AiD-EGC (JV)

8th Quarterly Progress & Monitoring Report

JULY TO SEPTEMBER 2024

KHYBER PAKHTHUNKHWA IRRIGATED-AGRICULTURE IMPROVEMENT PROJECT (KP-IAIP)

Submitted by

Associates in Development (Pvt) Ltd.
(Lead Partner)

Engineering General Consultants (Pvt) Ltd. **(JV Partner)**

Monitoring & Evaluation Consultants (M&EC)

Table of Contents

Executive Summary

The Khyber Pakhtunkhwa Irrigated Agriculture Improvement Project (KPIAIP) is a key government initiative focused on improving agricultural productivity and sustainability in the Khyber Pakhtunkhwa (KPK) province, including the Newly Merged Districts (NMDs). Led by the Director General of OFWM, who also serves as the Project Director, the project is making significant progress in enhancing and modernizing the region's agricultural landscape. AID-EGC JV has been engaged as the Project's Monitoring and Evaluation Consultants (M&EC), working closely with the Project Implementation Unit (PIU) to track progress and evaluate outcomes. This report marks the eighth quarterly progress review, covering the period from July to September 2024 and provides a summary of the M&EC activities and assessments.

During this reporting period, the M&EC team undertook 220 site visits, which brought the cumulative number of monitoring visits to 1,790 across various sub-components of the KPIAIP. The data collected and analyzed during these visits demonstrate a consistent progress in several key performance indicators. One of the notable achievements has been the expansion of Cultivable Command Area or CCA. Improved watercourse management led to an impressive 48.37% increase in irrigated areas. Furthermore, the implementation of water storage tanks further boosted this success, resulting in a 44.31% increase. These improvements have enhanced crop yields and cropping patterns, which are vital for the region's agricultural productivity. A key objective of the project i.e. reducing water losses is being successfully met. The quarterly data shows an average water savings of 34.98%, highlighting the effectiveness of the KPIAIP schemes. Additionally, water productivity has shown significant improvement, with wheat achieving 1.27 kg/m³ and maize 0.82 kg/m³. These figures indicate a marked improvement in water-use efficiency, which is critical for sustainable agriculture.

The Central region exhibited the most significant increase in cropping intensity. Following the construction of improved schemes, cropping intensity rose from 112.38% to 204.13%, representing a substantial net change of 91.75%. The Northern region also saw a remarkable increase, with cropping intensity rising from 100.02% to 160.50% (a 60.49% change). The Southern region recorded a net change of 54.22%, with cropping intensity increasing from 85.16% to 139.37%. These increases reflect the project's success in enhancing agricultural productivity across different regions.

Moreover, the project has successfully raised awareness about the safe use of pesticides. An impressive 93% of beneficiaries have an understanding of safe pesticide application, which is a crucial step towards sustainable farming practices. These milestones underscore the project's commitment to enhancing agricultural productivity and improving water resource management. Collectively, these efforts have established a strong foundation for the continued development of the province's irrigation systems.

Beyond just technical achievements, KPIAIP is making a big impact on the social and economic aspects of the beneficiary areas. The project has helped improve livelihoods and promoted gender inclusivity by reaching out to women. Water Users Associations (WUAs) have been essential in maintaining the project's benefits, although they need more training to be more effective.

Overall, the progress in this quarter shows that KPIAIP is steadily moving towards sustainable agricultural development in KPK, with positive results in both technical and social areas.

Project Overview

The Khyber Pakhtunkhwa Irrigated Agriculture Improvement Project (KPIAIP) is a government initiative that seeks to transform the province's agricultural landscape by enhancing the efficiency and long-term sustainability of irrigated farming. Spearheaded by the Director General of OFWM, who also holds the position of Project Director, the initiative places a strong emphasis on improving agricultural practices, with a particular focus on small-scale farmers, including those from the newly merged districts (NMDs). The project is designed to address a range of systemic issues that have traditionally hindered agricultural productivity. These include inefficient irrigation methods, poor resource management and the implementation of agricultural strategies that have resulted in sub-optimal crop yields and reduced water productivity.

AID-EGC JV, serving as the Project Monitoring and Evaluation Consultants (M&EC) is an integral part of this initiative. The M&EC team works in close collaboration with the Project Implementation Unit (PIU) to monitor ongoing project activities, assess impacts and ensure that objectives are being met in a timely and effective manner. This document represents the eighth quarterly progress and monitoring report, covering the period from July to September 2024. It offers a comprehensive overview of the various activities and interventions carried out during this quarter by the M&EC. These quarterly reports are key deliverables, serving as vital tools for tracking the project's progress, evaluating its impact on the ground and ensuring that all stakeholders remain aligned with the main goals of the KPIAIP. They also provide feedback that aids in refining strategies and improving overall project outcomes, ensuring that the project continues to benefit the farming communities it serves.

