FEDERAL PROJECT MANAGEMENT UNIT
MINISTRY OF NATIONAL
FOOD SECURITY & RESEARCH
ISLAMABAD - PAKISTAN

ENDLINE SURVEY REPORT
(FINAL)

WATER CONSERVATION IN BARANI AREAS OF KHYBER PAKHTUNKHWA (WC-KP)

MONITORING, EVALUATION AND IMPACT EVALUATION (ME&IE) CONSULTANTS

A Joint Venture of
G3 Engineering Lead Firm
Consultants (Pvt.) Ltd.
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Monitoring, Evaluation, and Impact Evaluation (ME&IE) Consultants
for
Water Conservation in Barani Areas of Khyber Pakhtunkhwa

ENDLINE SURVEY REPORT (FINAL)

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ACRONYMS

ADA	Assistant Director Agriculture
AF	Acre-Feet
ALCI	Agronomist Low-Cost Intervention
BCR	Benefit Cost Ratio
CB	Capacity Building
CSRD	Center for Social Research and Development
CD	Check Dam
DAE	Directorate of Agriculture Engineering
DDA	Deputy Director Agriculture
EAs	Executing Agencies
FOs	Farmers Organizations
FPMU	Federal Project Management Unit
FWMC	Federal Water Management Cell
GAP	Gender Action Plan
GIS	Geographic Information System
IAs	Implementing Agencies
ICR	Intermediate Completion Report
ICT	Islamabad Capital Territory
IRR	Internal Rate of Return
ICT	Information & Communication Technology
ITW	Installation of Tube Wells
KP	Khyber Pakhtunkhwa
ODK	Online Data Key
LCBWCD	Low-Cost Brush Wood Check Dam
LPS	Litter Per Second
LSCD	Loose Stone Check Dam
M&E	Monitoring and Evaluation
MAF	Million Acre Feet
ME&IE	Monitoring, Evaluation, and Impact Evaluation
MIS	Management Information System
MNFSR	Ministry of National Food Security and Research
MTs	Monitoring Tools
MWD	Micro-Watershed Development
S&WC	Soil & Water Conservation
SBS	Stream Bank Stabilization
STW	Solarization of Tube Wells
SDS	Sand Dunes Stabilization
WCBA	Water Conservation in Barani Areas
WP	Water Pond
WR	Water Reservoir
WSHG	Water Seepage Harvesting Galleries

EXECUTIVE SUMMARY

Agriculture serves as a critical driver of economic growth in Khyber Pakhtunkhwa (KP), with significant forward and backward linkages across all sectors. Despite its importance, the sector has suffered from low water-use efficiency for decades. Nearly 50% of agricultural land in KP is rain-fed, severely constraining crop water productivity and limiting agricultural potential. Water scarcity in the Barani (rain-fed) areas poses a serious threat to food and energy security and exacerbates poverty in the region. Notably, agriculture contributes approximately 20% to KP's provincial GDP and employs around 44% of its labor force.

To address these challenges, launched the "Water Conservation in Barani Areas of Khyber Pakhtunkhwa" Project in 2019, with completion targeted for 2024. The project aimed to enhance water availability for agriculture, livestock, and human consumption by promoting modern water conservation techniques and bridging the development gap between rain-fed and irrigated areas.

The Project as per PC-I included the following 13 interventions.

1. *Construction of 5,000 water ponds*
2. *Construction of 3,000 Check dams*
3. *Construction of 330 Water Reservoir*
4. *Construction of 2,500 Stream bank stabilization*
5. *Construction of 1,000 Gated field Inlet Outlet/Spillway*
6. *Development of 370 acres land for terracing*
7. *Development of 70 numbers of micro-watershed areas*
8. *Constructing 370 numbers of water Seepage harvesting Galleries*
9. *800 numbers of Agronomic low-cost interventions*
10. *230 acres of Sand Dunes stabilization*
11. *500 Nos. Capacity Building*
12. *Procurement and installation of 700 Solar, pumping System and 300 Tube Wells.*
13. *700 on-site training of farmers in adaptation of new techniques for pumping sub-surface water.*

Endline Impact Assessment of the Project has been carried out. The description and Impact results are briefly summarized below:

A total of approximately 16,000 activity units were planned, out of which 5,457 were reported completed by the end of the project.

Key Findings:

The Endline Impact Assessment was conducted on a random sample of 278 activity units, supported by baseline data collected during project implementation. Among the surveyed farms, 67% were 12.5 acres or less, 24% ranged from 12.6 to 25 acres, and 9% exceeded 25 acres in size. In terms of tenure, 92% of the farmers were landowners, 6% were owner-tenants, and 3% were tenants. The average farm size was recorded at 13.5 acres.

The findings revealed notable improvements in land utilization and cropping patterns. Land use intensity increased from 75% at baseline to 86.3% at endline, reflecting an 11.3 percentage point gain, while cropping intensity rose from 98.3% to 108.1%, indicating a 9.8 percentage point increase. The overall cropped area expanded by 19%, with significant increases observed across various crops: wheat (18.4%), maize (19.4%), sugarcane (46.8%), orchards (19.8%), pulses (20.2%), vegetables (22.2%), and fodder (34.2%).

On average, crop yields improved by 12.95%. Yield increases were particularly pronounced for wheat (20.9%), sugarcane (9.9%), maize (17.1%), orchards and oilseeds (21.5% each), pulses (13.6%), vegetables (16.9%), and fodder (10.9%). These gains translated into a substantial rise in overall crop production, which increased by an average of 34.45%. This figure includes 12.95% attributed to yield improvements, 19% to area expansion, and 2.5% to the interaction between the two.

The project also had a notable impact on rural employment. Farm-level labor utilization increased by an average of 19.1%, with man-days rising by 18.4% to 46.8% across different crop types. These improvements underscore the project's contribution to agricultural productivity, food security, and livelihoods in the rain-fed areas of KP.

CHAPTER-1: INTRODUCTION

Agriculture is the lifeline of 70% of the population of the country, accounting for 22.67 percent of the gross domestic product (GDP), employing 37.54 percent of the labor force and providing raw material for several value-added sectors. But unfortunately, crop yields, particularly in rain fed (Barani) areas are low and most of the cultural land in Barani areas is not being cultivated because rainwater is not being harvested and conserved properly and hence crop yields need to be enhanced and cultivated area to be increased through modern water saving/ conservation techniques to ensure national food security and poverty reduction in rural areas. Moreover, the rapid growth of Pakistan's urban areas is also increasing the demand for high-value perishable agricultural commodities such as fruits, vegetables, dairy, and meat.

Thus, the Government is focusing to increase the crop yields per acre and cultivated area through improving agricultural infrastructure such as lining of watercourses, constructing water storage tanks, introducing high efficiency irrigation systems, providing laser Levelling equipment to the farmers, and introducing water conservation techniques etc., on the one hand and investing in rural roads, reliable transport networks and other building blocks for improving supply chains.

The Water requirements of KP are different from the other provinces as about half of the total cultivated area is rain fed and in addition to it more than one million hectares are lying barren waste land due non availability of irrigation water. The reasons may include the difference of terrain, topography, climate and cropping pattern in practice and hence necessitates the development of need-based proposals. The objectives of KP's water conservation efforts differ as it requires small investments in infrastructure which can be implemented though local governments. The main economic characteristics of KP province are detailed below.

KP has an agrarian economy where (80%) of the population resides in rural areas and agriculture is their main source of livelihood. The low-income people of the rural areas are in agriculture occupations.

The share of agriculture in the provincial Gross Domestic Product is 22%, whereas it provides employment to 44% of the total labor force. However, 15.5% and 5.8% of the provincial population continues to be moderate and severe food unsecured.

Farm size in KP is small and people depend on the available land for their basic food needs. Although there is irrigated agriculture in KP (0.870 million hectares), yet about 0.760 million hectares are rain fed producing one crop per year with exceptionally low production. An area of 1.245 million hectares is lying barren because of want of water and has been termed as cultivable waste land. Out of the total of 35 districts in the province (including the newly merged tribal districts), 19 districts are entirely rain fed while the remaining irrigated districts have major tracts of land, which depends on rainfall for agriculture.

Barani areas lack the basic infrastructure to harbor sustainable crop growth and uplift of the community at large. Due to low yield or no yield. The barren lands are usually sown from runoff water producing little to no crop in that area. The purpose of the Project entitled "Water Conservation in Barani Area of Khyber Pakhtunkhwa" is to ensure availability of abundant water for crops, livestock as well as for human consumption through modern water saving/conserving techniques to bring those areas at par with those of irrigated lands.

1.1. OBJECTIVES

Impact evaluation is essential for understanding the impact of a particular project or program activity. It helps assess whether the objectives of a specific intervention were achieved or not. The objectives of the Project

"Water Conservation in Barani Area of Khyber Pakhtunkhwa" are to measure the economic and social impacts of the Project interventions on the indicators given below:

i. Crops Yields,
ii. Cropped area,
iii. Cropping intensities,
iv. Cropping patterns,
v. Culturable and Cultivated area,
vi. Livestock sector,
vii. Rural incomes and employment,
viii. Gender empowerment

1.2. Economic/Social Impact

The Project interventions were the most beneficial interventions to increase household income as farmers are getting more value due to increased crops.

Effects of agricultural interventions on cropping patterns have resulted in a diversified and multi crop system instead of previously single crop pattern.

Given the increases in the incomes of the farmers as well as guidance from relevant departments, the farmers are adopting new agriculture techniques, consequently resulting in more output from their existing land.

The renewed water sources have given a boost to livestock rearing as previously fodder would have to purchase from the market, which beneficiaries can now grow on their own farms.

The self-produced fodder is in turn fueling the growth and increasing productivity and income in livestock rearing.

Changes in the Health and Education status of the area were also observed.

Women participation has increased manifold due to the project interventions as they are now owning their own livestock/poultry, thus enabling them to ensure better healthcare facilities. Endline impact of the Project has been assessed in Chapter 3 and some success stories showing further economic and social benefits are given in Annexure-III.

CHAPTER-2: METHODOLOGY

This chapter *inter alia* covers survey methodology, total numbers of activity units to be carried out in the project, sample size and sample selection, base line and impact surveys, survey tools / questionnaires, pretesting and finalizing questionnaires, field teams' mobilization and data collection, quality assurance during data collection and analysis etc.

2.1. Survey Methodology

Impact assessment has been carried out on a 5% random sample basis. For evaluating the impact of various water conservation interventions, first, baseline surveys have been conducted after the issuance of Technical Sanctions and then after full one year of the execution of intervention activity units, Impact Surveys are carried out to determine the impact of the interventions on various agricultural social and economic indicators such as cropping intensities, cropped area under various crops, crop yield per acre, crop production, farmers' income and employment etc.

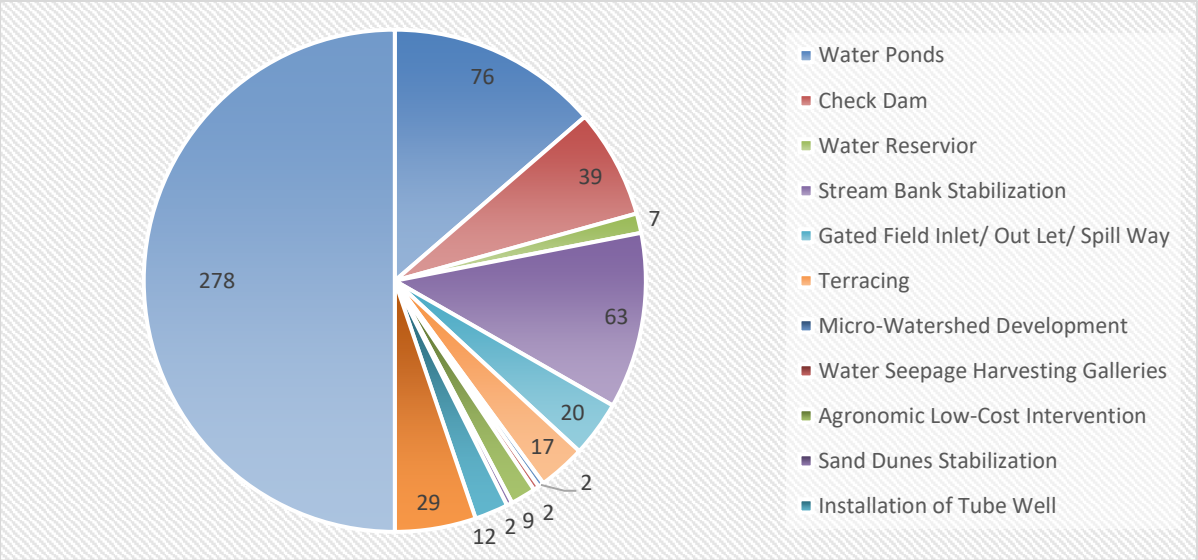
2.2. Impact Sample Size

Impact evaluation of WC (Rain fed) areas in KP is a result of the TORs of the ME&IE consultant. The task of ME&IE has been initiated after 2 ½ years, of the WC Project was initiated.

The sample size for the impact evaluation was determined based on the achievements of the WC project, with validation from the technical team. A total of 278 interventions were visited during the impact survey. These included 76 (27%) water ponds, 39 (14%) check dams, 7 (3%) water reservoirs, 63 (23%) stream bank stabilization interventions, 20 (7%) gated field inlet/outlet spillways, 17 (6%) terracing interventions, 2 (1%) micro-watershed development activities, 2 (1%) water seepage harvesting galleries, 9 (3%) agronomic low-cost interventions, and 2 (1%) sand dune stabilization efforts. Additionally, the evaluation covered 12 (4%) tube wells and 29 (10%) solarized tube wells, which were among the most in-demand and high-return interventions in the project area. The evaluation of these 278 interventions formed the basis for assessing the socio-economic, environmental, and related impacts of the project.

Table-1: Sample size of impact evaluation

Activity	Completed	5% Sample	BLS	Impact
Water Pond	1,666	83	76	76
Check Dams	816	41	39	39
Water Reservoir	121	6	7	7
Stream Bank Stabilization	1,320	66	63	63
Gated Field Inlet Outlet/Spillway	403	20	20	20
Terracing	342	17	17	17
Micro-Watershed Development	26	1	2	2
Water Seepage Harvesting Galleries	37	2	2	2
Agronomic Low-Cost Intervention	176	9	9	9
Sand Dunes Stabilization	43	2	2	2
Installation of Tube Well	141	7	12	12
Solarization of Tube Well	366	18	29	29
Overall	**5,457**	**272**	**278**	**278**



2.3. Sample Selection of Water Conservations Activity units

As per the PC-I, approximately 16,000 activity units were planned for completion over the five-year project period, covering 11 distinct interventions. By the end of the project, a cumulative total of **5,457** activity units had been reported as completed.

According to the inception report, 5% of these completed units were to be selected for sample surveys, resulting in a required sample size of 272 activity units. In the Impact Survey Phase I, 67 units were surveyed; in Phase II, 93 units; and in Phase III, 118 units were surveyed. The cumulative total of surveyed activity units thus reached **278** by the end of the project.

These **278** units were also included in the impact assessment, which was conducted in three phases of the impact survey. The assessment took place after a one-year period - covering two major crop seasons, Rabi and Kharif—following the implementation of the respective activity units.

Selection of samples was made from all districts of KPK based on purposive stratified random sampling method. Details of districts in each strata / zone are given in **Table-2** below.

Interventions/micro schemes under the WC project divided into five (05) Zones. The details of districts under each zone are given in **Table-2** The districts have been classified into 5 strata/ zones based on terrain, topography, soil structure, rainfall, and other climatic conditions. A District-wise and intervention-wise detail of activity units is given in **Annex I.**

Table-2: Project Zones with Districts

Zone	Districts in Zones	No. of Districts
Zone-1	Bajaur, Buner, Lower Chitral, Upper Chitral, Malakand, Shangla, Swat, Upper Dir & Lower Dir.	9
Zone-2	Abbottabad, Batagram, Haripur, Kolai-Palas, Lower Kohistan, Mansehra, Tor Ghar & Upper Kohistan.	8
Zone-3	Mardan, Swabi, Charsadda, Khyber, Mohmand, Nowshera & Peshawar.	7
Zone-4	Kohat, Karak, Bannu, Hangu, Kurram & Orakzai.	6
Zone-5	Dera Ismail Khan, Lakki Marwat, Tank, North Waziristan & South Waziristan.	5
Total Districts		**35**

2.4. Approach and Methodology

Monitoring and Evaluation (ME&IE) Consultants have developed a methodology for monitoring and evaluating the mechanism of implementation and execution of various interventions conducted by S&WC and AE Directorates in KP, consisting of data collection and analysis, to accomplish the assignment as follows:

1. Desk review of the PC-1, progress reports of the targets and achievements of both S&WCD and AED in the years 2019-20 and 2023-24.
2. The aim of the field survey is to consult the residents of KPK through individual interviews with pre-structured Questionnaires (Annex-IV), and Focused Group Discussions. The exercise will investigate the viability of the Project in terms of livelihood, the local social system, and the social life of the population.
3. A checklist of issues and a structured questionnaire would be used. The checklist used contains the following aspects.

    a. Gathering information on the existing socio-economic conditions of the residents of the area with a special focus on the beneficiaries of the project, including but not limited to:

i. Demographic composition of the beneficiary families
ii. Agriculture land use, primary agricultural crops, and cropping patterns during the winter and summer seasons.
iii. Average monthly income and expenditure on food and non-food items
iv. Disclosure of information about the project to the people living in the project area

    b. Focus Group Discussions (FGD) with the residents of the villages in the project areas.

2.5. SAMPLING

As mentioned earlier, the sample sizes for Impact-I, II, & III were 67, 93, and 118 respectively. Detailed information on these samples is provided in **Table-3** below. Additionally, district-wise and intervention-wise detail of activity units can be found in **Annex I**.

Table-3: Zone wise Activity Units Surveyed during Impact-I, II & III

Zone	During BLS-I Activity Units	During Impact-II Activity Units	During Impact-III Activity Units	Overall
Zone 1	4	42	51	97
Zone 2	6	7	10	23
Zone 3	32	0	0	32
Zone 4	10	23	30	63
Zone 5	15	21	27	63
Total	**67**	**93**	**118**	**278**

2.5.1. Total interventions and Activity Units

The intervention wise planned project activities as per approved PC-I during the 05 years 2019-2024 include Construction of 5,000 water ponds, Construction of 3,000 Check dams, Construction of 300 Water Reservoirs, Construction of 2,500 Stream bank stabilization, Construction of 1,000 Gated field Inlet Outlet/Spillway, Development of 370 acres land for terracing, Development of 70 numbers of micro-watershed areas, Constructing 370 water Seepage harvesting Galleries, 800 Agronomic low-cost interventions, 230 Acres of Sand Dunes stabilization, Imparting 500 capacity building trainings, Procurement and installation of 700 Solar pumping Systems, Installation of 300 Tube

wells and imparting of 700 on-site trainings to farmers in adaptation of new techniques for pumping sub-surface water. Details may be seen in **Table 4** below.

Table-4: Planned Project Activities as per Approved PC-I

Sr.#	Interventions	Activity Units
Soil and Water Conservation Component		
1	Construction of water ponds	5,000
2	Construction of Check dams	3,000
3	Construction of Water Reservoir	330
4	Construction of Stream bank stabilization.	2,500
5	Construction of Gated field Inlet Outlet/Spillway	1,000
6	Development of acres land for terracing	370
7	Development of micro-watershed areas	70
8	Constructing water Seepage harvesting Galleries	370
9	Agronomic low-cost interventions	800
10	Sand Dunes stabilization (acres)	230
11	Capacity Building Trainings	500
	Sub Total	**14,170**
Agricultural Engineering Component		
12	Procurement and installation of Solar pumping Systems	700
	Installation of Tube wells	300
13	On-site training of farmers in adaptation of new techniques for pumping sub-surface water.	700
	Sub Total	**1700**
	Grand Total	**15,870**

Source: PC-I, WC, Barani KP

2.5.2. Completed Activity Units

Samples for base line and Impact surveys have been drawn from the activity units completed up to project closing (**Table-5**) out of the total activity units as planned in the PC-I given as above.

