly patriarchal household. From a docile wife and a daughter-in-law, she changed into a leader...an empowered leader. The most fascinating transformation was that the male members of the house and the community had started listening to her, take her advice and follow it as well. She could even stand up in Gram Sabha and express her opinions on social issues...SHE HAD FINALLY GOT A VOICE!!!!

It was not only the social identity she had gained through the collective, she started contributing to the house financially. She was full of new ideas and techniques for innovative agricultural production which yielded better crop, meaning more income. Now, she even knew how to operate a bank account.... a skill many city women don't have. She gained all this from the meetings of the CARE collectives.

She profusely thanked CARE for coming into her life and making it more worthwhile.

Annexure- 5: Case Study (II)

A new light, a new way...

Kavita is a young woman, 30 years old, and an active member of the CARE collective. Her state was deplorable as her family, like many other families, were deeply affected by drastic climate changes which were unpredictable in the area. However, with the kind of empowerment CARE has provided to her, she now feels more equipped to deal with climatic variations.

Kavita has learned through CARE, new and improved methods of farming that makes soil quality and crop production more sustainable. She says, *"now we do layer farming and rotate our crops which keeps the soil moist and nourished, saving water, which is a scarcity"*. She and her husband are also using hybrid quality seeds in their farms. Collective has also given her family, funds and expertise to start an alternate business of pisciculture that they practice in off season earning some extra money. She also keeps looking for other sources of income like collecting and selling *mahua (Madhuca Longifolia)* leaves.

She confidently said, *"I feel that I am standing on my feet now...I have got so much information, knowledge and skill from CARE that I have become resourceful and can find my way through adversity...collective and CARE has empowered me to run my life and earn my living...I have gained confidence and ability to interact with other people...I am not shy now....I know how to stand up for what I feel is right...I am indebted to them to transforming my life"*.

Endlin

- = Needs assessment
- = Programme evaluation & impact assessment
- = Communications for development (C4D)
- = Sector expertise

- = Elections
- = Public opinion
- = Reputation and trust research
- = Media partnerships

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