Table-5: Completed Activity Units

Interventions	Completed Activity Units
Water Ponds	1,666
Check Dams	816
Water Reservoir	121
Stream-bank stabilization	1,320
Gated field Inlet Outlet/Spillway	403
Terracing	342
Micro-Watershed Development	26
Water Seepage harvesting Galleries	37
Agronomic low-cost interventions	176
Sand Dunes stabilization	43
Installation of Tube Wells	141
Solarization of Tube Wells	366
Overall	**5,457**

2.5.3. Sample Size for Impact Assessment

Out of the **5,457** completed activity units mentioned above, 278 units were surveyed during the three phases of Baseline Surveys. These same 278 units were also covered under three phases of Impact Surveys conducted to assess social and economic indicators. A zone-wise and intervention-wise breakdown of the activity units included in the impact assessment is provided in **Table 6.**

Table-6: Project Activities Units Covered Under Impact Assessment

Zone	Intervention	Activity Units	Zone	Intervention	Activity Units
Zone-1	Water Pond	36	Zone-4	Micro-Watershed Development	2
	Check Dam	7		Water Seepage Harvesting Galleries	2
	Stream Bank Stabilization	33		Agronomic Low Cast Intervention	6
	Gated Field Inlet/Outlet/ Spill Way	2		Tube Well	2
	Terracing	13		Solarization of Tubewell	6
	Solarization of Tubewell	6	**Zone-4 Total**		**63**
Zone-1 Total		**97**	Zone-5	Water Pond	21
Zone-2	Water Pond	4		Check Dam	10
	Check Dam	4		Water Reservoir	2
	Water Reservoir	1		Stream Bank Stabilization	8
	Stream Bank Stabilization	4		Gated Field Inlet/Outlet Spillway	12
	Terracing	3		Agronomic Low Cast Intervention	3
	Tube Well	4		Tube Well	2
	Solarization of Tubewell	3		Solarization of Tubewell	5
Zone-2 Total		**23**	**Zone-5 Total**		**63**
Zone-3	Water Pond	4	Overall	Water Pond	78
	Check Dam	5		Check Dams	39
	Water Reservoir	1		Water Reservoir	7
	Stream Bank Stabilization	8		Stream Bank Stabilization	63
	Terracing	1		Gated Field Inlet Outlet/Spillway	20
	Tube Well	4		Terracing	17
	Solarization of Tubewell	9		Micro-Watershed Development	2
Zone-3 Total		**32**		Water Seepage Harvesting Galleries	2
Zone-4	Water Pond	13		Agronomic Low-Cost Intervention	9
	Check Dam	13		Sand Dunes Stabilization	0
	Water Reservoir	3		Installation of Tube Well	12
	Stream Bank Stabilization	10		Solarization of Tube Well	29
	Gated Field Inlet/Outlet Spillway	6	**Grand Total**		**278**

2.6. QUESTIONNAIRES DEVELOPMENT

Monitoring Tools / Questionnaires play vital role for the result findings. To collect the precise data for analysis under both components, a questionnaire was developed for each intervention. While designing the

questionnaire, the profile of the respondents and on-ground situation were taken into consideration. Lastly, the terminologies used in the questionnaire were carefully selected, as these should be well understood by the interviewers and able to effectively convey to the respondents, so that accurate reliable data can be collected. A good questionnaire has four qualities: a) it enables a researcher to draw accurate information; ii) questions are arranged in a logical sequence to work smoothly; c) yields minimum variation in qualitative answers and desired variation for quantitative responses; and d) facilitate researcher in data processing.

The following sets of questionnaires **Table 7** were developed for collecting the data on various impact indicators during BL and Impact surveys.

Table-7: Questionnaires designed and used for Impact Surveys

Code	Questionnaire
MT-01	Water Pond (WP) Monitoring Template
MT-02	Check Dam (Cd) Monitoring Template
MT-03	Water Reservoir (WR) Monitoring Template
MT-04	Stream Bank Stabilization (SBS) Monitoring Template
MT-05	Gated Field Inlet Outlets/ Spillways Monitoring Template
MT-06	Terracing Monitoring Template
MT-07	Micro-Watershed Development (MWD) Monitoring Template
MT-08	Water Seepage Harvesting Galleries (WSHG) Monitoring Template
MT-09	i. Agronomic Low-Cost Intervention (ALCI) Monitoring Template
	ii. Low-Cost Brush Wood Check DAM (LCBWCD) Monitoring Template
	iii. Loose Stone Check Dam (LSCD) Monitoring Template
MT-10	Sand Dunes Stabilization (SDS) Monitoring Template
MT-11	Capacity Building (CB) Monitoring Template
MT-12	Installation of Tube Wells (ITW) Monitoring Template
MT-13	Solarization of Tube Wells (STW) Monitoring Template

These questionnaires are attached as **Annex-IV** to this report**.**

2.7. PRETESTING & FINALIZATION OF THE QUESTIONNAIRES

Before conducting baseline and impact surveys questionnaires need to be pretested in the field. Thus, before conducting BLS-I, these were pretested in the field and overloaded Questions were simplified and finalized. The same Questionnaires were used for BLS-2 and impact surveys, as there was no need to pretest for conducting the subsequent surveys on the same subject / issue.

2.7.1. SELECTION OF SURVEY TEAMS

The field team was comprised of trained enumerators, divided into 02 groups to collect data from the field with the pre structured questionnaire built on Android based application. The team was made up of 10 Members deployed in the 05 zones of the project area.

The teams collected the field survey data through Android application by using the android mobiles and submitted it to the server for further processes.

2.7.2. TRAINING ON ANDROID BASED data Collection APPLICATION

Data collection, monitoring, and evaluation (ME&IE) efforts take a great deal of time and methodical planning and implementation. In the past, these tasks were performed with paper and pen, which made them prone to

error, difficult to conduct on a large scale, and high in transaction costs. Information and communication technology (ICT) tools, including hardware like mobile phones and tablets, applications with the capacity to create digital surveys, and software that allows users to upload data to storage facilities in real-time, have reduced the conventional challenges associated with remote data collection and ME&IE.

Though a new field, the learnt experience about how best to employ applications and ICT-enabled tools to collect data and perform M&E, one of the primary lessons is that technology itself is not sufficient to meet project objectives. Maintaining a team that can design the collection efforts, implement them accordingly, and evaluate the data is as important as the technology. Training is an important component to collecting data through ICT tools.

Therefore, field enumerators using new technologies need additional training and support. ME&IE Consultants designed very comprehensive training modules, mainly focused on mockup exercises and field testing for a better understanding of the tools and field environment.

The monitoring and evaluation (M&E) process is turning into a spry new creature with technology. With increasing emphasis on real-time feedback, more rigorous data collection, and quantifiable results, the spread and use of Information and Communication Technologies (ICT) in monitoring and evaluation — 'ICT4M&E' in short — has sparked massive interest.

2.7.3. FIELD TEAM MOBILIZATION AND DATA COLLECTION

The impact evaluation / Midline survey was conducted during January and February 2023. All the field teams worked diligently for data collection through android-based App. The Water and Soil Conservation (W&SC) department extended full cooperation for field teams in field survey and data collection. The Field teams were provided with an internet device to facilitate them submitting the data on daily basis. This also enabled the core team at the core office to monitor the locations of the team members and progress.

2.7.4. QUALITY ASSURANCE DURING DATA COLLECTION

The data collection process through the Android application passes through the input data form built-in logical flows and validation checks on the fly to improve the data quality. Data collection through Android application is ensured throughout the data collection process with respect to completeness, accuracy, and timeliness, along continuous feedback/support, and close monitoring. This approach has an inbuilt mechanism to monitor the data collection, both in terms of progress of work and quality of the collected data, throughout the exercise. This made it possible to virtually keep track, provide feedback and correct mistakes.

The provision of detailed guidelines, timeline, consistency in the definitions/terminology used, and structured procedures of each activity helped in ensuring data quality.

2.7.5. THE DATA ANALYSIS

The submitted data on aggregate server through android application, store all data in central database which further put processes from data cleaning, validation to analysis for the preparation of final summary tables.

The analysis process was done by adopting multiple statistical and analytical techniques. Regression analysis and correlations were adopted as per the requirement for relationships among independent and dependent data variables using the primary data collected from field and secondary data, several calculations were performed to obtain the indicators-based results.

CHAPTER -3 RESULTS OF THE IMPACT EVALUATION SURVEY

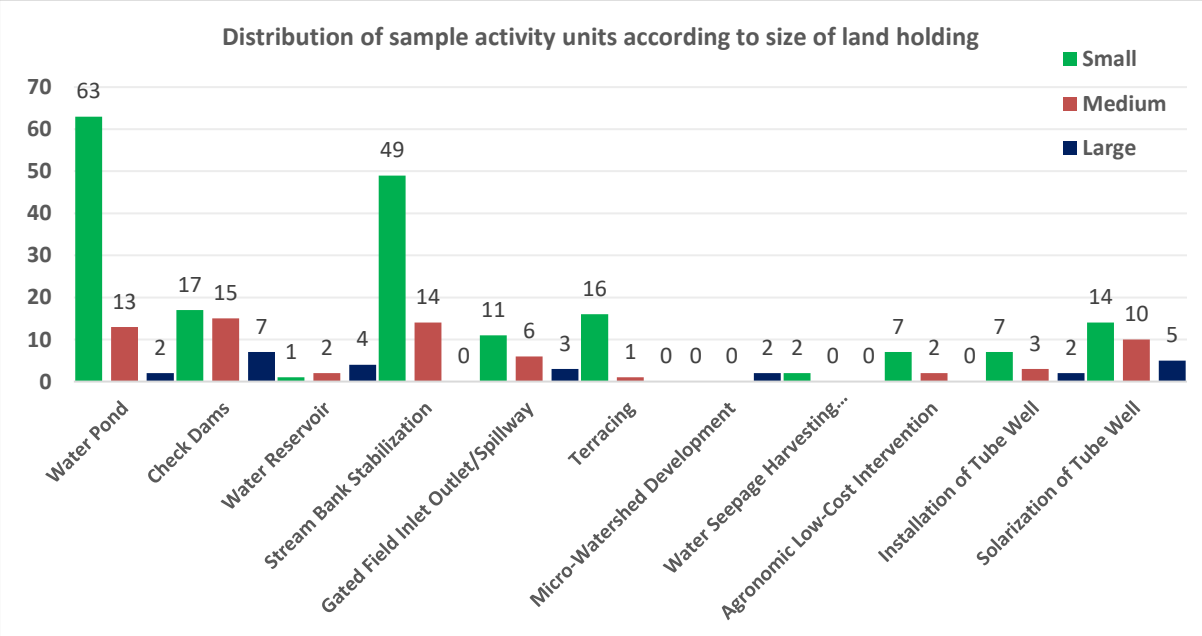
The data collected through baseline and impact surveys has been analyzed and impact of various interventions on various indicators has been discussed in this chapter. However, before giving impact, farm profile of the visited farms has been discussed.

3.1. Farm Profile

During the selection of the farmers, due consideration was given to the farm sizes and tenure of the farmers. On the whole, out of **278** surveyed farmers, **187** (**67%**) have farms equal to or less than **12.5 acres**, **66** farmers (**24%**) have farms of greater than **12.5 to 25 acres** and only **25** farmers (**9%**) have farms of more than **25 acres**. This distribution reflects a strong representation of small and medium-scale farmers, who are often the primary beneficiaries of water and agriculture improvement interventions. Intervention-wise distribution of respondent growers according to size of holdings is given in **Table-8.**

Table-8: Distribution of sample activity units according to size of land holding

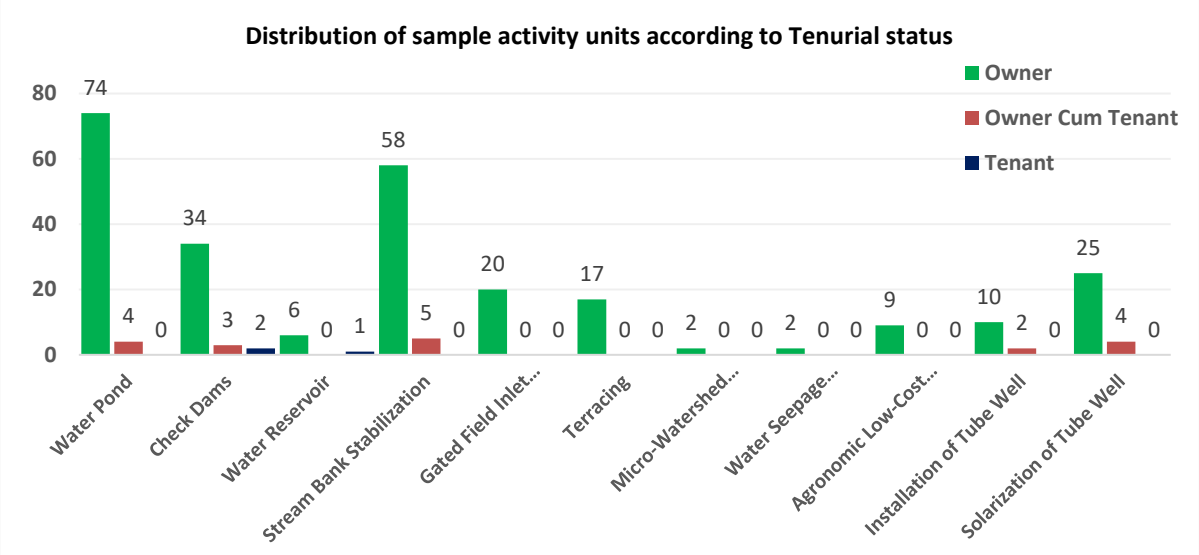
Intervention	Total Respondents	Less than 12.5 acres	Above 12.5 to 25 acres	More than 25 acres
Water Pond	78	63 (81%)	13 (17%)	2 (3%)
Check Dams	39	17 (44%)	15 (38%)	7 (18%)
Water Reservoir	7	1 (14%)	2 (29%)	4 (57%)
Stream Bank Stabilization	63	49 (78%)	14 (22%)	-
Gated Field Inlet Outlet/Spillway	20	11 (55%)	6 (30%)	3 (15%)
Terracing	17	16 (94%)	1 (6%)	-
Micro-Watershed Development	2	-	-	2 (100%)
Water Seepage Harvesting Galleries	2	2 (100%)	-	-
Agronomic Low-Cost Intervention	9	7 (78%)	2 (22%)	-
Installation of Tube Well	12	7 (58%)	3 (25%)	2 (17%)
Solarization of Tube Wells	29	14 (48%)	10 (35%)	5 (17%)
Overall	**278**	**187 (67%)**	**66 (24%)**	**25 (9%)**



As for tenurial distribution, among the **278** farmers surveyed, a vast majority **93%** were full landowners, while **6%** were classified as owner-cum-tenants, and only **1%** were tenants. This ownership pattern suggests a strong sense of land security among most respondents, which can play a significant role in the adoption and sustainability of project interventions. Farmers with ownership or partial ownership are generally more likely to invest in land improvements and maintain implemented activities over the long term. Intervention-wise detail is given in **Table-9**.

Table-9: Distribution of sample activity units according to Tenurial status

Intervention	Total Respondents	Owners	Owner / Tenants	Tenants
Water Pond	78	74 (95%)	4 (5%)	-
Check Dams	39	34 (87%)	3 (8%)	2 (5%)
Water Reservoir	7	6 (86%)	-	1 (14%)
Stream Bank Stabilization	63	58 (92%)	5 (8%)	-
Gated Field Inlet Outlet/Spillway	20	20 (100%)	-	-
Terracing	17	17 (100%)	-	-
Micro-Watershed Development	2	2 (100%)	-	-
Water Seepage Harvesting Galleries	2	2 (100%)	-	-
Agronomic Low-Cost Intervention	9	9 (100%)	-	-
Installation of Tube Well	12	10 (83%)	2 (17%)	-
Solarization of Tube Wells	29	25 (86%)	4 (14%)	-
Overall	**278**	**257 (93%)**	**18 (6%)**	**3 (1%)**



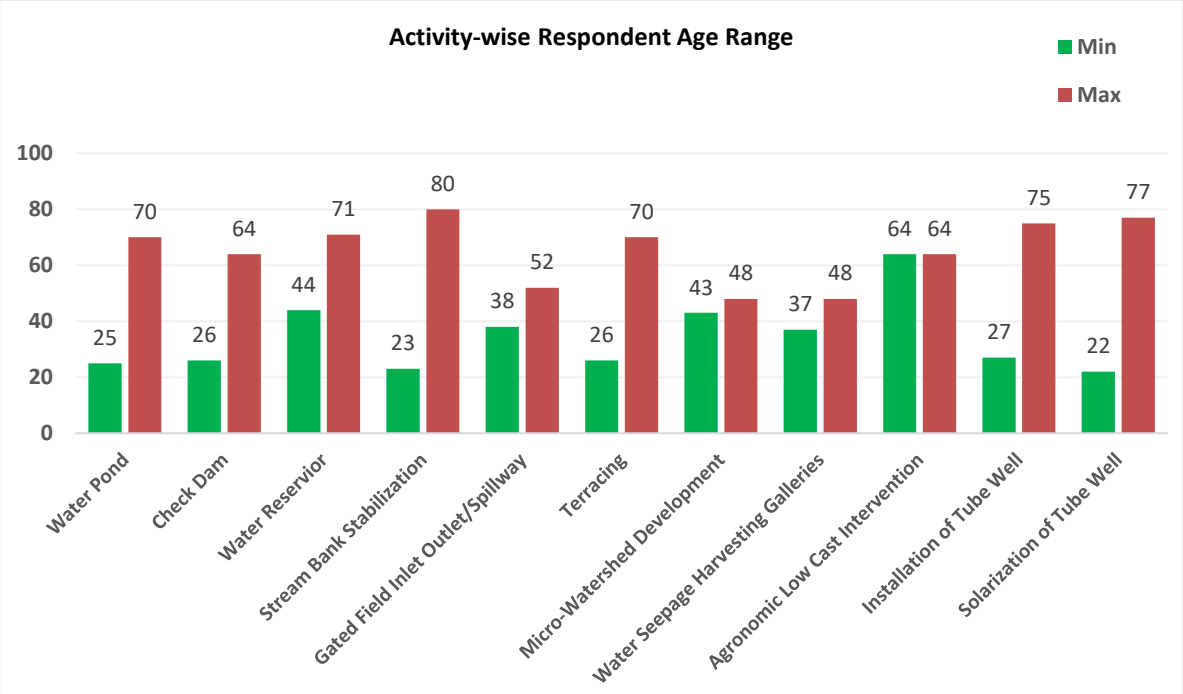
3.2. Respondent Age Range

The survey shows a varied respondent age range across different activities, from 22 to 80 years overall. Labor-intensive activities like Water Pond, Stream Bank Stabilization, and Terracing involve a wider age group (mid-20s to 70s), reflecting broad community participation. Technical interventions like Micro-Watershed Development and Water Seepage Harvesting Galleries are handled by slightly older respondents (mostly 37–48 years), likely due to experience requirements. Water-related technologies such as Tube Well Installation and Solarization involve the widest age spread, indicating their importance across all age groups. Some activities, like Agronomic

Low-Cost Intervention, show limited participation, possibly managed by senior members (age 64). Detail can be found in **Table-10** below.

Table-10: Activity-wise Respondent Age Range

Activity	Min	Max
Water Pond	25	70
Check Dam	26	64
Water Reservoir	44	71
Stream Bank Stabilization	23	80
Gated Field Inlet Outlet/Spillway	38	52
Terracing	26	70
Micro-Watershed Development	43	48
Water Seepage Harvesting Galleries	37	48
Agronomic Low Cast Intervention	64	64
Installation of Tube Well	27	75
Solarization of Tube Well	22	77
Overall	22	80

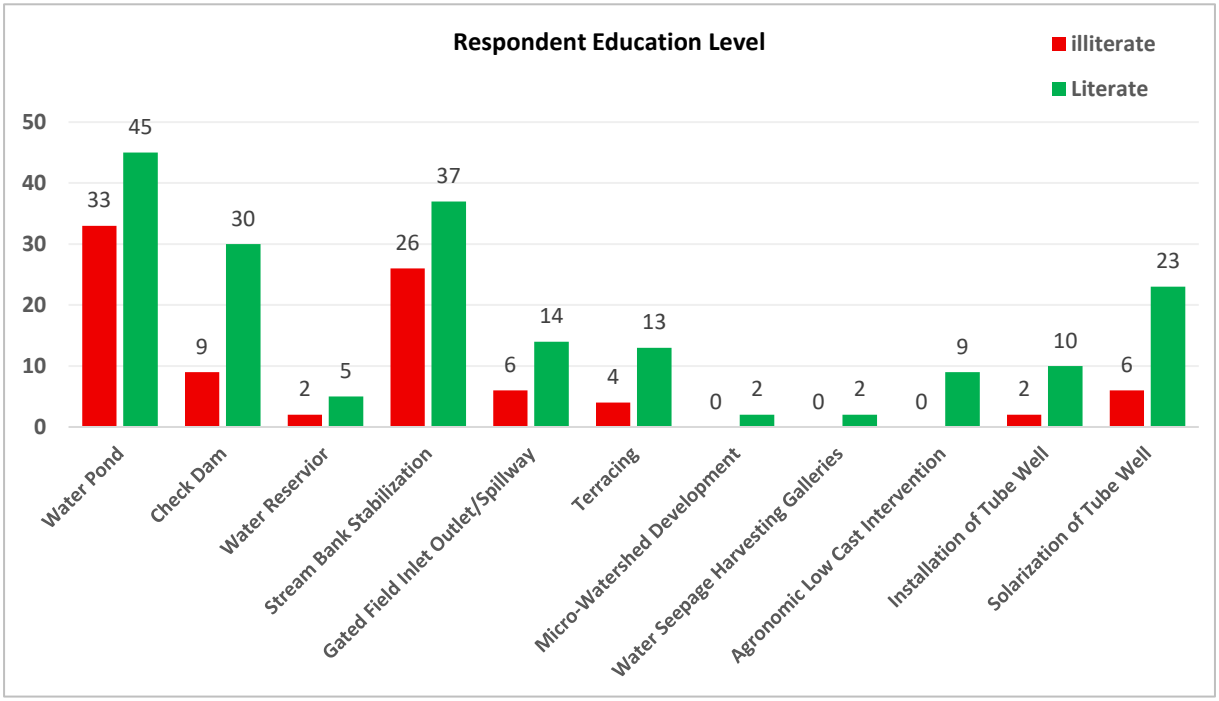


3.3. Respondent Education Level

The survey shows that most respondents are either illiterate (**88**) or literate without formal schooling (**190**). However, a considerable number have higher education, with **56** Matric, **38** Intermediate, and **61** Graduate and above. Labor-based activities like Water Pond, Check Dam, and Stream Bank Stabilization involve more respondents with low or no formal education. In contrast, technical activities like Gated Field Inlet/Outlet, Solarization of Tube Wells, and Agronomic Low-Cost Intervention have a higher proportion of educated respondents. This reflects a mix of educational backgrounds involved across all activities. Details are given in **Table-11** below.

Table-11: Respondent Education Level by Activity

Activity	illiterate	Literate	Primary	Middle	Matric	Intermediate	Graduate and above
Water Pond	33	45	5	7	14	7	12
Check Dam	9	30	3	3	14	5	5
Water Reservior	2	5	1	1	1	2	0
Stream Bank Stabilization	26	37	5	2	18	7	5
Gated Field Inlet Outlet/Spillway	6	14	0	0	0	3	11
Terracing	4	13	0	0	4	5	4
Micro-Watershed Development	0	2	0	0	0	1	1
Water Seepage Harvesting Galleries	0	2	0	0	0	1	1
Agronomic Low Cast Intervention	0	9	0	0	0	0	9
Installation of Tube Well	2	10	1	2	0	2	5
Solarization of Tube Well	6	23	2	3	5	5	8
Overall	**88**	**190**	**17**	**18**	**56**	**38**	**61**



3.4. Livelihood Sources of Respondent

The survey shows that farming is the primary livelihood, with **76%** of respondents overall relying on it. Activities like Micro-Watershed Development and Agronomic Low-Cost Interventions are fully dependent on farming households (**100%**).

Other activities such as Stream Bank Stabilization (**89%**), Terracing (**77%**), and Water Pond (**80%**) also have a high farming share. Some activities show mixed livelihoods for example, Gated Field Inlet Outlet/Spillway has **43%** farmers, **29%** in government service, and **29%** in business, reflecting more diverse participation.

Water Seepage Harvesting Galleries are unique, with no farmers; participants are entirely from government service (**50%**) and business (**50%**). Overall, non-farm livelihoods like government service (**15%**), business (**5%**), and others remain secondary sources. Details can be found in **Table-12** below.

Table-12: Livelihood Sources of Respondents by Activity

Activity	Farming	Govt. Service	Labor	Shop-keeper	Artisan	Business	Household Work	Student
Water Pond	80%	9%	0%	0%	0	9%	3%	0%
Check Dam	76%	4%	4%	8%	0	4%	0%	4%
Water Reservior	71%	14%	0%	0%	0	14%	0%	0%
Stream Bank Stabilization	89%	11%	0%	0%	0	0%	0%	0%
Gated Field Inlet Outlet/Spillway	43%	29%	0%	0%	0	29%	0%	0%
Terracing	77%	23%	0%	0%	0	0%	0%	0%
Micro-Watershed Development	100%	0%	0%	0%	0	0%	0%	0%
Water Seepage Harvesting Galleries	0%	50%	0%	0%	0	50%	0%	0%
Agronomic Low Cast Intervention	100%	0%	0%	0%	0	0%	0%	0%
Installation of Tube Well	50%	42%	0%	0%	0	0%	8%	0%
Solarization of Tube Well	79%	17%	0%	0%	0	0%	3%	0%
Overall	**76%**	**15%**	**1%**	**1%**	**0%**	**5%**	**2%**	**1%**

3.5. Drinkable Water Availability

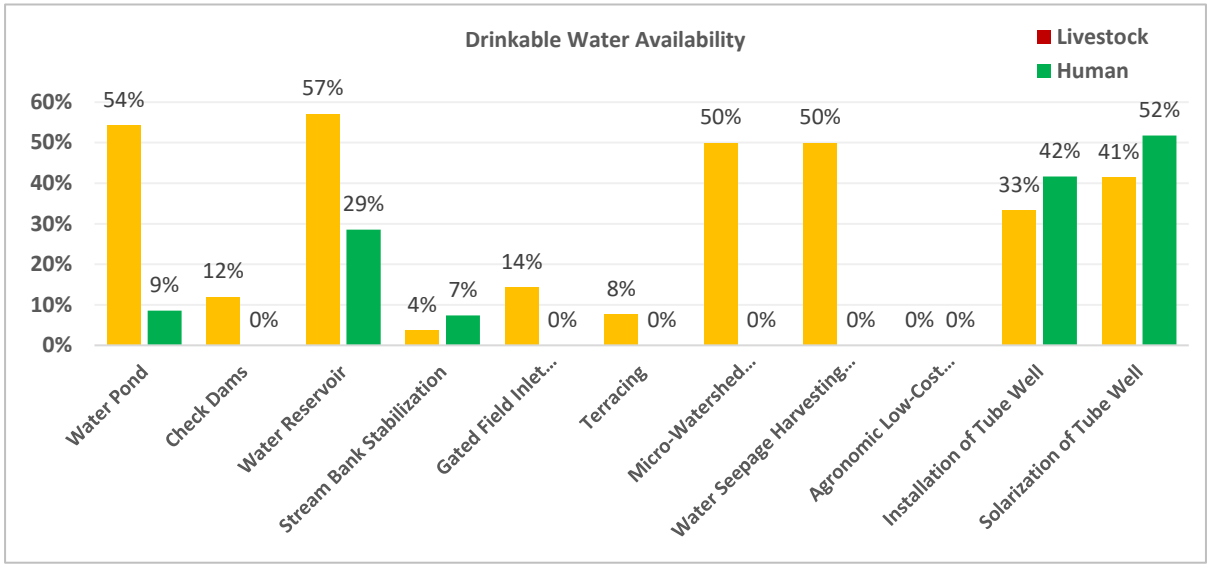
The survey shows that activities like Water Reservoir (**57%**), Water Pond (**54%**), Micro-Watershed Development (**50%**), and Water Seepage Harvesting Galleries (**50%**) mainly support livestock drinking water.

For human/community drinking water, the highest contribution comes from Solarization of Tube Wells (**52%**) and Installation of Tube Wells (**42%**). Other activities show minimal or no contribution towards human drinking water.

This indicates that most watershed activities primarily benefit livestock water needs, while tube well-based interventions significantly support human drinking water. Details are provided in **Table-13** below.

Table-13: Drinkable Water Availability Activity-Wise

Activity	Livestock Drinkable Water	Human / Community Drinkable Water
Water Pond	54%	9%
Check Dams	12%	0%
Water Reservoir	57%	29%
Stream Bank Stabilization	4%	7%
Gated Field Inlet Outlet/Spillway	14%	0%
Terracing	8%	0%
Micro-Watershed Development	50%	0%
Water Seepage Harvesting Galleries	50%	0%
Agronomic Low-Cost Intervention	0%	0%
Installation of Tube Well	33%	42%
Solarization of Tube Well	41%	52%



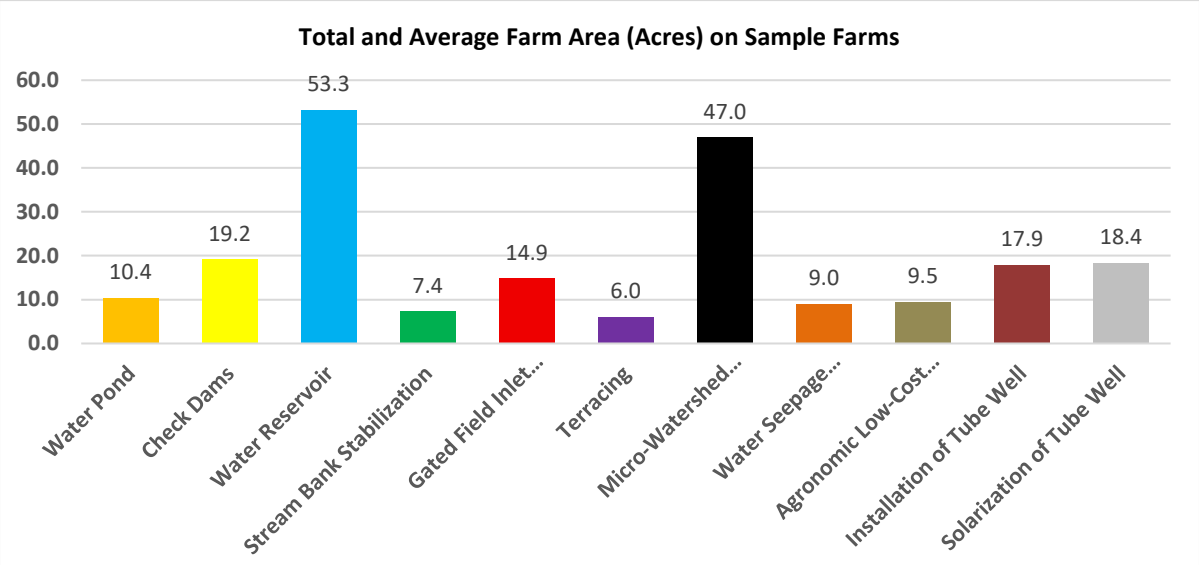
3.6. Average Farm Size

In agriculture, the term Farm Size or Size of Holding refers to the average area of land operated by farmers, which includes both owned and rented-in land, minus any rented-out land. Based on the surveyed 278 farms, the total operated area amounts to 3,746.3 acres, resulting in an average farm size of 13.5 acres.

Table-14 provides a breakdown of farm size by type of intervention. As shown, the average farm size varies significantly across different interventions. The highest average farm size is recorded under Water Reservoirs (**53.3** acres), followed by Micro-Watershed Development (**47.0** acres), Check Dams (**19.2** acres), Solarized Tube Well (**18.4** acres), Installation of Tube Well (**17.9** acres), Gated Field Inlet Outlet/Spillway (**14.9** acres) and Water Pond (**10.4** acres). In contrast, smaller average farm sizes are observed under Agronomic Low-Cost Interventions (**9.5** acres), Water Seepage Harvesting Galleries (**9.0** acres), Stream Bank Stabilization (**7.4** acres), and Terracing (**6.0** acres). Intervention-wise detail is given in **Table 14**.

Table-14: Total and Average Farm Area or Size of Holding (Acres) on Sample Farms

Interventions	Total Respondents	Total Farm Area	Average Farm Area
Water Pond	78	812.5	10.4
Check Dams	39	748.0	19.2
Water Reservoir	7	373.3	53.3
Stream Bank Stabilization	63	466.2	7.4
Gated Field Inlet Outlet/Spillway	20	297.1	14.9
Terracing	17	102.8	6.0
Micro-Watershed Development	2	94.0	47.0
Water Seepage Harvesting Galleries	2	18.0	9.0
Agronomic Low-Cost Intervention	9	85.5	9.5
Installation of Tube Well	12	215.3	17.9
Solarization of Tube Well	29	533.6	18.4
Overall	**278**	**3746.3**	**13.5**



3.7. Impact on Land Use

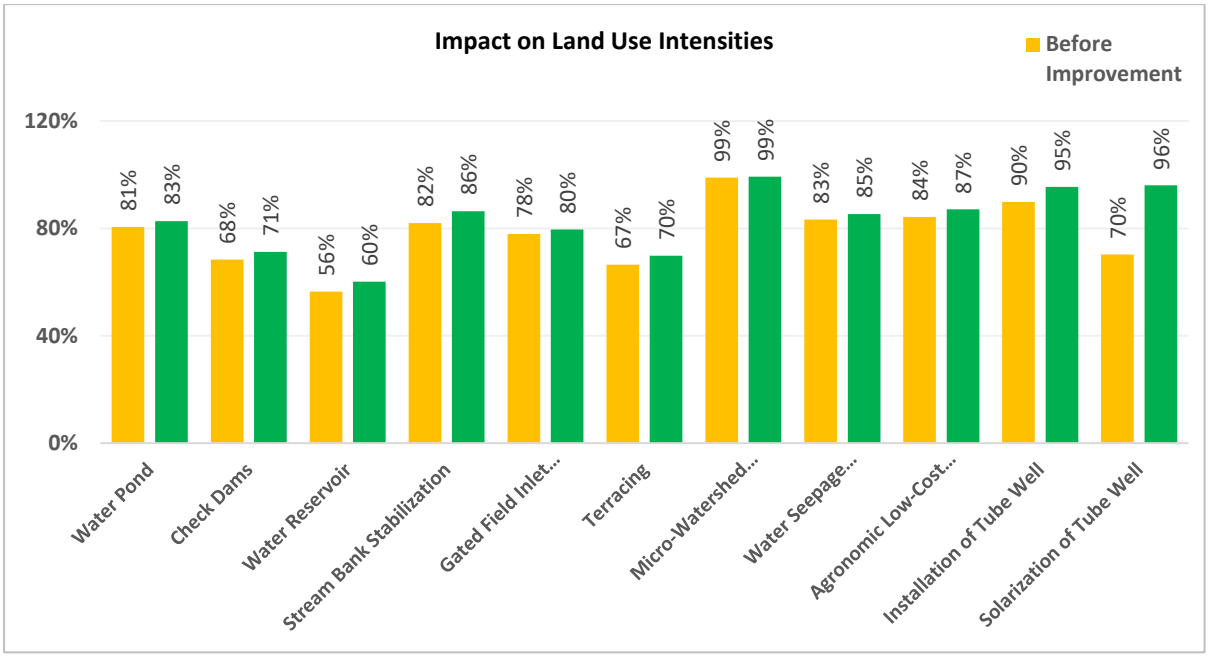
All agricultural land owned by farmers is not necessarily cultivated, as some portions are used for housing, livestock, water storage, or are otherwise non-cultivable. Therefore, land use intensity—defined as the ratio of cultivated areas to total farm areas can never exceed 100%.

An analysis of the surveyed farms indicates that overall land use intensity increased from **75.0%** before the interventions to **86.3%** after, reflecting an **11.3** percentage point improvement. This suggests better utilization of available land following the implemented activities.

Among the interventions, the largest gains in land use intensity were observed in Solarization of Tube Wells (**25.7%**), Installation of Tube Wells (**5.5%**), and Stream Bank Stabilization (**4.4%**). Moderate increases were seen under Water Reservoirs (**3.7%**), Terracing (**3.3%**), and Check Dams (**2.8%**). Smaller improvements were recorded for Agronomic Low-Cost Interventions (**2.8%**), Water Ponds (**2.1%**), Water Seepage Harvesting Galleries (**2.0%**), Gated Field Inlet/Outlet/Spillways (**1.7%**), and Micro-Watershed Development (**0.4%**). Although Agronomic Low-Cost Interventions were already operating at relatively high levels, they still demonstrated a modest gain in land use intensity. Intervention-wise break-up/detail is given in **Table-15.**

Table-15: Impact on Land Use Intensities

Intervention	Before Improvement	After Improvement	Increase (%age points)
Water Pond	80.6%	82.7%	2.1%
Check Dams	68.4%	71.2%	2.8%
Water Reservoir	56.5%	60.2%	3.7%
Stream Bank Stabilization	82.0%	86.4%	4.4%
Gated Field Inlet Outlet/Spillway	77.9%	79.6%	1.7%
Terracing	66.5%	69.8%	3.3%
Micro-Watershed Development	98.9%	99.3%	0.4%
Water Seepage Harvesting Galleries	83.3%	85.3%	2.0%
Agronomic Low-Cost Intervention	84.2%	87.1%	2.8%
Installation of Tube Well	89.9%	95.4%	5.5%
Solarization of Tube Wells	70.3%	96.0%	25.7%
Overall	**75.0%**	**86.3%**	**11.3%**



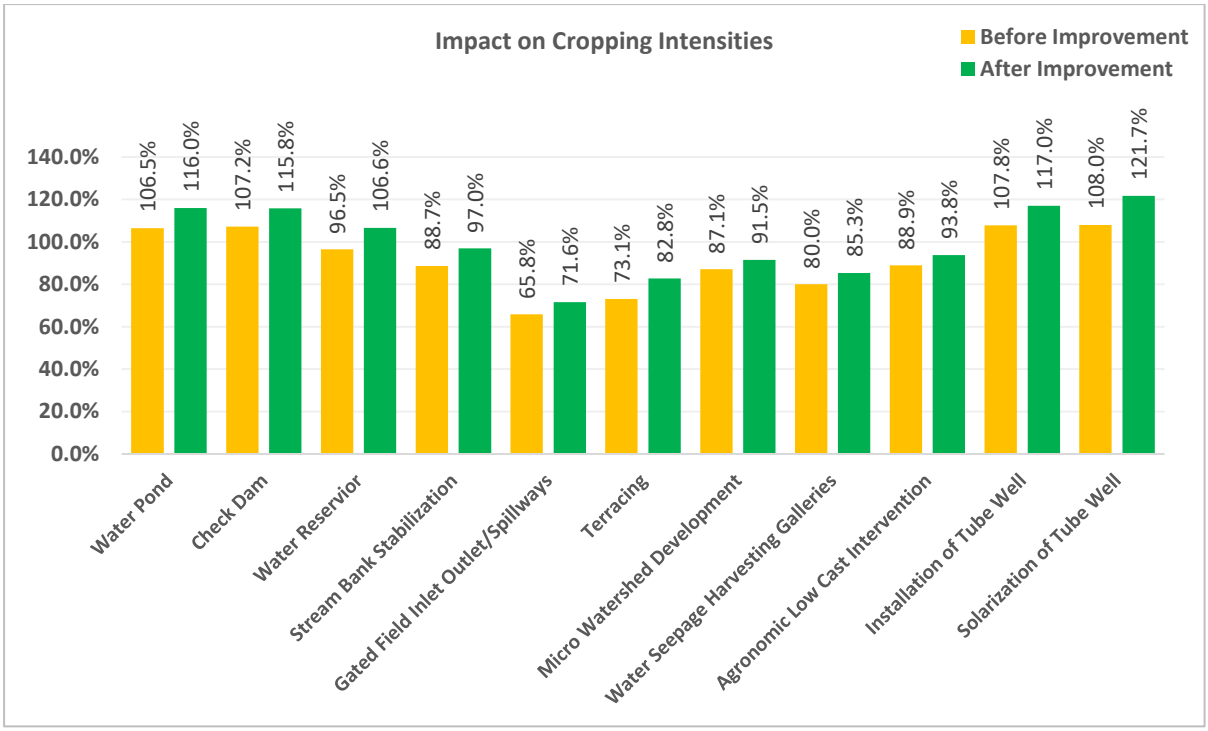
3.8. Impact on Cropping Intensities

Another key indicator of agricultural efficiency is cropping intensity, which measures the number of crops grown on a single piece of cultivated land within a year. In some cases, not all cultivated land is planted due to factors such as water shortages or lack of other essential inputs—resulting in fallow land and a cropping intensity below 100%. Conversely, if sufficient water and resources are available, farmers may grow two or even three crops on the same land, pushing crops intensity above 100%.

Based on the analysis, the overall cropping intensity increased from **98.3%** to **108.1%**, reflecting an improvement of **9.8** percentage points. This indicates a more efficient and intensified use of cultivated land due to the interventions. Intervention-wise impacts on cropping intensity are presented in **Table-12**. The highest increase of **13.7%** was observed in areas with Solarization of Tube Wells, followed by a **10.1%** increase under Water Reservoir interventions. On the other hand, the lowest increase of **4.4%** was recorded under Micro-Watershed Development areas**.** Intervention wise Impact or increases in cropping intensities has been given in **Table-16.**

Table-16: Impact on Cropping Intensities

Intervention	Before Improvement	After Improvement	Increase (%age points)
Water Pond	106.5%	116.0%	9.5%
Check Dams	107.2%	115.8%	8.6%
Water Reservoir	96.5%	106.6%	10.1%
Stream Bank Stabilization	88.7%	97.0%	8.3%
Gated Field Inlet Outlet/Spillway	65.8%	71.6%	5.8%
Terracing	73.1%	82.8%	9.7%
Micro-Watershed Development	87.1%	91.5%	4.4%
Water Seepage Harvesting Galleries	80.0%	85.3%	5.3%
Agronomic Low-Cost Intervention	88.9%	93.8%	4.9%
Installation of Tube Well	107.8%	117.0%	9.2%
Solarization of Tube Wells	108.0%	121.7%	13.7%
Overall	**98.3%**	**108.1%**	**9.8%**



3.9. Impact on Crop Area /Cropping Patterns (Crop Share)

The implementation of improved water schemes has led to a significant expansion in the cultivated area, with total crop acreage increasing from **2,761.5** acres to **3,287.1** acres and an overall rise of **19.0%.** This expansion is primarily attributed to enhanced water availability and improved on-farm irrigation practices. As a result, nearly all crops benefited from area increases, reflecting the effective utilization of conserved water and improved land productivity.

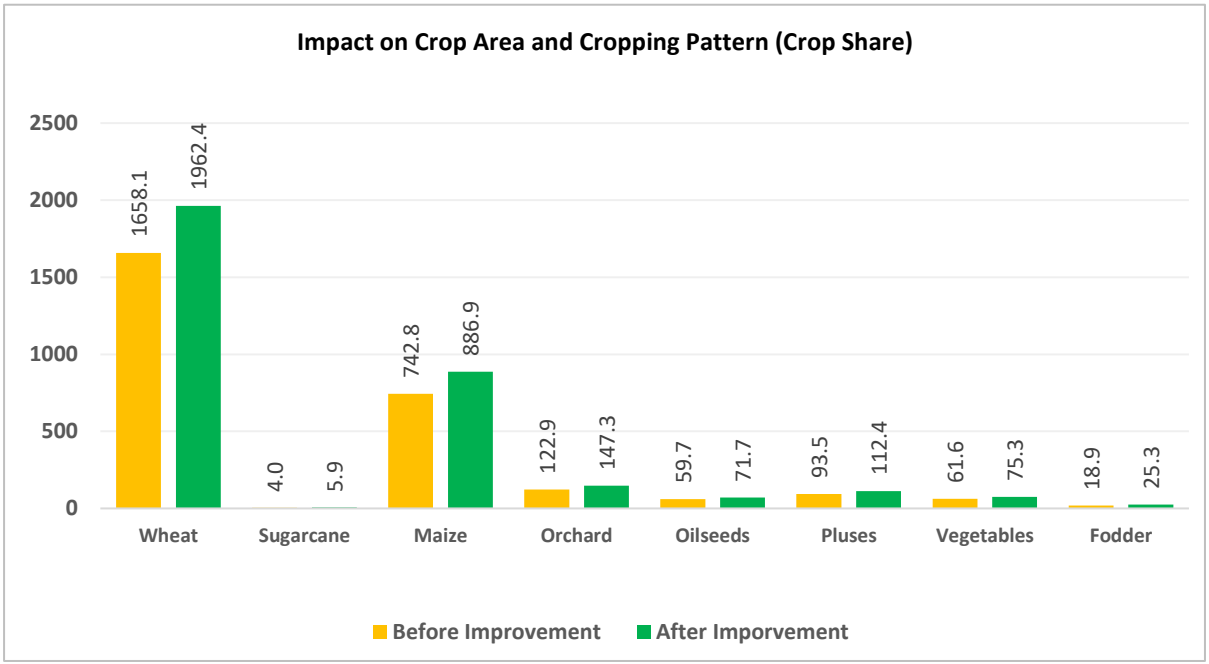
Wheat continues to dominate the cropping pattern, with its area increasing by **304.3** acres (**18.4%**), though its crop shares slightly decreased from **60.0% to 59.7%**. Maize area increased by **144.1** acres (**19.4%**), maintaining a stable crop share at around **27.0%**. Orchards and oilseeds also showed substantial area gains of **19.8%** and **20.1%**, respectively, suggesting improved conditions for these crops under the new water regime.

Similarly, pulses and vegetables expanded by **20.2%** and **22.2%,** respectively, highlighting a positive trend toward crop diversification. Fodder recorded a notable increase of **34.2%,** while sugarcane, despite its small base, saw a significant area growth of **46.8%.** However, the crop shares for sugarcane and fodder remained relatively unchanged due to their limited contribution to the total cultivated area.

Overall, while the cropping pattern has remained broadly consistent, the widespread increase in cultivated areas across all major crops underscores the successful impact of watercourse improvement interventions. Detailed crop-wise changes are presented in **Table-17**.

Table-17: Impact on Crop Area and Cropping Pattern (Crop Share)

Crop	Before Improvement		After Improvement		Impact	
	Crop (acres)	Crop Share (%)	Crop (acres)	Crop Share (%)	Crop (acres)	Increase (%age points)
Wheat	1658.1	60.0%	1962.4	59.7%	304.3	18.4%
Sugarcane	4.0	0.15%	5.9	0.2%	1.9	46.8%
Maize	742.8	26.9%	886.9	27.0%	144.1	19.4%
Orchard	122.9	4.5%	147.3	4.5%	24.4	19.8%
Oilseeds	59.7	2.2%	71.7	2.2%	12.0	20.1%
Pluses	93.5	3.4%	112.4	3.4%	18.9	20.2%
Vegetables	61.6	2.2%	75.3	2.3%	13.7	22.2%
Fodder	18.9	0.7%	25.3	0.8%	6.4	34.2%
Overall	**2761.5**	**100.0%**	**3287.1**	**100.0%**	**525.7**	**19.0%**



3.10. Impact on Crop Yields

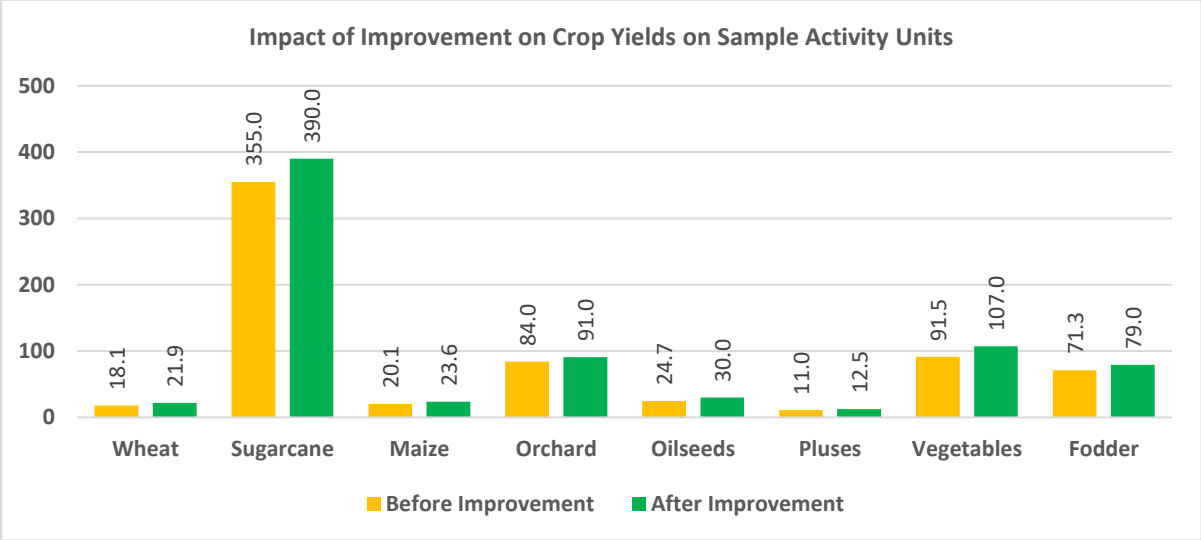
The impact of the improvement interventions on crop yields is summarized in **Table-18**. The data indicates that yields of all major crops have increased following the implementation of project activities. These gains are largely attributed to improved water availability, the adoption of better farming practices, and the efficient execution of project interventions.

Among key crops, Wheat yields rose significantly by **20.9%,** increasing from **18.1** to **21.9** maunds (40 kgs) per acre. Sugarcane yields improved by **9.9%,** while Maize showed a **17.1%** increase. Orchards recorded **8.3%** gain, and Vegetables exhibited a **16.9%** improvement, rising from **91.5** to **107.0** maunds per acre. Yields of Oilseeds and Pulses also improved by **21.5%** and **13.6%,** respectively. Fodder production increased by **10.9%.**

On average, crop yields across all categories increased by approximately **12.9%,** reflecting a considerable enhancement in agricultural productivity among the sample activity units.

Table-18: Impact of Improvement on Crop Yields on Sample Activity Units

Crops	Before Improvement	After Improvement	Impact of Improvement	
	Maunds (40 Kgs) per Acre			Increase (%age points)
Wheat	18.1	21.9	3.8	20.9%
Sugarcane	355	390	35	9.9%
Maize	20.1	23.6	3.5	17.1%
Orchard	84	91	7	8.3%
Oilseeds	24.7	30	5.3	21.5%
Pluses	11	12.5	1.5	13.6%
Vegetables	91.5	107	15.5	16.9%
Fodder	71.3	79	7.8	10.9%
			Overall average	**12.9 %**



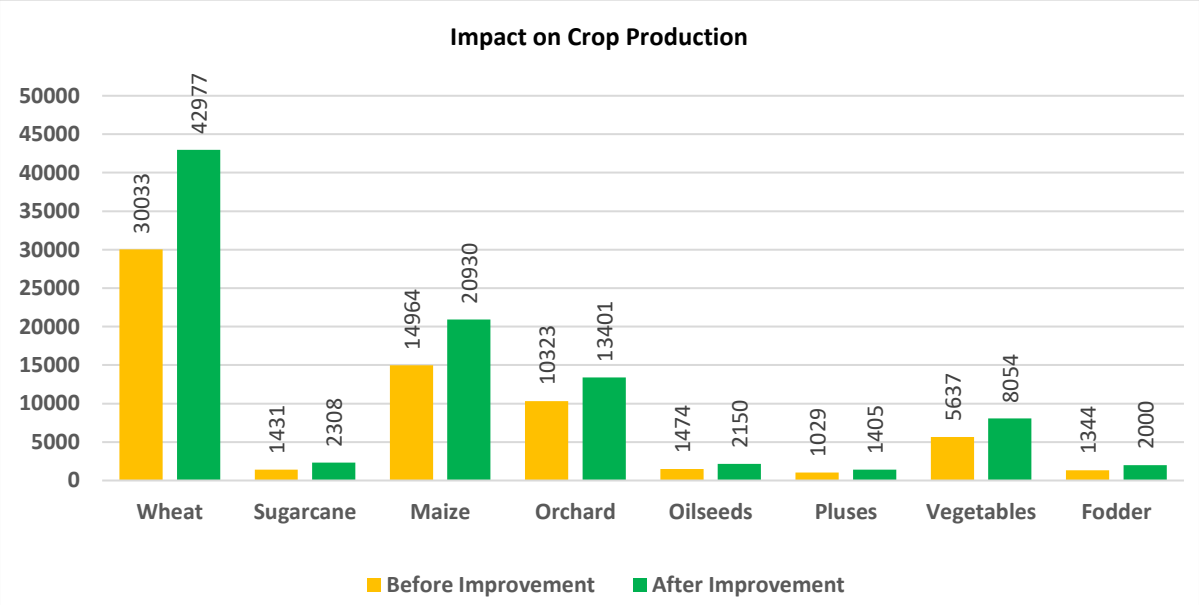
3.11. Impact on Crop Production

The implementation of improved schemes has resulted in a significant increase in the total production of various crops. These gains reflect a combined effect of enhanced productivity and expansion in cultivated areas. The most substantial improvement was observed in Sugarcane production, which rose by **61.2%**, followed by Fodder (**48.7%**), Oilseeds (**45.9%**), Vegetables (**42.9%**), and Wheat (**43.1%**). Maize and Pulses showed notable increases of **39.9%** and **36.6%**, respectively, while Orchard production improved by **29.8%**. The crop-wise impact of these improvements is detailed in **Table-19**.

The overall crop production, which increased by an average of **34.45%.** This figure includes **12.95%** attributed to yield improvements, **19.0%** to area expansion, and **2.5%** to the interaction between the two.

Table-19: Impact on Crop Production

Crops	Before Improvement	After Improvement	Impacts of Improvement	
	Maunds (40 Kgs)			Increase (%age points)
Wheat	30032.6	42977.2	12944.5	43.1%
Sugarcane	1431.2	2307.6	876.4	61.2%
Maize	14964.4	20930.2	5965.8	39.9%
Orchard	10323.2	13401.0	3077.9	29.8%
Oilseeds	1473.7	2149.8	676.1	45.9%
Pluses	1028.8	1405.3	376.4	36.6%
Vegetables	5636.7	8054.5	2417.8	42.9%
Fodder	1344.3	1999.6	655.3	48.7%
Weighted Average Percent of Production Impact				**34.45%**



3.12. Impact on Agriculture Employment

Following the implementation of improvement interventions, agricultural employment has experienced a notable rise, with total labor man-days increasing from **82,342** to **98,105**, reflecting an overall growth of **19%**. This increase is largely attributed to the expansion of cultivated areas, enhanced crop yields, and overall improvement in production practices.

Among the major crops, Wheat accounted for the largest share of agricultural labor, with labor use rising from **40,956** to **48,472** man-days, marking an **18%** increase. Maize also showed a substantial growth of **19%**, with an increase of **5,807** man-days. Although Sugarcane is cultivated on a smaller scale, it exhibited the highest relative increase in labor demand at **47%**, driven by productivity gains and area expansion.

Labor use in Orchards and Oilseeds rose by **20%** each, indicating improved management and farming practices. Similarly, Pulses and Vegetables, which are generally labor-intensive, recorded increases of **20%** and **22%**, respectively. Fodder crops, often overlooked in employment analysis, demonstrated a significant **34%** rise in labor man-days.

These improvements highlight the positive employment impact of the interventions, not only by boosting productivity but also by creating additional work opportunities in rural areas. On average, labor use per crop acre remained consistent at **29.8** man-days, while average labor use per farm rose from 296 to **353** man-days, showing a **19%** increase.

Detailed crop-wise Agriculture Employment before and after the interventions is presented in **Table-20**. This data reinforces the broad-based rise in employment across all major cropping systems**.**

Table-20: Impact on Agriculture Employment

Crops	Before Improvement	After Improvement	Impacts of Improvement	
	Labor Man Days			Increase (%age points)
Wheat	40,956	48,472	7,516	18.4%
Sugarcane	227	333	106	46.8%
Maize	29,934	35,741	5,807	19.4%
Orchard	7,128	8,541	1,413	19.8%
Oilseeds	627	753	126	20.1%
Pluses	804	967	162	20.2%
Vegetables	2,328	2,845	518	22.2%
Fodder	338	453	115	34.2%
Overall	**82,342**	**98,105**	**15,764**	**19.1%**
Avg. per crop Acre	29.8	29.8	-	-
Avg. per Farm	**296**	**353**	**57**	**19%**

3.13. Impact on Agriculture Household Income

The improvement interventions have resulted in a significant increase in net income for agricultural households across all major crop categories. This increase is attributed to enhanced productivity, better input management, and higher market value of product. A crop-wise analysis shows varying degrees of income gains, with vegetables recording the most substantial increase in net income, rising ***Rs. 34,220*** per acre mainly due to higher yields and improved prices. Orchards also demonstrated notable progress, with an increase of ***Rs. 4,600*** per acre, reflecting the long-term benefits of improved farm practices and effective resource utilization.

Among major field crops, maize, wheat, and sugarcane recorded moderate increases in net income. Maize showed an improvement of ***Rs. 2,340*** per acre, followed by sugarcane with ***Rs. 1,980***, and wheat with ***Rs. 1,500*** per acre, driven by gains in yield and quality. Oilseeds and pulses, though cultivated on a smaller scale, also experienced positive changes, with net income rising by ***Rs. 1,100*** and ***Rs. 1,400*** per acre, respectively. Fodder crops, which play a crucial role in supporting livestock, saw a net income increase of ***Rs. 2,300*** per acre.

On average, net income per acre increased by ***Rs. 6,002***, underscoring the overall positive impact of the interventions on rural household earnings. These results highlight that both cash and subsistence crops have become more profitable, thereby enhancing livelihood security and economic resilience within the agricultural sector.

Table-21: Impact of Improvement on Agriculture Household Income

Crops	Before Improvement			After Improvement			Increase in Net Income
	Gross Income	Cost of Production	Net Income	Gross Income	Cost of Production	Net Income	
	Rupees per Acre						
Wheat	62300	29300	33000	66950	32450	34500	1500
Sugarcane	132200	62980	69220	140600	69400	71200	1980
Maize	82700	47380	35320	91900	54240	37660	2340
Orchard	217400	116200	101200	240100	134300	105800	4600
Oil Seeds	28600	13300	15300	30700	14300	16400	1100
Pulses	41650	19950	21700	43900	20800	23100	1400
Vegetables	116500	35300	81200	167900	52480	115420	34220
Fodder	74900	10500	64400	78500	11800	66700	2300
Average	**94,281**	**41,491**	**52,790**	**107,694**	**48,971**	**58,792**	**6,002**

ANNEXURES

ANNEX - I: DISTRICT-WISE/INTERVENTION-WISE DETAIL OF ACTIVITY UNITS

Zone	District	WP	CD	WR	SBS	GFIOS	Terracing	MWD	WSHG	ALCI	TW	STW	Overall
Zone-1	Bajaur	1	1	-	-	-	-	-	-	-	-	-	2
Zone-1	Buner	1	1	-	-	-	-	-	-	-	-	-	2
Zone-1	Chitral	1	1	-	2	-	2	-	-	-	-	-	6
Zone-1	Lower Dir	3	1	-	1	-	1	-	-	-	-	-	6
Zone-1	Malakand	2	1	-	1	1	-	-	-	-	-	2	7
Zone-1	Shangla	1	-	-	1	-	1	-	-	-	-	-	3
Zone-1	Swat	22	2	-	26	1	6	-	-	-	-	4	61
Zone-1	Upper Dir	5	-	-	2	-	3	-	-	-	-	-	10
Zone-2	Abbottabad	1	1	-	1	-	-	-	-	-	-	-	3
Zone-2	Battagram	1	1	-	1	-	1	-	-	-	-	-	4
Zone-2	Haripur	1	1	-	1	-	1	-	-	-	2	2	8
Zone-2	Mansehra	1	1	1	1	-	1	-	-	-	2	1	8
Zone-2	Torghar	-	-	-	-	-	-	-	-	-	-	-	0
Zone-3	Charsadda	-	1	-	2	-	-	-	-	-	-	3	6
Zone-3	Khyber	1	-	-	-	-	-	-	-	-	-	-	1
Zone-3	Lower Mohmand	-	1	-	1	-	-	-	-	-	-	-	2
Zone-3	Mardan	-	1	-	1	-	-	-	-	-	2	-	4
Zone-3	Nowshera	1	1	1	2	-	-	-	-	-	1	1	7
Zone-3	Peshawar	1	-	-	1	-	-	-	-	-	-	4	6
Zone-3	Swabi	1	1	-	1	-	1	-	-	-	1	1	6
Zone-4	Bannu	3	8	-	5	4	-	-	-	2	-	3	25
Zone-4	Hangu	2	2	-	1	-	-	-	1	1	-	-	7
Zone-4	Karak	4	2	2	3	2	-	1	1	2	-	2	19
Zone-4	Kohat	3	1	1	-	-	-	1	-	-	2	1	9
Zone-4	Kurram	1	-	-	1	-	-	-	-	1	-	-	3
Zone-4	Orakzai	-	-	-	-	-	-	-	-	-	-	-	0
Zone-5	Dera Ismail Khan	2	1	-	1	5	-	-	-	1	2	4	16
Zone-5	Lakki Marwat	12	7	1	5	5	-	-	-	2	-	1	33
Zone-5	North Waziristan	3	-	-	-	-	-	-	-	-	-	-	3
Zone-5	South Waziristan	2	1	1	1	-	-	-	-	-	-	-	5
Zone-5	Tank	2	1	-	1	2	-	-	-	-	-	-	6
	Overall	**78**	**39**	**7**	**63**	**20**	**17**	**2**	**2**	**9**	**12**	**29**	**278**

WP	Water Pond
CD	Check Dams
WR	Water Reservoir
SPS	Stream Bank Stabilization
GFIOS	Gated Field Inlet Outlet/Spillway
MWD	Micro-Watershed Development
WSHG	Water Seepage Harvesting Galleries
ALCI	Agronomic Low-Cost Intervention
TW	Installation of Tube Well
STW	Solarization of Tube Well

ANNEX - II: ZONE WISE IMPACT FIELD SURVEY SCHEDULE

Phase. #	Survey Date	District	Team. #
Impact-Phase-I	27-Dec-2022	Bannu	Team-3
Impact-Phase-I	02-Jan-2023	Bannu	Team-3
Impact-Phase-I	03-Jan-2023	Bannu	Team-3
Impact-Phase-I	04-Jan-2023	Bannu	Team-3
Impact-Phase-I	21-Nov-2022	Charsadda	Team-2
Impact-Phase-I	22-Nov-2022	Charsadda	Team-2
Impact-Phase-I	23-Nov-2022	Charsadda	Team-2
Impact-Phase-I	24-Nov-2022	Charsadda	Team-2
Impact-Phase-I	21-Nov-2022	Dera Ismail Khan	Team-3
Impact-Phase-I	23-Nov-2022	Dera Ismail Khan	Team-3
Impact-Phase-I	25-Nov-2022	Dera Ismail Khan	Team-3
Impact-Phase-I	29-Nov-2022	Dera Ismail Khan	Team-3
Impact-Phase-I	01-Dec-2022	Dera Ismail Khan	Team-3
Impact-Phase-I	24-Nov-2022	Haripur	Team-1
Impact-Phase-I	28-Nov-2022	Haripur	Team-1
Impact-Phase-I	05-Jan-2023	Karak	Team-3
Impact-Phase-I	06-Jan-2023	Karak	Team-3
Impact-Phase-I	16-Dec-2022	Kohat	Team-2
Impact-Phase-I	19-Dec-2022	Kohat	Team-2
Impact-Phase-I	20-Dec-2022	Kohat	Team-2
Impact-Phase-I	21-Dec-2022	Kohat	Team-2
Impact-Phase-I	15-Dec-2022	Lakki Marwat	Team-3
Impact-Phase-I	19-Dec-2022	Lakki Marwat	Team-3
Impact-Phase-I	21-Dec-2022	Lakki Marwat	Team-3
Impact-Phase-I	23-Dec-2022	Lakki Marwat	Team-3
Impact-Phase-I	29-Dec-2022	Lakki Marwat	Team-3
Impact-Phase-I	15-Nov-2022	Malakand	Team-1
Impact-Phase-I	16-Nov-2022	Malakand	Team-1
Impact-Phase-I	18-Nov-2022	Malakand	Team-1
Impact-Phase-I	21-Nov-2022	Malakand	Team-1
Impact-Phase-I	30-Nov-2022	Mansehra	Team-1
Impact-Phase-I	05-Dec-2022	Mansehra	Team-1
Impact-Phase-I	08-Dec-2022	Mansehra	Team-1
Impact-Phase-I	12-Dec-2022	Mansehra	Team-1
Impact-Phase-I	14-Nov-2022	Mardan	Team-2
Impact-Phase-I	15-Nov-2022	Mardan	Team-2
Impact-Phase-I	16-Nov-2022	Mardan	Team-2
Impact-Phase-I	17-Nov-2022	Mardan	Team-2
Impact-Phase-I	18-Nov-2022	Mardan	Team-2
Impact-Phase-I	01-Dec-2022	Mardan	Team-2
Impact-Phase-I	05-Dec-2022	Mardan	Team-2
Impact-Phase-I	14-Dec-2022	Mardan	Team-2
Impact-Phase-I	15-Dec-2022	Mardan	Team-2
Impact-Phase-I	29-Nov-2022	Nowshera	Team-2
Impact-Phase-I	02-Dec-2022	Nowshera	Team-2
Impact-Phase-I	09-Dec-2022	Nowshera	Team-2
Impact-Phase-I	11-Nov-2022	Peshawar	Team-2
Impact-Phase-I	25-Nov-2022	Peshawar	Team-2
Impact-Phase-I	28-Nov-2022	Peshawar	Team-2
Impact-Phase-I	30-Nov-2022	Peshawar	Team-2

Phase. #	Survey Date	District	Team. #
Impact-Phase-I	06-Dec-2022	Peshawar	Team-2
Impact-Phase-I	07-Dec-2022	Peshawar	Team-2
Impact-Phase-I	08-Dec-2022	Peshawar	Team-2
Impact-Phase-I	12-Dec-2022	Peshawar	Team-2
Impact-Phase-I	13-Dec-2022	Peshawar	Team-2
Impact-Phase-I	01-Nov-2022	Swabi	Team-1
Impact-Phase-I	02-Nov-2022	Swabi	Team-1
Impact-Phase-I	03-Nov-2022	Swabi	Team-1
Impact-Phase-I	04-Nov-2022	Swabi	Team-1
Impact-Phase-I	07-Nov-2022	Swabi	Team-1
Impact-Phase-I	10-Nov-2022	Swabi	Team-1
Impact-Phase-I	11-Nov-2022	Swabi	Team-1
Impact-Phase-I	14-Nov-2022	Swabi	Team-1
Impact-Phase-I	05-Dec-2022	Tank	Team-3
Impact-Phase-I	07-Dec-2022	Tank	Team-3
Impact-Phase-I	09-Dec-2022	Tank	Team-3
Impact-Phase-I	13-Dec-2022	Tank	Team-3
Impact-Phase-II	15-Feb-2023	Abbottabad	Team-1
Impact-Phase-II	16-Feb-2023	Abbottabad	Team-1
Impact-Phase-II	26-Apr-2023	Abbottabad	Team-1
Impact-Phase-II	27-Apr-2023	Abbottabad	Team-1
Impact-Phase-II	12-May-2023	Abbottabad	Team-1
Impact-Phase-II	17-May-2023	Abbottabad	Team-1
Impact-Phase-II	22-May-2023	Abbottabad	Team-1
Impact-Phase-II	02-Jun-2023	Abbottabad	Team-1
Impact-Phase-II	07-Jun-2023	Abbottabad	Team-1
Impact-Phase-II	08-Jun-2023	Abbottabad	Team-1
Impact-Phase-II	12-May-2023	Bannu	Team-3
Impact-Phase-II	15-May-2023	Bannu	Team-3
Impact-Phase-II	16-May-2023	Bannu	Team-3
Impact-Phase-II	19-May-2023	Bannu	Team-3
Impact-Phase-II	22-May-2023	Bannu	Team-3
Impact-Phase-II	23-May-2023	Bannu	Team-3
Impact-Phase-II	05-May-2023	Charsadda	Team-2
Impact-Phase-II	08-May-2023	Charsadda	Team-2
Impact-Phase-II	09-May-2023	Charsadda	Team-2
Impact-Phase-II	31-May-2023	Chitral	Team-1
Impact-Phase-II	02-May-2023	Dera Ismail Khan	Team-3
Impact-Phase-II	04-May-2023	Dera Ismail Khan	Team-3
Impact-Phase-II	08-May-2023	Dera Ismail Khan	Team-3
Impact-Phase-II	10-May-2023	Dera Ismail Khan	Team-3
Impact-Phase-II	26-May-2023	Dera Ismail Khan	Team-3
Impact-Phase-II	21-Feb-2023	Haripur	Team-1
Impact-Phase-II	06-Mar-2023	Haripur	Team-1
Impact-Phase-II	27-Mar-2023	Haripur	Team-1
Impact-Phase-II	28-Mar-2023	Haripur	Team-1
Impact-Phase-II	23-May-2023	Haripur	Team-1
Impact-Phase-II	17-May-2023	Karak	Team-3
Impact-Phase-II	18-May-2023	Karak	Team-3
Impact-Phase-II	24-May-2023	Karak	Team-3
Impact-Phase-II	25-May-2023	Karak	Team-3
Impact-Phase-II	10-May-2023	Kohat	Team-2

Phase. #	Survey Date	District	Team. #
Impact-Phase-II	11-May-2023	Kohat	Team-2
Impact-Phase-II	12-May-2023	Kohat	Team-2
Impact-Phase-II	15-May-2023	Kohat	Team-2
Impact-Phase-II	30-May-2023	Lower Dir	Team-3
Impact-Phase-II	31-May-2023	Lower Dir	Team-3
Impact-Phase-II	01-Jun-2023	Lower Dir	Team-3
Impact-Phase-II	02-Jun-2023	Lower Dir	Team-3
Impact-Phase-II	05-Jun-2023	Lower Dir	Team-3
Impact-Phase-II	26-May-2023	Malakand	Team-2
Impact-Phase-II	29-May-2023	Malakand	Team-2
Impact-Phase-II	30-May-2023	Malakand	Team-2
Impact-Phase-II	31-May-2023	Malakand	Team-2
Impact-Phase-II	01-Jun-2023	Malakand	Team-2
Impact-Phase-II	02-Jun-2023	Malakand	Team-2
Impact-Phase-II	05-Jun-2023	Malakand	Team-2
Impact-Phase-II	24-Feb-2023	Mansehra	Team-1
Impact-Phase-II	02-Mar-2023	Mansehra	Team-1
Impact-Phase-II	07-Mar-2023	Mansehra	Team-1
Impact-Phase-II	09-Mar-2023	Mansehra	Team-1
Impact-Phase-II	13-Mar-2023	Mansehra	Team-1
Impact-Phase-II	22-May-2023	Nowshera	Team-2
Impact-Phase-II	23-May-2023	Nowshera	Team-2
Impact-Phase-II	24-May-2023	Nowshera	Team-2
Impact-Phase-II	25-May-2023	Nowshera	Team-2
Impact-Phase-II	16-May-2023	Peshawar	Team-2
Impact-Phase-II	17-May-2023	Peshawar	Team-2
Impact-Phase-II	18-May-2023	Peshawar	Team-2
Impact-Phase-II	19-May-2023	Peshawar	Team-2
Impact-Phase-II	17-Feb-2023	Swat	Team-1
Impact-Phase-II	22-Feb-2023	Swat	Team-1
Impact-Phase-II	28-Feb-2023	Swat	Team-1
Impact-Phase-II	15-Mar-2023	Swat	Team-1
Impact-Phase-II	16-Mar-2023	Swat	Team-1
Impact-Phase-II	20-Mar-2023	Swat	Team-1
Impact-Phase-II	22-Mar-2023	Swat	Team-1
Impact-Phase-II	29-Mar-2023	Swat	Team-1
Impact-Phase-II	31-Mar-2023	Swat	Team-1
Impact-Phase-II	04-Apr-2023	Swat	Team-1
Impact-Phase-II	06-Apr-2023	Swat	Team-1
Impact-Phase-II	10-Apr-2023	Swat	Team-1
Impact-Phase-II	12-Apr-2023	Swat	Team-1
Impact-Phase-II	14-Apr-2023	Swat	Team-1
Impact-Phase-II	17-Apr-2023	Swat	Team-1
Impact-Phase-II	19-Apr-2023	Swat	Team-1
Impact-Phase-II	24-Apr-2023	Swat	Team-1
Impact-Phase-II	28-Apr-2023	Swat	Team-1
Impact-Phase-II	03-May-2023	Swat	Team-1
Impact-Phase-II	04-May-2023	Swat	Team-1
Impact-Phase-II	08-May-2023	Swat	Team-1
Impact-Phase-II	10-May-2023	Swat	Team-1
Impact-Phase-II	15-May-2023	Swat	Team-1
Impact-Phase-II	18-May-2023	Swat	Team-1

Phase. #	Survey Date	District	Team. #
Impact-Phase-II	24-May-2023	Swat	Team-1
Impact-Phase-II	25-May-2023	Swat	Team-1
Impact-Phase-II	26-May-2023	Swat	Team-1
Impact-Phase-II	29-May-2023	Swat	Team-1
Impact-Phase-II	30-May-2023	Swat	Team-1
Impact-Phase-II	05-Jun-2023	Swat	Team-1
Impact-Phase-III	21-May-2024	Bajaur	Team-3
Impact-Phase-III	22-May-2024	Bajaur	Team-3
Impact-Phase-III	15-May-2024	Bannu	Team-1
Impact-Phase-III	16-May-2024	Bannu	Team-1
Impact-Phase-III	17-May-2024	Bannu	Team-1
Impact-Phase-III	20-May-2024	Bannu	Team-1
Impact-Phase-III	21-May-2024	Bannu	Team-1
Impact-Phase-III	22-May-2024	Bannu	Team-1
Impact-Phase-III	23-May-2024	Bannu	Team-1
Impact-Phase-III	24-May-2024	Bannu	Team-1
Impact-Phase-III	27-May-2024	Bannu	Team-1
Impact-Phase-III	28-May-2024	Bannu	Team-1
Impact-Phase-III	29-May-2024	Bannu	Team-1
Impact-Phase-III	30-May-2024	Bannu	Team-1
Impact-Phase-III	04-Jul-2024	Battagram	Team-2
Impact-Phase-III	05-Jul-2024	Battagram	Team-2
Impact-Phase-III	08-Jul-2024	Battagram	Team-2
Impact-Phase-III	11-Jul-2024	Buner	Team-2
Impact-Phase-III	12-Jul-2024	Buner	Team-2
Impact-Phase-III	15-May-2024	Chitral	Team-3
Impact-Phase-III	16-May-2024	Chitral	Team-3
Impact-Phase-III	17-May-2024	Chitral	Team-3
Impact-Phase-III	20-May-2024	Chitral	Team-3
Impact-Phase-III	31-May-2024	Dera Ismail Khan	Team-1
Impact-Phase-III	03-Jun-2024	Dera Ismail Khan	Team-1
Impact-Phase-III	04-Jun-2024	Dera Ismail Khan	Team-1
Impact-Phase-III	05-Jun-2024	Dera Ismail Khan	Team-1
Impact-Phase-III	06-Jun-2024	Dera Ismail Khan	Team-1
Impact-Phase-III	31-May-2024	Hangu	Team-3
Impact-Phase-III	03-Jun-2024	Hangu	Team-3
Impact-Phase-III	04-Jun-2024	Hangu	Team-3
Impact-Phase-III	05-Jun-2024	Hangu	Team-3
Impact-Phase-III	06-Jun-2024	Hangu	Team-3
Impact-Phase-III	07-Jun-2024	Hangu	Team-3
Impact-Phase-III	10-Jun-2024	Haripur	Team-3
Impact-Phase-III	07-Jun-2024	Karak	Team-1
Impact-Phase-III	10-Jun-2024	Karak	Team-1
Impact-Phase-III	11-Jun-2024	Karak	Team-1
Impact-Phase-III	12-Jun-2024	Karak	Team-1
Impact-Phase-III	13-Jun-2024	Karak	Team-1
Impact-Phase-III	14-Jun-2024	Karak	Team-1
Impact-Phase-III	20-Jun-2024	Karak	Team-1
Impact-Phase-III	21-Jun-2024	Karak	Team-1
Impact-Phase-III	24-Jun-2024	Karak	Team-1
Impact-Phase-III	25-Jun-2024	Karak	Team-1
Impact-Phase-III	26-Jun-2024	Karak	Team-1

Phase. #	Survey Date	District	Team. #
Impact-Phase-III	11-Jun-2024	Khyber	Team-3
Impact-Phase-III	12-Jun-2024	Kohat	Team-3
Impact-Phase-III	13-Jun-2024	Kurram	Team-3
Impact-Phase-III	14-Jun-2024	Kurram	Team-3
Impact-Phase-III	27-Jun-2024	Lakki Marwat	Team-1
Impact-Phase-III	28-Jun-2024	Lakki Marwat	Team-1
Impact-Phase-III	01-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	02-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	03-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	04-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	05-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	08-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	09-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	10-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	11-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	12-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	15-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	16-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	17-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	18-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	19-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	22-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	23-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	24-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	25-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	26-Jul-2024	Lakki Marwat	Team-1
Impact-Phase-III	20-Jun-2024	Lower Dir	Team-3
Impact-Phase-III	21-Jun-2024	Lower Mohmand	Team-3
Impact-Phase-III	24-Jun-2024	Lower Mohmand	Team-3
Impact-Phase-III	29-May-2024	North Waziristan	Team-3
Impact-Phase-III	30-May-2024	North Waziristan	Team-3
Impact-Phase-III	09-Jul-2024	Shangla	Team-2
Impact-Phase-III	10-Jul-2024	Shangla	Team-2
Impact-Phase-III	23-May-2024	South Waziristan	Team-3
Impact-Phase-III	24-May-2024	South Waziristan	Team-3
Impact-Phase-III	27-May-2024	South Waziristan	Team-3
Impact-Phase-III	28-May-2024	South Waziristan	Team-3
Impact-Phase-III	15-May-2024	Swat	Team-2
Impact-Phase-III	16-May-2024	Swat	Team-2
Impact-Phase-III	17-May-2024	Swat	Team-2
Impact-Phase-III	20-May-2024	Swat	Team-2
Impact-Phase-III	21-May-2024	Swat	Team-2
Impact-Phase-III	22-May-2024	Swat	Team-2
Impact-Phase-III	23-May-2024	Swat	Team-2
Impact-Phase-III	24-May-2024	Swat	Team-2
Impact-Phase-III	27-May-2024	Swat	Team-2
Impact-Phase-III	28-May-2024	Swat	Team-2
Impact-Phase-III	29-May-2024	Swat	Team-2
Impact-Phase-III	30-May-2024	Swat	Team-2
Impact-Phase-III	31-May-2024	Swat	Team-2
Impact-Phase-III	03-Jun-2024	Swat	Team-2
Impact-Phase-III	04-Jun-2024	Swat	Team-2

Phase. #	Survey Date	District	Team. #
Impact-Phase-III	05-Jun-2024	Swat	Team-2
Impact-Phase-III	06-Jun-2024	Swat	Team-2
Impact-Phase-III	07-Jun-2024	Swat	Team-2
Impact-Phase-III	10-Jun-2024	Swat	Team-2
Impact-Phase-III	11-Jun-2024	Swat	Team-2
Impact-Phase-III	12-Jun-2024	Swat	Team-2
Impact-Phase-III	13-Jun-2024	Swat	Team-2
Impact-Phase-III	14-Jun-2024	Swat	Team-2
Impact-Phase-III	20-Jun-2024	Swat	Team-2
Impact-Phase-III	21-Jun-2024	Swat	Team-2
Impact-Phase-III	29-Jul-2024	Tank	Team-1
Impact-Phase-III	30-Jul-2024	Tank	Team-1
Impact-Phase-III	24-Jun-2024	Upper Dir	Team-2
Impact-Phase-III	25-Jun-2024	Upper Dir	Team-2
Impact-Phase-III	26-Jun-2024	Upper Dir	Team-2
Impact-Phase-III	27-Jun-2024	Upper Dir	Team-2
Impact-Phase-III	28-Jun-2024	Upper Dir	Team-2
Impact-Phase-III	01-Jul-2024	Upper Dir	Team-2
Impact-Phase-III	02-Jul-2024	Upper Dir	Team-2
Impact-Phase-III	03-Jul-2024	Upper Dir	Team-2

ANNEX - III: SUCCESS STORIES

"IMPACT OF STREAM BANK STABILIZATION (SBS) IN DIR LOWER, KP"

The ME&IE Team visited SBS named Rahman ud Din along with Field team of S&WC Timergara. The Team took measurements of the dimensions of Stream bank Stabilization (SBS) and interviewed the landowner.


Measuring the SBS by the ME&IE Team

Beneficiary: Rahman ud Din
Village: Kamal Khan
UC: Adenzai
Distt: Dir Lower
Division: Malakand
Financial year: 2021-22

Measurements of SBS:

Length: 191ft
Top width: 2ft
Bottom width: 8ft
Height: 8.5ft
Cultivable Area: 4-kanals


Stream Bank Stabilazation (SBS)

Yield Production:

The farmer was interviewed about the intervention, was reported that before this intervention, about 4-kanals of the land was under constant risk of erosion by floods, but after the construction of the intervention, the entire land (4-kanals) has been reclaimed/ protected and is cultivable now. Due to the increase in crop productivity, income also increased. This will produce an additional 600-800 kgs of maize.

Major Benefits:

Before the intervention the land was eroding gradually each year by the flash floods during the rainy season.
The impact that has been brought to the farmer by this intervention is clearly visible from the change in the farmer's household, Crop productivity, crop intensity and income were increased.

Results:

- Soil erosions were stopped.
- Recovered 4-kanals land for cultivation.
- It has improved the economic conditions of households as increased in the number of livestock; the additional land will cater to the fodder needs of livestock as the byproduct of crop can be used for animals.
- The economic conditions of households have improved to a great extent as having extra monitory value than earlier.
- Before the intervention, the farmer was running household expenses on loans from multiple sources but since then, paid off all the loans because the harvest was plentiful. Also sold the excess crop after catering to basic needs as no further need to take a loan, thus improving financial capacity to divert these proceeds to more productive chores.

"IMPACT OF WATER POND IN CHITRAL LOWER, KP"

This pond increases farmer income directly as earlier the land was not suitable for cultivation. After the construction of the pond, the farmer can irrigate **56-kanals** land where he planted Apple trees. The farmer has since then become more stable financially compared to before the pond construction. Earlier the Farmer have only one educated child as could not afford to bear the educational expenses of all, after the intervention proved productive, he got all his children in school and can afford better healthcare facilities and have also constructed new house. The pond was made under a trickling water of spring approx. **0.5-inch** pipe that fills the pond in 24-36 hours and ultimately irrigates the **56-kanal**.

Beneficiary:	Asad Water Pond
Village:	Chamarkand
UC:	Broze
Distt:	Chitral Lower
Division:	Chitral
Finical year:	2021-22


Water Pond

Dimensions:

Length:	35ft
Width:	40ft
Depth:	5ft
Before Intervention:	0-acre
After intervention:	56 Kanal
Command Area:	56 Kanal


Water Pond is filled through fountain

Intervention:

A team of ME&IE and Soil and water Conservation department visited Asad water pond Chamarkand UC: Broze dist. Lower Chitral. During the interview the landlord informed the team that the whole water pond is filled in **24** to **36** hours. Afterward the water is then used for irrigation and livestock drinking.

Status of Beneficiary:

Before the intervention the whole land was barren and had no plants and crops except wild shrubs while after the intervention the command area of the water pond is **56-kanals** and now he has planted different fruit trees of Apple, Peach, and pomegranates. The area is famous for pomegranates.

Command Area:

The farmer told us that for the 1st time he had cultivated wheat and the production of one year is equal to the last 5 years due to the availability of water now. The total wheat production this year from **28-kanals** that gives **62-maunds** and byproduct were sold for R**s.93,000**. Now all the land of **56-kanals** is cultured for wheat, different vegetables and fodder crops. Before the intervention the farmer had negligible income while after the intervention the crop productivity and income increased to **60,000-rupees** per season.

Command Area

"IMPACT OF TERRACING ON CROP PRODUCTION AT KO ZABAKHEL, KABAL-SWAT, KP"

The ME&IE team observed that this intervention has brought a lot of change in the farmer's household, earlier they used to buy fodder for their livestock from the market which costs them a lot, but now after this intervention they can grow their own fodder along with other crops.

Beneficiary:	Zafar Ali
Village:	Kotlay
Tehsil:	Kabal
District:	Swat
Financial Year:	2020-21

Intervention:

A team of ME&IE and Soil and Conservation Department visited Zafar Ali terracing Kozabakhel, Kabal-Swat. The team determined that the fertile land is utilized for fruits, vegetables & crops. The owner benefited a lot from this intervention and told the team how the intervention has improved the economic conditions of his house and it covers the costs of children's education & health care needs.

Measurements:

Length:	425-ft
Width:	18-ft
Depth:	8-ft
Before Intervention:	0-
After Intervention:	12-kanals
Area reclaimed:	12-kanals.

Reclaimed Area:

As the farmer was interviewed, it was reported that before the activity, the whole area was barren patch of about **12-kanals,** no crops would grow here except wild weeds because the surface was uneven and every rainy season the land was eroding constantly draining surface mud with it, but after the intervention a total of **12-kanals** land was recovered and made ready for cultivation. The intervention not only saved the land from sliding but also created a cultivable resource for the household. The activity has turned that land into a rich cultivable holding and this year the farmer had sown maize, which was not possible before. The following table shows the details of the annual crop.

Area (kanals)	Corps	Maunds	By Product (maunds)
12	Maize	15	6
8	Wheat	12	5
4	Vegetables	-	-


Countour type of Terracing

The extra output resulted in better living standards and generating valuable by product for their cattle as well in the process.

Impact on Livestock Rearing:

Due to the activity, Farmers are raising fodder for their livestock instead of relying on wild and native shrubs to feed their livestock. This increase in fodder raises their income by **10%** through selling animals for meat and milk production. Rearing more animals is not only increasing female community member's income but also making them independent in decision making. These activities will improve nutritional status of all the family members in general and specifically for females and kids.

Line Departments Collaboration for Development:

Soil and Water Conservation Department has established their interventions i.e., Water ponds, Stream Bank Stabilization, Terracing inlet.

outlet spillways etc. The impact of these interventions is quite clear as this has enhanced the cropping patterns, cropping intensities, crop yields and thus has changed the socio-economic status of the farmers. As the area is Barani and more interventions are required in this area to conserve rainwater and to utilize the stored rainwater for irrigation purposes.

The latest move by these farmers is to establish peach plantations and increase inter-cropping. Apart from this, farmers are also struggling to produce off-season vegetables to supply markets in nearby big cities for a good price. The intervention has transformed the lives of the farmers & their families and became an inspiration to many neighboring famers in the village of Kozabakhel, Kabal, Swat and their surrounding area.


Reclaimed Area

RESULTS:

- Before the intervention the whole area was barren wasteland, but after the intervention about **12-kanals** area was made available for cultivation.
- After the intervention he had grown a crop of maize over 1.5-acre.
- Decreases in the slope length and gradient by dividing the hillsides into short gradual parts, resulting in impacts on the hydrology and vegetation growth. Soil erosion and soil fertility losses are minimal compared to frequently eroding land earlier.

"IMPACT OF WATER POND IN ABBOTTABAD, KP"

This pond has increased farmer's income and the farmer is now self-sufficient in grains and other household utilities. Before this water pond, the land was not suitable for cultivation and the farmer used to cultivate vegetables in only 2 kanal with negligible produce. After the construction of the water pond, the farmer can now irrigate **40-kanals** land & has cultivated maize in the whole area.

Beneficiary:	Abdul Wahid
Village:	Gumthala
UC:	Majho
Distt:	Abbottabad
Division:	Hazara
Finical year:	2021-22


Water Pond

Dimensions:

Length:	34ft
Width:	34ft
Depth:	4.5ft
Before Intervention:	0.25-acre
After intervention:	5 Acres
Command Area:	5 Acres

Intervention:

ME&IE team and Soil & Water Conservation Dept representative visited Abdul Wahid water pond in Gumthala UC: Majho dist. Abbottabad. The team interviewed the farmer about the intervention. The water pond is fed from perennial spring through which the water pond fills up in 24 hours.

Status of Beneficiary:

Before the intervention, the land was not capable of cultivation and farmers used to plant vegetables only on 2-Kanal which was not sufficient even for their home use. After the construction of the water pond, the farmer can now irrigate the land of about 40-Kanal and has cultivated maize on the whole area while the farmer was eager to cultivate wheat in the coming season.

Command Area:

The farmer said that they have cultivated maize for the 1st time and the production of maize is expected to be 25 mds. He was eager about the cultivation of wheat on his land about which he was confident to get a production of approx. 30 mds. The farmer told the Team that, through this intervention, production from the land has not only made us self-sufficient in food, grains etc. but also generating extra income for the household as well.

ANNEX - IV: MONITORING TOOLS FOR IMPACT SURVEY

WATER CONSERVATION IN BARANI AREAS OF KHYBER PAKHTUNKHWA (WC-KP)

QUESTIONNARE

A) Baseline Survey ---------- B) Monitoring Survey---------- C) Impact Survey----------

SR. #	DESCRIPTION	
IDENTIFICATION:		
1.	Questionnaire Unique ID	
2.	Division	
3.	District	
4.	Tehsil	
5.	Union Council	
6.	Village	
RESPONDENT INFORMATION:		
7.	Name of Respondent	
8.	Age (Years) (In Completed Years)	
9.	Level of Education (Completed Years)	
10.	Occupation	
11.	Tribe / cast	
12.	Family Members? (Adult equivalent)	
13.	Male-Member full time available for farming (adult equivalent)	
14.	Female-Member full time available for farming (adult equivalent)	
15.	Male-Member part time available for farming (adult equivalent)	

SR. #	DESCRIPTION				
16.	Female-Member part time available for farming (adult equivalent)				
17.	Male-Permanent hired labor (PHL) (adult equivalent)				
18.	Female-Permanent hired labor (PHL) (adult equivalent)				
WATER USED FOR					
19.	Crop production/irrigation	Yes	No		
20.	Livestock drinking	Yes	No		
21.	Human / community consumption	Yes	No		
22.	If Yes in Q 21 - distance & time for fetching water	Before		After	
		Distance (km)	Time (hrs)	Distance (km)	Time (hrs)
LAND UTILIZATION:					
23.	Total gross area (acres) a) Owned b) Shared Cropped c) Rented in d) Rented out	Before Intervention ---------- ---------- ---------- ----------		After Intervention ---------- ---------- ---------- ----------	
24.	Total culturable area (acres)				
25.	Total Cultivated area (acres) a) Irrigated (Source of irrigation): Tube well = 1, Tank = 2, Pond = 3, Other = 4 b) Non-irrigated	Before Intervention ---------- ----------		After Intervention ---------- ----------	
26.	Tenure Status and area (acres): a) Own (O) b) Tenant (T) c) Owner Cum Tenant (OCT)	Before Intervention ----------		After Intervention ----------	

SR. #	DESCRIPTION		
		----------	----------
		----------	----------

27.	Cropped area (acres)	Before Intervention	After Intervention
	a) Irrigated	----------	----------
	b) Non-irrigated	----------	----------
	c) Rabi area	----------	----------
	Wheat (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Barley (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Fodder (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Oilseeds (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Pulses (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Other (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	d) Kharif area	----------	----------
	Maize (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Rice (Area and yield)	-----(Acre)------(Mds	-----(Acre)------(Mds)
	Fodder (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Oilseeds (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Pulses (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	Other (Area and yield)	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	e) Vegetable area	----------	----------
	i. Rabi	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	ii. Kharif	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	f) Sugarcane area	----------	----------
	i. Fresh	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	ii. Ratoon	-----(Acre)------(Mds)	-----(Acre)------(Mds)
	g) Orchard area	----------	----------
	h) Intercrop/mix crop	-----(Acre)------(Mds)	-----(Acre)------(Mds)
		-----(Acre)------(Mds)	-----(Acre)------(Mds)
		-----(Acre)------(Mds)	-----(Acre)------(Mds)

		-----(Acre)------(Mds)	-----(Acre)------(Mds)
FARM INPUTS & YIELD			
28.	Tractor use for ploughing a) Deep ploughing b) Seed bed preparation ploughing	Hours/acre ---------- ----------	Rate (Rs. /hrs) ---------- ----------
29.	Harvesting & threshing a) Reaper uses for harvesting b) Thresher uses for harvesting c) Combine use for harvesting	Hours/acre ---------- ---------- ----------	Rate (Rs. /hrs) ---------- ---------- ----------
30.	Labour wages a) Male b) Female	Hours/acre ---------- ----------	Rate (Rs. /hrs) ---------- ----------

Name of crop	Area (Acres)	31. Land preparation		32. Seedbed preparation		33. Seed sowing / nursery transplanting															34. Seed treatment cost				35. Farm yard manure (FYM)		
		Hr/ acre	Rate/ hr	Hr/ acre	Rate/ hr	Use of seed		Seedling cost/acre		Sowing Broad cast		Sowing Drill			Transplantation (nursery)			Plantation (orchard)			Costacre	Labour Cost		No. of trollies/ acre)	Cost per trolley (Rs / trolley)	Labour (No.) (Man days)	Labour cost (Rs / acre)
						Kg/ acre	Rs./ kg	Home Grown	Bought (Rs/ac)	Male (MD)	Female (MD)	Cost Rs/acre	Male (MD)	Female (MD)	Cost Rs/acre	Male (MD)	Female (MD)	Cost Rs/acre	Male (MD)	Female (MD)		Male (MD)	Female (MD)				
Rabi wheat																											
Rabi barley																											
Rabi Fodder																											
Rabi Oilseeds																											
Rabi Pulses																											
Rabi Vegetables																											
Other																											
Kharif Maize																											
Kharif Rice																											
Kharif Fodder																											
Kharif Oilseeds																											
Kharif Pulses																											
Kharif Vegetables																											
Sugarcane																											
Orchard																											
Intermix cropping																											
Other																											

Name of crop	36. Use of Fertilizers (No. of bags/acre & price per bag)												37. Number of hoeing/ thinning			38. Mulching / pruning / stalking			39. taxes per crop	40. Tube well irrigation		
	Urea		DAP		Potash (SOP)		NP (23-23)		Other Name		Cost of hired labour		No.	CHL Rs.		No.	CHL Rs.			Hour/acre	Cost/hour	Area irrigated
	Qty bags	Rs/ bag	Qty bags	Rs/ bag	Qty bags	Rs/ bag	Qty bags	Rs/ bag	Qty bags	Rs/ bag	Male (MD)	Female (MD)		Male (MD)	Female (MD)		Male (MD)	Female (MD)				
Rabi wheat																						
Rabi barley																						
Rabi Fodder																						
Rabi Oilseeds																						
Rabi Pulses																						
Rabi Vegetables																						
Other																						
Kharif Maize																						
Kharif Rice																						
Kharif Fodder																						
Kharif Oilseeds																						
Kharif Pulses																						
Kharif Vegetables																						
Sugarcane																						
Orchard																						
Intermix cropping																						
Other																						

Name of crop	41. Spray to control weeds (weedicide)			42. Spray to control diseases (fungicide etc.)			43. Spray to control insects (insecticide)			44. Picking of Orchard / Vegetables			45. Harvesting/ picking							46. Crop yield & prices					
	No. of spray (per acre)	Cost of sprays	Cost of hired labour	No. of spray (per acre)	Cost of sprays	Cost of hired labour	No. of spray (per acre)	Cost of sprays	Cost of hired labour	No. of picking	CHL Rs. Male (MD)	CHL Rs. Female (MD)	Harvest material Cost (Rs)	CHL Rs. Male (MD)	CHL Rs. Female (MD)	Cost of Reaper (Rs)	Cost of Threshing or Combine harvesting	CHL Rs. Male (MD)	CHL Rs. Female (MD)	Area (acre)	Yield Product (40 Kgs)	Yield By-product (40 Kgs)	Prices Product price (Rs./ 40 Kg)	Prices By-Product (Rs. /40 Kg)	In case sold as such Rs. /acre for fruit plants only
Rabi wheat																									
Rabi barley																									
Rabi Fodder																									
Rabi Oilseeds																									
Rabi Pulses																									
Rabi Vegetables																									
Other																									
Kharif Maize																									
Kharif Rice																									
Kharif Fodder																									
Kharif Oilseeds																									
Kharif Pulses																									
Kharif Vegetables																									
Sugarcane																									
Orchard																									
Intermix cropping																									
Other																									

SOCIAL MOBILIZATION THROUGH CAPACITY BUILDING OF REDUCTION IN WATER DISPUTES, MOTIVATION / PARTICIPATION OF FARMERS:				
47.	Is WCA formed at your Water Sources (WS)? Yes / No. If No move to Q 73.	[ ]		
48.	Name of Farmer			
49.	Contact # of Farmer			
50.	Who contributed for improvement of intervention	Govt.	Farmer	Both
51.	Has the WS been useful to you, a) Yes, b) No.			[ ]
52.	If no, what in your view is lacking in WS? a) Personal property, b) Far away, c) Not available/ accessible) Any other pl. specified			[ ]
53.				[ ]
54.	Are female members involved in decision making? a) Yes, b) No.			[ ]
55.	Was your participation voluntary? a) Yes, b) No.			[ ]
56.	Did you pay any membership contribution to become member of WCA? Yes / No.			[ ]
57.	Do all the WCA members are water users? a) Yes, b) No.			[ ]
58.	How many water disputes solved by WCA till to-date? (numbers)			[ ]
59.	Is there any grievances re-dressal committee regarding water disputes? a) Yes, b) No.			[ ]
60.	Are you willing to contribute your labor or in case affordable money towards the work to be carried out by the organization for the development of your area? a) Yes, b) No., c) Don't Know			[ ]
61.	Does WCA hold regular meetings of the association? a) Yes, b) No.			[ ]
62.	Do you participate in the WCA meetings? a) Yes, b) No.			[ ]
63.	Do you know that the minutes are recorded and got approved in the next meeting? a) Yes, b) No.			[ ]

64.	To what extent are you satisfied with the maintenance of the irrigation system?	Not at all	To some extent	To large extent	
65.	Do decisions make democratically? a) Yes, b) No.			[ ]	
66.	Do majority of the members participate in the meetings? a) Yes, b) No.			[ ]	
67.	What is the frequency of WCA meetings?	Every month	Quarterly	Once a year	As per need arises
68.	Do you aware about functions and responsibilities of the Association? a) Yes, b) No.			[ ]	
69.	Do you think WCA helps in solving your farming problems? a) Yes, b) No.			[ ]	
70.	Do you Know that your water conservation structure is going to be newly constructed/additionally constructed/ reconstructed? a) Yes, b) No.			[ ]	

SOCIAL INFORMATION AND WOMEN PARTICIPATION:				
71.	Do women participate in farming activities? a) Yes, b) No.			[ ]
72.	Have you (female) heard about WC-KP Project? a) Yes, b) No.			[ ]
73.	Do you (female) know about WC-KP. a) Yes, b) No.			[ ]
ENVIRONMENTAL ISSUES:				
74.	Total number of trees on the Water Conservation Structure (WCS) before activity?	(Start) [ ]	(Middle) [ ]	(End) [ ]
75.	Will any tree be cut down on this WCS? a) Yes, b) No.			[ ]
76.	No. of trees to be cut down on this WCS?	(Start) [ ]	(Middle) [ ]	(End) [ ]
77.	No. of trees planted on this WCS after the activity	(Start) [ ]	(Middle) [ ]	(End) [ ]
REDUCTION IN WATER LOGGING AND SALINITY;				
78.	Do you know the depth of Water table of your land? a) Yes, b) No.			[ ]
79.	How much depth of water table was 01 year ago			[ ]

LIVESTOCK/ ANIMALS:			
	Entity*	**Number**	**Value (Rs)**
80.	Buffaloes		
81.	Cows		
82.	Bullocks		
83.	Sheep		
84.	Goats		
85.	Camels		
86.	Poultry		
87.	Horses		
88.	Donkeys		
* Two small animal count one			

INCOME & EXPENSES (Rs in thousands)						
89.	Income from crops from whole year					
90.	Income from livestock from whole year					
91.	Income from labor (from outside farm) per annum					
92.	Any other source----------					
93.	Total income (Per year)					
94.	Total family expenditure (Per Year)					
95.	If expenditure more than income how you manage?		Yes		No	
96.	If Yes Q 99 please respond accordingly	Loan (relative)	Loan (friend)	Loan (banks)	Sale of assets	Any other

HOW MANY TIMES HAVE THE FOLLOWING AGENTS OR REPRESENTATIVES OF THE AGENCIES VISITED YOUR FARM OR YOU VISITED THEM DURING THE LAST TWO SEASONS?			
97.	a) S&WC Directorate representative	No of times [ ]	Benefit achieved Yes [ ], No [ ]
98.	b) Agri. Engineering representative	No of times [ ]	Yes [ ], No [ ]
99.	c) AGES Consultants representative	No of times [ ]	Yes [ ], No [ ]
100.	d) Agriculture extension agent	No of times [ ]	Yes [ ], No [ ]
101.	e) Pesticides company agent	No of times [ ]	Yes [ ], No [ ]
102.	f) Fertilizer company representative	No of times [ ]	Yes [ ], No [ ]
103.	g) Agriculture credit officer	No of times [ ]	Yes [ ], No [ ]

AGRICULTURE EQUIPMENTS:			
104.	Do you own a Tractor? a) Yes, b) No.	[ ]	If Yes value Rs----------
105.	Do you own Thresher? a) Yes, b) No.	[ ]	If Yes value Rs----------
106.	Do you own Seed drill? a) Yes, b) No.	[ ]	If Yes value Rs----------
107.	Do you own Rotavator? a) Yes, b) No.	[ ]	If Yes value Rs----------
108.	Do you own Reaper? a) Yes, b) No.	[ ]	If Yes value Rs----------

WATER CONSERVATION & AGRI ENGINEERING ACTIVITIES			
1.	Water Pond	Yes	No, go to next activity
2.	Check Dam	Yes	No, go to next activity
3.	Water Reservoir	Yes	No, go to next activity
4.	Stream Bank Stabilization (SBS)	Yes	No, go to next activity
5.	Gated Field Inlet Outlets / Spillways (GFIO&S)	Yes	No, go to next activity
6.	Terracing	Yes	No, go to next activity
7.	Micro-Watershed Development (MWD)	Yes	No, go to next activity
8.	Water Seepage Harvesting Galleries (WSHG)	Yes	No, go to next activity
9.	i. Agronomic Low-Cost Interventions	Yes	No, go to next activity
	ii. Low-Cost Brush Wood Check Dam	Yes	No, go to next activity
	iii. Loose Stone Check Dam	Yes	No, go to next activity
10.	Sand Dunes Stabilization	Yes	No, go to next activity
11.	Capacity Building	Yes	No, go to next activity
12.	Installation of Tube Wells	Yes	No, go to next activity
13.	Solarization of Tube Wells	Yes	No, go to next activity

Interviewed By: ----------

Checked By: ----------

ACTIVITY 1. WATER POND

DEMOGRAPHIC, DIMENSIONS & STRUCTURE					
1	Water Pond Location	Address ----------	Northing ----------	Easting ----------	
2	Water Pond Number				
3	Source of Water & harvested from	Runoff		Perennial springs	
4	Water Pond Size (feet)	Length----	Width ---	Depth ------	
5	Water Pond Shape	Rectangular	Square	----- ---	-------
6.	Water Storage capacity				
7	Water Pond Structure	Cemented	Earthen	----- ----	-------
8	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes		No No	

Water Used For				
9	Crop production / irrigation	Yes		No
10	Command area of pond (acre)			
11	Community & Livestock Drinking	Yes		No
12	If Yes in Q 10 (distance & time) for fetching water	Before	Distance Decrease	Time Reduced (hours)
13.	Ground Water Recharge	Yes		No

Fish Rearing				
14.	Fish Rearing	Yes	No, go to Q 22	
15	Fish Type (Catla, Rohu, Common, Chinese, Silver & Salmon Crap, Trout, Tilapia etc.)			
16	Total cost	----------Rs per year		
17	Production	----------kg per year		
18	Price	----------Rs per Kg		
19	Fish Consumption per year	----------Rs Sold	Home (kg) Before-----	Home(kg) After-----
20	Problems/issues in fish farming: Plz rank i. Availability of fingerlings, seedlings etc. ii. Diseases	Yes ----------	Rank ----------	No ----------

	iii. Manuring / feeds iv. Marketing v. Any other	---------- ---------- ---------- ----------	---------- ---------- ---------- ----------	---------- ---------- ---------- ----------
EMPLOYMENT ENGAGED IN FISH FARMING				
21	Employment i. Permanent ii. Casual iii. Daily wages	Before ---------- ---------- ----------	After ---------- ---------- ----------	
BENEFICIARY FEED BACK				
22	After submission of application, how much period took to complete the water pond?	Months	Days	
23	The Water Pond was completed as per approved standards and specifications	Yes	No	
24	If No in Q 23 than any variations in specifications and	Yes	No	
25	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment
26	How you assess survey and design process	Fast Track	Lengthy	No comment
27	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
28	The Project Share	Within reasonable time	Required lot of efforts	No comment
29	How you feel maintenance of Water Pond	Easy	Difficult	No comment
30	Do you think Water Pond encourages mosquito population	Yes	No	No comment
31	If yes what measures you take to control it	Sprays	None	No comment
32	Any comment/observation you want to share?	_____ _____		

MT-01: WATER POND (WP) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Water Pond (WP) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Water Pond (WP)**
3.1	**Shape of Water Pond (WP)?**
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the WP using his/her own funds before Government share?**
1	Yes
2	No
4.2	**What benefits you can expect from WP Irrigation (How Mach area)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water
5	Reduce soil erosion
6	Better control on water supply

7	Any other, Specify
4.3	**The WP was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the WP, the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6 then continue with Q# 4.6.1	**Otherwise go to Q# 4.7**
4.6.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
4.7	**Does the water depth in WP exceed 5 feet?**
1	Yes
2	No

ACTIVITY 2. CHECK DAM

DEMOGRAPHIC, DIMENSIONS & STRUCTURE										
1	Check Dam Location									
2	Check Dam Number									
3	Source of Water & harvested from					Ditches	Stream	Channels	Gullies	Other
4	Check Dam Type					Land filled		Stone Masonry		
5	Check Dam Purpose	Productive - farming	Flood control – flood water	Intercepting sediments-	Water storage- irrigation	Rock check- stabilizing vegetation or reducing bed gradient		Gully check- control gully development		Others
6	Check Dam Structure					Cemented	Gravel bags	Sand bags	Stone Masonry	-------
7	Soil Reclamation (acres)									
8	a. Approval by S&WC Directorate b. Validated by Consultant (AGES)					Yes Yes		No No		
BENEFICIARY FEED BACK										
9	After submission of application, how much period took to complete the check dam?					Months		Days		
10	The Check dam was completed as per approved standards and specifications					Yes		No		
11	If No in Q 23 than any variations in specifications					Yes		No		
12	How your application was attended by S&WC staff				Promptly	Took lot of time		No Comment		
13	How you assess survey and design process				Fast Track	Lengthy		No comment		
14	Quality of S&WC staff behavior				Friendly / supportive	Indifferent		No comment		
15	The government Share was paid				Within reasonable time	Required lot of efforts		No comment		
16	How do you matins Check Dam				Easy	Difficult		No comment		
17	Do you think Check Dam encourages mosquito population				Yes	No		No comment		

18	If yes what measures you take to control it	Sprays	None	No comment
19	Any comment/observation you want to share?			

MT-02: CHECK DAM (CD) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Check Dam (CD) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Check Dam (CD)**
3.1	**Shape of Check Dam (CD)?**
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Check Dam (CD) using his/her own funds before Government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Check Dam (CD)**
1	Enhanced ground water recharge siltation or plugging of the gullies reduce velocity of flood water
2	Reduce water bills
3	Extend water supply
4	Reduce soil erosion
5	Better control on water supply
6	Any other, Specify

4.3	**The Check Dam (CD) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**As above the AGES Consultants inspected the excavation?**
1	Yes
2	No
4.6	**Before filling the Check Dam (CD), the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.7	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.7 then continue with Q# 4.7.1	**Otherwise go to Q# 4.8**
4.7.1	**Government share was paid as per cost estimates based on geo-membrane design?**
1	Yes
2	No
4.8	**Does the water depth in Check Dam (CD) exceed Veins? /**
1	Yes
2	No
4.9	**Based in the need on cost?**
1	Yes
2	No
4.10	**Do all joints weld through fusion welding or other similar techniques?**
1	Yes
2	No
If yes in Q# 4.10 then continue with Q# 4.10.1	**Otherwise go to End**

4.10.1	**Is the testing of Joints welded parts done before filling the Check Dam (CD)?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 3. WATER RESERVOIR

DEMOGRAPHIC, DIMENSIONS & STRUCTURE					
1	Water Reservoir Location	Address ----------	GPS ----------	Coordinate ----------	
2	Water Reservoir Number				
3	Source of Water & harvested from	Rainfall /runoff	Flowing water /perennial springs		
4	Water Reservoir Type	Cemented	Earthen		
5	Water Reservoir Shape	Rectangular	Square	Irregular	-------
6	Water Reservoir Structure	Stone	Masonry		
7	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes	No No		
Water Used For					
8	Crop production / irrigation	Yes	No		
9	Command area of pond (acre)				
10	Community & Livestock Drinking	Yes	No		
11	If Yes in Q 10 (distance & time) for fetching for water	Before	Distance Decrease	Time Reduced (hours)	
12.	Water table (feet)	Before (-------)	After (-------)		
Fish Rearing					
13.	Fish Rearing	Yes	No, go to Q 22		
14	Fish Type (Catla, Rohu, Common, Chinese, Silver & Salmon Crap, Trout, Tilapia etc.)				
15	Total cost	----------Rs per year			
16	Production	----------kg per year			
17	Price	----------Rs per Kg			
18	Fish Consumption per year	----------Rs Sold	Home (kg) Before-----	Home(kg) After-----	
19	Problems/issues in fish farming: Please rank Availability of fingerlings, seedlings etc. Diseases Manuring / feeds Marketing Any other	Yes	Rank	No	
EMPLOYMENT ENGAGED IN FISH FARMING					

20	Employment Permanent Casual Daily wages	Before	After
BENEFICIARY FEED BACK			
21	After submission of application, how much period took to complete the water reservoir?	Months	Days
22	The Water Pond was completed as per approved standards and specifications	Yes	No
23	If No in Q 23 than any variations in specifications and	Yes	No

24	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment
25	How you assess survey and design process	Fast Track	Lengthy	No comment
26	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
27	The government share was paid	Within reasonable time	Required lot of efforts	No comment
28	How you feel maintenance of Water Reservoir	Easy	Difficult	No comment

29	Any comment/observation you want to share?	_____ _____

MT-03: WATER RESERVOIR (WR) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Water Reservoir (CD) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Water Reservoir (CD)**
3.1	**Shape of Water Reservoir (CD)?**
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Water Reservoir (CD) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Water Reservoir (CD)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water
5	Reduce soil erosion

6	Better control on water supply
7	Any other, Specify
4.3	**The Water Reservoir (CD) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the Water Reservoir (CD), the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No

If yes in Q# 4.7 then continue with Q# 4.10.1	**Otherwise go to End**
4.8.1	**Is the testing of Joints?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 4. STREAM BANK STABILIZATION (SBS)*

DEMOGRAPHIC, DIMENSIONS & STRUCTURE						
1	Stream Bank Stabilization (SBS) Location	Address ----------	GPS ----------	Coordinate ----------		
2	SBS Number					
3	Source of Water & harvested from	Rainfall /runoff	Flood water			
4	SBS Type	a. Vegetative	b. Structural i. Protection bunds ii. Spurs etc.	Combination a & b		
5	SBS Structure	Stone	Gravel bags	Sandbags	Masonry	Any other --------
6	SBS Purpose	To reduce erosion especially in rainy season				
7	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes	No No			
Water Used For						
8	Erosion control	Yes	No			
9	How much land is protected (Acres)					
BENEFICIARY FEED BACK						
10	After submission of application, how much period took to complete the SBS?	Months	Days			
11	The SBS was completed as per approved standards and specifications	Yes	No			
12	If No in Q 11 than any variations in specifications and	Yes	No			
13	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment		
14	How you assess survey and design process	Fast Track	Lengthy	No comment		
15	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment		
16	The government share was paid	Within reasonable time	Required lot of efforts	No comment		
17	How you feel maintenance of SBS	Easy	Difficult	No comment		
18	Any comment/observation you want to share?	_____ _____				

* Protection wall for erosion control

MT-04: STREAM BANK STABILIZATION (SBS) MONITORING TEMPLATE	
IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Stream Bank Stabilization (SBS) Construction?**
1	Technical Sanction (SBS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	Take Picture of Stream Bank Stabilization (SBS)
3.1	Multiple interventions shape of Stream Bank Stabilization (SBS)?
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Stream Bank Stabilization (SBS) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Stream Bank Stabilization (SBS)**
1	Stop soil erosion
2	Reduce pollution
3	Maintaining the flow or storage capacity of the channel or impoundment.
4	Improving or enhancing the stream corridor for fish and wildlife habitat, aesthetics, and recreation.
5	Reducing the downstream effects of sediment resulting from bank erosion.

6	Better control on water supply
7	Any other, Specify
4.3	**The SBS was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the SBS, the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6 then continue with Q# 4.7.1	**Otherwise go to Q# 4.7**
4.7.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
4.8	**Does the water depth in Stream Bank Stabilization (SBS) exceed 5 feet?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 5. GATED FIELD INLET OUTLETS/ SPILLWAYS

DEMOGRAPHIC, DIMENSIONS & STRUCTURE				
1	Gated field inlet outlets (GFIO) & Field Spillways Location	Address ----------	GPS ----------	Coordinate ----------
2	GFIO & Field Spillways Number			
3	Source of water & harvested from	Rainfall/ Rod-Kohi		Mountains/ Sailaba
4	GFIO & Field Spillways Structure	Cemented		Masonry
5	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes		No No
Water Used For				
6	Crop production / irrigation	Yes		No
7	Command area of GFIO (acre)			
8.	Ground Water Recharge due to GFIO	Yes		No
BENEFICIARY FEED BACK				
9	After submission of application, how much period took to complete the GFIO?	Months		Days
10	The GFIO was completed as per approved standards and specifications	Yes		No
11	If No in Q 10 than any variations in specifications and material used	Yes		No
12	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment
13	How you assess survey and design process	Fast Track	Lengthy	No comment
14	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
15	The government share was paid	Within reasonable time	Required lot of efforts	No comment
16	How you feel maintenance of GFIO	Easy	Difficult	No comment
17	Any comment/ observation you want to share?	_____ _____		

MT-05: GATED FIELD INLET OUTLETS/ SPILLWAYS MONITORING TEMPLATE	
IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Gated Field Inlet Outlets/ Spillways (GFIO) Construction?**
1	Technical Sanction (GFIO) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	Take Picture of Gated Field Inlet Outlets/ Spillways (GFIO)
3.1	Shape of Gated Field Inlet Outlets/ Spillways (GFIO)?
1	Length-1 (Feet)?
2	Length-2 (Feet)?
3	Width 1
4	Width 2
5	Depth
4.1	**The farmer completed the GFIO using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Gated Field Inlet Outlets/ Spillways (GFIO)**
1	Stop soil erosion
2	Harvest runoff water
3	Reduced the velocity of runoff water
4	Improving or enhancing the stream corridor for fish and wildlife habitat, aesthetics, and recreation.
5	Reducing the downstream effects of sediment resulting from bank erosion.
6	Better control on water supply
7	Any other, Specify
4.3	**The GFIO was completed as per approved standards and specifications?**

1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**The AGES Consultants inspected the excavation and quality and certified as satisfactory?**
1	Yes
2	No
4.6	**Before filling the GFIO, the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.7	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.7 then continue with Q# 4.7.1	**Otherwise go to Q# 4.8**
4.7.1	**Government share was paid as per cost estimates depend on the different activities?**
1	Yes
2	No
4.8	**Does the water depth in Gated Field Inlet Outlets/ Spillways (GFIO) exceed 5 feet?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 6. TERRACING

DEMOGRAPHIC, DIMENSIONS & STRUCTURE					
1	Terracing Location	Address ----------	GPS ----------	Coordinate ----------	
2	Terracing Activity Field Number				
3	Terracing Type	Contour	Bench	Broad	Etc. .....
4	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes		No No	
Land Used For					
5	Crop production	Yes	No		
6	How much area brought under terracing (acre)				
BENEFICIARY FEED BACK					
7	After submission of application, how much period took to complete the terracing?	Months	Days		
8	The terracing was completed as per approved standards and specifications	Yes	No		
9	If No in Q 8 than any variations in specifications and material used	Yes	No		
10	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment	
11	How you assess survey and design process	Fast Track	Lengthy	No comment	
12	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment	
13	The government share was paid	Within reasonable time	Required lot of efforts	No comment	
14	How you feel maintenance of terracing	Easy	Difficult	No comment	
15	Any comment/observation you want to share?	_____ _____			

MT-06: TERRACING MONITORING TEMPLATE	
IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Terracing Construction?**
1	Technical Sanction Terracing Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	Take Picture of Terracing
3.1	Shape of Terracing?
1	Length-1 (Feet)?
2	Length-2 (Feet)?
3	Width 1
4	Width 2
5	Depth
4.1	**The farmer completed the Terracing using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Terracing?**
1	Stop land sliding
2	Harvest runoff water
3	Retained the nutrients in the soil otherwise washed away with runoff water
4	Reducing the downstream effects of sediment resulting from bank erosion.
5	Better control on water supply
6	Any other, Specify
4.3	**The Terracing was completed as per approved standards and specifications?**
1	Yes
2	No

4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**The AGES Consultants inspected the excavation?**
1	Yes
2	No
4.6	**Before filling the terracing, the WC-KP staff prepared terracing industry?**
1	Yes
2	No
4.7	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.7 then continue with Q# 4.7.1	**Otherwise go to Q# 4.8**
4.7.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
4.8	**Financial Year**
5.1	**Supervisor Confirmation?**
5.2	**Select Submission Status**
5.3	**Comments of interviewer? (if any) (optional)**

ACTIVITY 7. MICRO-WATERSHED DEVELOPMENT (MWD)

DEMOGRAPHIC, DIMENSIONS & STRUCTURE								
1	Micro-Watershed Development (MWD) Location	Address ----------		GPS ----------		Coordinate ----------		
2	MWD Number							
3	Source of Water & Harvested from	Rainfall/runoff			Flowing water /perennial springs			
4	MWD Type	Small (< 1 acre)		Medium (> 1 acres)		Large (1000 Sq Km)		
5	MWD Purpose	Soil Conservation		Water Conservation		Both		
6	Micro-Watershed Consist of	Water ponds	Mini dams	Check dams	Protection bunds	Spurs	Contour ploughing	Etc.
7	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes		No No				
MWD Used For								
8	Land /crop production	Yes		No				
9	How much area converted to agriculture land (acres)							
BENEFICIARY FEED BACK								
10	After submission of application, how much period took to complete the MWD?	Months		Days				
11	The MWD was completed as per approved standards and specifications	Yes		No				
12	If No in Q 11 than any variations in specifications and material used	Yes		No				
13	How your application was attended by S&WC staff	Promptly		Took lot of time		No Comment		
14	How you assess survey and design process	Fast Track		Lengthy		No comment		
15	Quality of S&WC staff behavior	Friendly / supportive		Indifferent		No comment		
16	The government share was paid	Within reasonable time		Required lot of efforts		No comment		
17	How you feel maintenance of MWD	Easy		Difficult		No comment		
18	Any comment/observation you want to share?	_____ _____						

MT-07: MICRO-WATERSHED DEVELOPMENT (MWD) MONITORING TEMPLATE	
IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Micro-Watershed Development (MWD)?**
1	Technical Sanction of Micro-Watershed Development (MWD) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	Take Picture of **Micro-Watershed Development (MWD), if available – Aerial**
3.1	Relevant shape of **Micro-Watershed Development (MWD)**?
1	Length-1 (Feet)?
2	Length-2 (Feet)?
3	Width 1
4	Width 2
5	Hight
4.1	**The farmer/association completed the Micro-Watershed Development (MWD) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Micro-Watershed Development (MWD)?**
1	Water conservation
2	Soil conservation
3	Better control on water supply
4	Any other, Specify
4.3	**The Terracing was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**

1	Yes
2	No
If yes in Q# 4.4 then continue with Q# 4.5.1	**Otherwise go to Q# 4.6**
4.5	**What Watershed Development activities?**
1	Terracing
2	Water pond
3	Mini dam
4	Check dam
5	Any other
4.6	**Financial Year**
5.1	**Supervisor Confirmation?**
5.2	**Select Submission Status**
5.3	**Comments of interviewer? (if any) (optional)**

ACTIVITY 8. WATER SEEPAGE HARVESTING GALLERIES

DEMOGRAPHIC, DIMENSIONS & STRUCTURE				
1	Water Seepage Harvesting Galleries (WSHG) Location	Address ----------	GPS ----------	Coordinate ----------
2	WSHG Number			
3	Source of Water & harvested from	Sub-surface ground water collection system (tank) with perforated pipes		
4	WSHG Type	Shallow in depth	Constructed in a sloppy area	
5	WSHG Purpose	Irrigation	Drinking	
6	.Approval by S &WC Directorate Validated by Consultant (AGES)	Yes Yes	No No	

WSHG Used For			
7	Land /crop production	Yes	No
8	How much area converted to agriculture land (acres)		

BENEFICIARY FEED BACK				
9	After submission of application, how much period took to complete the WSHG?	Months	Days	
10	The WSHG was completed as per approved standards and specifications	Yes	No	
11	If No in Q 10 than any variations in specifications and material used	Yes	No	
12	How your application was attended by S&WC staff	Promptly	Took lot of time	No Comment
13	How you assess survey and design process	Fast Track	Lengthy	No comment
14	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
15	The government share was paid	Within reasonable time	Required lot of efforts	No comment
16	How you feel maintenance of WSHG	Easy	Difficult	No comment
17	Any comment/observation you want to share?	_____ _____		

MT-08: WATER SEEPAGE HARVESTING GALLERIES (WSHG) MONITORING TEMPLATE

IDENTIFICATION

Q#	Field Name
1.1	**Status of Water Seepage Harvesting Galleries (WSHG)?**
1	Technical Sanction of Water Seepage Harvesting Galleries (WSHG) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
	2.SPOT CHECK
2.1	**Collect the coordinates**
2.2	Take Picture of Water Seepage Harvesting Galleries (WSHG)
3.1	Shape of Water Seepage Harvesting Galleries (WSHG)?
1	Length-1 (Feet)?
2	Length-2 (Feet)?
3	Width 1
4	Width 2
5	Hight
4.1	**The farmer/association completed the Water Seepage Harvesting Galleries (WSHG) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Water Seepage Harvesting Galleries (WSHG)?**
1	Water conservation
2	Soil conservation
3	Better control on water supply
4	Any other, Specify
4.3	**The Water Seepage Harvesting Galleries (WSHG) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**

1	Yes
2	No
4.5	**The AGES Consultants inspected the excavation satisfactory?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6 then continue with Q# 4.6.1	**Otherwise go to Q# 4.7**
4.6.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
4.7	**Financial Year**
4.8	**Supervisor Confirmation?**
5.1	**Select Submission Status**
5.2	**Comments of interviewer? (if any) (optional)**

ACTIVITY 9 i. AGRONOMIC LOW-COST INTERVENTION (ALCI)

DEMOGRAPHIC, DIMENSIONS & STRUCTURE					
1	Agronomic Low-cost Intervention (ALCI) Location	Address ----------	GPS ---------- ----	Coordinate ----------	
2	ALCI Number				
3	Cover Crops	Legume cover crops (peas, peanut, gram, beans etc.)	Non-legume cover crops (wheat, barley, rye etc.)	Mustard, radish, turnip etc.	Etc.
4	Cover Crops Availability			Yes	No
5	ALCI Improve	Livelihood	Conserve soil	Conserve water	All
6	ALCI Purpose	Cover soil surface & control soil erosion			
7	a. Approval by S&WC Directorate b. Validated by Consultant (AGES)			Yes Yes	No No

Cover Crops to			
8	Conserve soil & water	Yes	No
9	Control soil erosion	Yes	No
10	Increased yield	Yes	No
11	Improve livelihood	Yes	No

BENEFICIARY FEED BACK				
12	After submission of application, how much period took to complete the Agronomic Low-Cost Intervention?		Months	Days
13	The Agronomic Low-Cost Intervention was completed as per approved standards and specifications		Yes	No
14	If No in Q 13 than any variations in specifications and material used		Yes	No
15	The duration of government share paid	Within reasonable time	Required lot of efforts	No comment
16	How you assess survey and design process	Fast Track	Lengthy	No comment
17	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
18	How you feel adoption of Agronomic Low-Cost Intervention	Easy	Difficult	No comment

19	Do you think Agronomic Low-Cost Intervention encourages insect/disease spread	Yes	No	No comment
20	If yes what measures, you take to control it	Sprays	None	No comment
21	Any comment/ observation you want to share?			

MT-09i: AGRONOMIC LOW-COST INTERVENTION (ALCI)

MONITORING TEMPLATE

IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Agronomic Low-Cost Intervention (ALCI)?**
1	Technical Sanction of **Agronomic Low-Cost Intervention (ALCI)** Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	Take Picture of **Agronomic Low-Cost Intervention (ALCI)**
3.1	Shape of **Agronomic Low-Cost Intervention (ALCI)?**
1	Length-1 (Feet)?
2	Length-2 (Feet)?
3	Width 1
4	Width 2
5	Height
4.1	**The farmer/association completed the Agronomic Low-Cost Intervention (ALCI) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Agronomic Low-Cost Intervention (ALCI)?**
1	Water conservation
2	Soil conservation
3	Better control on water supply
4	Any other, Specify
4.3	**The Agronomic Low-Cost Intervention (ALCI) was completed as per approved standards and specifications?**
1	Yes
2	No

4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the ALCI, the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6then continue with Q# 4.6.1	**Otherwise go to Q# 4.7**
4.6.1	**Government share was paid as per cost estimates based?**
1	Yes
2	No
4.7	**Financial Year**
4.8	**Supervisor Confirmation?**
5.1	**Select Submission Status**
5.2	**Comments of interviewer? (if any) (optional)**

ACTIVITY 9 ii. LOW-COST BRUSH WOOD CHECK DAM (LCBWCD)

DEMOGRAPHIC, DIMENSIONS & STRUCTURE					
1	Low-cost Brush Wood Check Dam (LCBWC) Location	Address ----------	GPS ----------	Coordinate ----------	
2	LCBWC Dam Number				
3	Material Used	Bushes	trees	--------	
4	LCBWC Structure	Posts		Brush	
5	LCBWC Dam Improve	Livelihood	Conserve soil	Conserve water	All
6	LCBWC Dam Purpose	Hold fine material carried by flowing water in the gully			
7	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)	Yes Yes	No No		
Low-cost Brush Wood Check Dam to					
8	Conserve soil & water	Soil	Water	Both	
9	Control soil erosion	Yes	No		
10	Increased yield	Yes	No		
11	Improve livelihood	Yes	No		
BENEFICIARY FEED BACK					
12	After submission of application, how much period took to complete the Agronomic Intervention?		Months	Days	
13	The Agronomic Intervention was completed as per approved standards and specifications		Yes	No	
14	If No in Q 13 than any variations in specifications and material used		Yes	No	
15	The duration of government share paid	Within reasonable time	Required lot of efforts	No comment	
16	How you assess survey and design process	Fast Track	Lengthy	No comment	
17	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment	
18	How you feel maintenance of Low-Cost Brush Wood Check Dam	Easy	Difficult	No comment	
19	Any comment/ Observation you want to share?				

MT-09ii: LOWCOST BRUSH WOOD CHECK DAM (LCBWCD) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of** Low-cost Brush Wood Check Dam (LCBWC) **Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of** Low-cost Brush Wood Check Dam (LCBWC)
3.1	**Shape of** Low-cost Brush Wood Check Dam (LCBWC)**?**
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Low-cost Brush Wood Check Dam (LCBWC) using his/her own government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Low-cost Brush Wood Check Dam (LCBWC)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water

5	Reduce soil erosion
6	Better control on water supply
7	Any other, Specify
4.3	**The Low-cost Brush Wood Check Dam (LCBWC) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the Low-cost Brush Wood Check Dam (LCBWC), the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 9 iii. LOOSE STONE CHECK DAM (LSCD)

DEMOGRAPHIC, DIMENSIONS & STRUCTURE						
1	Loose Stone Check Dam Location	Address ----------		GPS ----------	Coordinate ----------	
2	Loose Stone Check Dam Number					
3	Material Used	Stones		----------		
4	Loose Stone Check Dam Area Catchment	100m		<2 ha	--------	
5	Large Stone Check Dam Working / used for	Initial	Small gullies	Gully network	------	
6	Loose Stone Check Dam Purpose	Control channel erosion along gully bed		Stop water fall erosion by stabilizing gully heads	Both	
7	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)			Yes Yes	No No	

Loose Stone Check Dam to Control			
8	Channel erosion	Yes	No
9	Waterfall erosion	Yes	No
10	Increased yield	Yes	No
11	Improve livelihood	Yes	No

BENEFICIARY FEED BACK				
12	After submission of application, how much period took to complete Loose Stone Check Dam?	Months		Days
13	The Loose Stone Check Dam was completed as per approved standards and specifications	Yes		No
14	If No in Q 13 than any variations in specifications	Yes		No
15	The duration of government share paid	Within reasonable time	Required lot of efforts	No comment
16	How you assess survey and design process	Fast Track	Lengthy	No comment
17	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
18	How you feel maintenance of Loose Stone Check Dam	Easy	Difficult	No comment
19	Do you think Loose Stone Check Dam encourages insect/disease spread	Yes	No	No comment
20	If yes what measures, you take to control it	Sprays	None	No comment

21	Any comment/ Observation you want to share?	

MT-09iii: LOOSE STONE CHECK DAM (LSCD) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Loose Stone Check Dam (LSCD) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Loose Stone Check Dam (LSCD)**
3.1	**Shape of Loose Stone Check Dam (LSCD)?**
1	Trapezoidal
2	Rectangular
3	Brick/Masonry
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Loose Stone Check Dam (LSCD) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Loose Stone Check Dam (LSCD)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water
5	Reduce soil erosion

6	Better control on water supply
7	Any other, Specify
4.3	**The Loose Stone Check Dam (LSCD) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the Loose Stone Check Dam (LSCD), the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6 then continue with Q# 4.6.1	**Otherwise go to Q# 4.7**
4.6.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
4.7	**Does the water depth in Loose Stone Check Dam (LSCD) exceed 5 feet?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 10. SAND DUNES STABILIZATION (SDS)

DEMOGRAPHIC, DIMENSIONS & STRUCTURE				
1	Sand Dunes Stabilization Location	Address ----------	GPS ----------	Coordinate ----------
2	Sand Dunes Stabilization Number			
3	Stabilization of sand dunes methods	Herbaceous plantation	Kana (Saccharum mujga L.)	----------
4	Stabilization of sand dunes purpose	Controlling of sand dunes through plantation		
5	Stabilization of sand dunes increased	Crop Yield	Value addition (homemade items)	----------
6	a. Approval by S &WC Directorate b. Validated by Consultant (AGES)		Yes Yes	No No

Land Used For			
7	Crop production	Yes	No
8	Fruit / Forest	Yes	No
9	Livestock	Yes	No
10	Community	Yes	No

BENEFICIARY FEED BACK			
11	After submission of application, how much period took to complete Sand Dunes Stabilization?	Months	Days
12	The Sand Dunes Stabilization was completed as per approved standards and specifications	Yes	No
13	If No in Q 12 than any variations in specifications and material used	Yes	No

13	The duration of government share paid	Within reasonable time	Required lot of efforts	No comment
14	How you assess survey and design process	Fast Track	Lengthy	No comment
15	Quality of S&WC staff behavior	Friendly / supportive	Indifferent	No comment
16	How you feel maintenance of Stabilization of sand dunes	Easy	Difficult	No comment
17	Do you think Stabilization of sand dunes encourages insect / disease spread	Yes	No	No comment

18	If yes what measures you take to control it	Sprays	None	No comment
19	Any comment/ Observation you want to share?			

MT-10: SAND DUNES STABILIZATION (SDS) MONITORING TEMPLATE	
1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Sand Dunes Stabilization (SDS) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Sand Dunes Stabilization (SDS)**
3.1	**Material/species used for Sand Dunes Stabilization (SDS)?**
1	Kana plant
2	Herbaceous plant
3	Marram grass
4	Any other
3.1.1	Length-1 (Feet)?
3.1.2	Length-2 (Feet)?
3.1.3	Width 1
3.1.4	Width 2
3.2	Depth
4.1	**The farmer completed the Sand Dunes Stabilization (SDS) using his/her own funds before** government share**?**
1	Yes
2	No
4.2	**What benefits you can expect from Sand Dunes Stabilization (SDS)**
1	Natural coastal protection against storm surge and high waves
2	Reduce sand erosion
3	Any other, Specify.
4.3	**The Sand Dunes Stabilization (SDS) was completed as per approved standards and specifications?**

1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes
2	No
4.5	**Before filling the Sand Dunes Stabilization (SDS), the WC-KP staff prepared the completion report?**
1	Yes
2	No
4.6	**Any variations in specifications and material used?**
1	Yes
2	No
If yes in Q# 4.6 then continue with Q# 4.6.1	**Otherwise go to End**
4.6.1	**Government share was paid as per cost estimates?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (If any) (optional)**

ACTIVITY 11. CAPACITY BUILDING (CB)

1	Capacity Building Location					
2	Capacity Building Number					
3	Number of Participants					
4	Trainee	Farmers	Field staff	Officer/Official	Mixed	
5	Resource Person (RP)	Local/district	Provincial	National		
6	Quality of Delivery of RP	Excellent	Good	Average	Poor	Very Poor
7	Capacity Building Type	Training	Exposure visit	----------		
8	Capacity Building in Soil & Water Conservation Techniques	Highway water harvesting	Ground water recharging wells	Sub-surface check dams	Mini dams	----------
9	Capacity Building to Solar Pump/TW	a. Solar Pump	b. Tube Well	Both: a+b		
10	How would you rate the trainings?	Excellent	Good	Average	Poor	Very Poor
11	Do you find contents/brochures of the training relevant to your farming and use of technology(s) demonstrated?	Yes	No			
12	Has training enhanced your technical capacity for service provision?	Yes	No			
13	Do you think the training influence adoption of demonstrated technology(s) in this area?	Yes	No			
14	What is the potential within the community for income generating activities using demonstrated technology(s)?	V. High	High	Average	Poor	V. Poor
15	Would this technology resolve Farmers' problems if adopted?	Yes	No			
16	Do you think that demonstrated technology(s) is feasible for your area?	Yes	No			
17	Do you think the technology(s) demonstrated could increase crop productivity and farm income?	Yes	No			
18	Would you invest on your own to adopt the demonstrated technology(s) at your own	Yes	No			

19	What is role of women in using this demonstrated technology(s)?				
20	Do you think that technology is feasible for your area?				
21	Do you think the technology demonstrated could increase crop productivity and farm income?			Yes	No
22	What type of facilitation is available for adoption?				
23	If facilitation is not available, then what type of facilitation is required for adoption	Technical	Loan	government share	Other
24	After attending this training/workshop are you able to install technology by yourself		Yes	No	
25	What are the constraints for adoption?				
26	Are the materials required for installation of ----------available in your area?			Yes	No
27	Do you face any problem regarding your technology?			Yes	No
28	Please explain your problem				

MT-11: CAPACITY BUILDING (CB) MONITORING TEMPLATE

1. IDENTIFICATION

Q#	Field Name
1.1	**Status of Capacity Building (CB)?**
1	Approval Issued
2	Final Training Report (FTR) prepared
1.2	**Name of Beneficiary/Owner**

2.SPOT CHECK

2.1	**Collect the list of all participants and resource person with mobile number**
2.2	**Take Picture of Capacity Building (CB) group or activity**
3.1	**Type of Capacity Building (CB)?**
1	Personal
2	Baseline survey
3	Sampling
4	Management
5	Project formulation
6	Any other
3.1.1	Duration?
3.1.2	Place/location?
4.1	**The farmer completed the training used his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from training**
1	Increase in knowledge
2	Skill
3	Performance/efficiency
4	Interaction
5	Linkages with line department
6	Any other, Specify
4.3	**The training was completed as per approved standards and specifications?**

1	Yes
2	No
4.4	**Training evaluation was done as per standard practices?**
1	Yes
2	No
4.5	**The AGES Consultants inspected the evaluated and find it as satisfactory?**
1	Yes
2	No
4.6	**Before the training), the WC-KP staff conducted training need assessment?**
1	Yes
2	No
4.7	**Any variations in the training objectives?**
1	Yes
2	No
If yes in Q# 4.7 then continue with Q# 4.7.1	**Otherwise go to Q# 4.8**
4.7.1	**Government share was paid as per cost estimates before training?**
1	Yes
2	No
4.8	**Financial Year**
4.9	**Supervisor Confirmation?**
5.1	**Select Submission Status**
5.2	**Comments of interviewer? (if any) (optional)**

ACTIVITY 12. INSTALLATION OF TUBE WELLS (ITW)

DIMENSIONS & STRUCTURE							
1	Tube Well Location	Address ----------	GPS ----------	Coordinate ----------			
2	Tube Well Number						
3	Source of Power	Diesel	Peter pump	Tractor	Electric	Solar	--------
4	Suction pipe diameter (inch)	----------					
5	Depth of water level (boring)	----------					
6	Water discharge	Normal	Below normal	Above normal	-----		
7	Water Re-charge	Sufficient	Insufficient	Delay			
8	a. Approval by Directorate of Agriculture Engineering b. Validated by Consultant (AGES)	Yes Yes	No No				

Water Used For				
9	Crop Production	Yes	No	
10.	Orchard / Forest			
11.	Community & Livestock Drinking	Yes	No	
12.	If Yes (distance & time)	Before	Distance	Time Reduced (hours)
13	Fish Rearing	Yes	No, go to Q 22	

Fish Rearing					
14	Fish Type (Catla, Rohu, Common, Chinese, Silver & Salmon Crab, Trout, Tilapia, etc.)				
15	Fish Feed	Roughage	Cow dung	Poultry waste	Other
16	Total cost	----------Rs per year			
17	Production	----------kg per year			
18	Price	----------Rs per Kg			
19	Fish Consumption per year	----------Rs Sold	Home (kg) Before-----	Home(kg) After-----	
20	Problems/issues in fish farming: Plz rank f) Availability of fingerlings, seedlings etc. g) Diseases h) Manuring/ feeds i) Marketing j) Any other		Yes	Rank	No
EMPLOYMENT ENGAGED IN FISH FARMING					

21	Employment iv. Permanent v. Casual vi. Daily wages	Before (No.)	After (No.)

BENEFICIARY FEED BACK

22	After submission of application, how much period took to complete the Tube Well installation?		Months	Days
23	The Tube Well installation was completed as per approved standards and specifications		Yes	No
24	If No in Q 23 than any variations in specifications and material used		Yes	No
25	How Agriculture Engineering staff attended your application	Promptly	Took lot of time	No Comment
26	How you assess survey and design process	Fast Track	Lengthy	No comment
27	Quality of Directorate of Agriculture Engineering staff behavior	Friendly / supportive	Indifferent	No comment
28	The government share was paid	Within reasonable time	Required lot of efforts	No comment
29	How you feel maintenance of Tube Well	Easy	Difficult	No comment
30	Do you think cropping intensity increased on your farm after Tube Well	Yes	No	No comment
31	Do you think your crops / orchards yield increased after Tube Well	Yes	No	No comment
32	Any comment/ Observation you want to share?			

MT-12: INSTALLATION OF TUBE WELLS (ITW) MONITORING TEMPLATE	
1.IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Installation of Tube Wells (ITW) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2.SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Installation of Tube Wells (ITW)**
1	Depth
2	Diameter
3	Any other
3.1	Depth
4.1	**The farmer completed the Tube Wells (ITW) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Tube Wells (ITW)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water
5	Better control on water supply
6	Any other, Specify
4.3	**The Tube Wells (ITW) was completed as per approved standards and specifications?**
1	Yes
2	No
5.1	**Financial Year**
5.2	**Supervisor Confirmation?**
5.3	**Select Submission Status**
5.4	**Comments of interviewer? (if any) (optional)**

ACTIVITY 13. SOLARIZATION OF TUBE WELLS (STW)

DIMENSIONS & STRUCTURE					
1	Solar Pumping System (SPS) Location	Address ----------	GPS ----------	Coordinate ----------	
2	SPS Number				
3	Source of Power (Solar)	Existing/upgraded	New	Combine	
4	Optimum discharge depends on	Panel type ----------	Panel size ----------	Motor type ----------	Motor size ----------
5	Suction pipe diameter (inch)	----------			
6	Depth of water level (boring)	----------			
7	Water discharge	Normal	Below normal	Above normal	----------
8	Water Re-charge	Sufficient	Insufficient	Delay	
9	a. Approval by Directorate of Agriculture Engineering b. Validated by Consultant (AGES)	Yes Yes	No No		
Water Used For					
10	Cropping	Yes	No		
11....	Orchard / Forest				
12.	Community & Livestock Drinking	Yes	No		
13.	If Yes (distance & time)	Before	Distance Decrease (km)	Time Reduced (hours)	
14	Fish Rearing	Yes	No, go to Q 22		
Fish Rearing					
15	Fish Type (Catla, Rohu, Common, Chinese, Silver & Salmon Crap, Trout, Tilapia, etc.)				
16	Fish Feed	Roughage	Cow dung	Poultry waste	Other
17	Total cost	----------Rs per year			
18	Production	----------kg per year			
19	Price	----------Rs per Kg			
20	Fish Consumption per year	----------Rs Sold	Home (kg) Before-----	Home (kg) After-----	
21	Problems/issues in fish farming: Plz rank k) Availability of fingerlings, seedlings etc. l) Diseases m) Manuring / feeds n) Marketing	Yes	Rank	No	

	o) Any other			
EMPLOYMENT ENGAGED IN FISH FARMING				
22	Employment vii. Permanent viii. Casual ix. Daily wages		Before	After
BENEFICIARY FEED BACK				
23	The Tube Well installation was completed as per approved standards and specifications	Yes	No	
24	If No in Q 23 than any variations in specifications and material used	Yes	No	
25	How your application was attended by Agriculture Engineering staff	Promptly	Took lot of time	No Comment
26	How you assess survey and design process	Fast Track	Lengthy	No Comment
27	Quality of Directorate of Agriculture Engineering staff behavior	Friendly / supportive	Indifferent	No Comment
28	The government share was paid	Within reasonable time	Required lot of efforts	No Comment
29	How you feel maintenance of Tube Well	Easy	Difficult	No Comment
30	Do you think cropping intensity increased on your farm after Tube Well		Yes	No
31	Do you think your crops / orchards yield increased after Tube Well		Yes	No
32	Any comment/observation you want to share?	_____ _____		

MT-13: SOLARIZATION OF TUBE WELLS (STW)MONITORING TEMPLATE

1. IDENTIFICATION	
Q#	**Field Name**
1.1	**Status of Installation of Solarization of Tube Wells (ITW) Construction?**
1	Technical Sanction (TS) Issued
2	Final Completion Report (FCR) Issued
1.2	**Name of Beneficiary/Owner**
2. SPOT CHECK	
2.1	**Collect the coordinates**
2.2	**Take Picture of Solarization of Tube Wells (ITW)**
3.1	**Shape of Installation of Solarization of Tube Wells (ITW)?**
1	Depth
2	Diameter
3	Any other
4.1	**The farmer completed the Tube Wells (ITW) using his/her own funds before government share?**
1	Yes
2	No
4.2	**What benefits you can expect from Solarization of Tube Wells (ITW)**
1	Reduce ground water consumption
2	Reduce water bills
3	Extend water supply
4	Improve water quality/less salty water
5	Better control on water supply
6	Any other, Specify
4.3	**The Solarization of Tube Wells (ITW) was completed as per approved standards and specifications?**
1	Yes
2	No
4.4	**Excavation was done as per standard engineering practices?**
1	Yes

2	No
4.5	**The AGES Consultants inspected the excavation and quality of geo-membrane and certified as satisfactory?**
1	Yes
2	No