Achievements of the M&EC up to the Reporting Quarter

The team initiated project activities in line with the approved inception report, working collaboratively with the PIU and district-level OFWM staff. As the quarter progressed, the M&EC made notable progress, achieving important outcomes, including;

- Successfully established the project office in Peshawar, with full deployment of staff and key experts.
- Submitted the final inception report within the required timeframe, after valuable feedback from the PIU.
- Finalized digitized data collection formats after obtaining input from relevant stakeholders to enhance accuracy and efficiency.
- Completed data cleaning and sampling for 4828 schemes completed during the first two years (2020-2021 & 2021-2022) of the project. Adhering to the approved criteria 580 sites across 25 districts were monitored and assessed against key outcome indicators.
- The mid-term impact study was finalized and is scheduled for publication within the current month.
- Conducted data cleaning and sampling for the KPIAIP 3558 schemes completed during the third year (2022-2023) based on agreed criteria. Monitoring and impact assessment visits to 990 sites across three regions were conducted. Cumulatively total of 1,570 sub-component schemes were monitored and assessed across all regions of KPK.
- Submitted 15 No. Monthly Progress and Monitoring Reports and 7 No. Quarterly Progress and Monitoring Reports within the stipulated timelines.
- Uploaded the MIS Dashboard onto the server after receiving comprehensive input from relevant experts.
- Participated in all mandatory meetings and successfully achieved key project deliverables outlined in the project documentation.

Quarterly Progress and Achievements

During this reporting quarter, the M&EC made significant progress in critical areas of project monitoring and impact assessment. In the earlier half of the quarter, the team focused heavily on preparatory tasks, including data reconciliation and sampling, while gearing up for an intensive field monitoring phase in the later half. Despite some early challenges, particularly with data sampling and reconciliation, the collaboration between the M&EC, IT teams and PIU experts proved instrumental in overcoming these hurdles, laying a strong foundation for effective monitoring and impact assessment through field activities.

A key priority over this timeframe was the extensive data cleaning exercise, which was vital for ensuring the accuracy of records related to schemes completed till end June 2024. This exercise, carried out by the IT team in coordination with the PIU, involved reconciling data to identify and address gaps. The accuracy of these records was essential for generating valid samples, which would form the basis for future monitoring activities. Alongside these efforts, a detailed sampling process was completed, involving the review of 4,976 schemes completed during the year 2023-24, including watercourse improvements and water storage tanks. Desired sample schemes were selected for impact analysis and physical monitoring, with the final sample formally submitted to the PIU for approval and onward sharing with the respective districts.

An important meeting during August 2024 involved the M&EC management, including JV partners and the PIU experts. This meeting served as an introduction to the new management team of the KPIAIP while also offering technical guidance on ongoing M&EC activities. Several key issues were discussed, including impact monitoring, environmental compliance and the digitization of KPIAIP data through the MIS system. The PIU expressed the need for a revised work plan for the remainder of the project, along with updated reporting formats to improve the quality of periodic reports. These discussions were crucial for ensuring that the project's progress continues to be effectively monitored and reported in the coming months. Following this, the M&EC updated its reporting formats and field data collection formats based on valuable input from the PIU and M&EC relevant experts. The new formats will help in capturing additional parameters that had previously been overlooked, such as cropping intensity, environmental and social factors, tree cutting and integrated pest management.

Charsadda, Shabqadar, Nahqai

As part of the preparations for field activities, the M&EC team developed a comprehensive work plan detailing upcoming visits to 220 schemes across nine districts. This plan included coordination with district OFWM offices to ensure efficient execution of field visits. The M&EC implemented updated data collection tools, designed with input from experts in agriculture and environmental compliance, to capture additional parameters such as cropping intensity, tree cutting, and integrated pest management. These enhancements are expected to provide a more in-depth understanding of the project's impacts, particularly on sustainability and environmental factors. The team gathered critical impact and outcome data from the sampled schemes, demonstrating strong performance and meeting the objectives outlined in the revised work plan.

DIRECTORATE GENERALON FARM WATER MANAGEMENT KHYBER PAKHTUNKHWA
PROJECT IMPLEMENTATION UNIT
KHYBER PAKHTUNKHWA IRRIGATED AGRICULTURE IMPROVEMENT PROJECT
(WORLD BANK ASSISTED)

Physical Status (as of 31 August 2024)

S. No.	Activities/Interventions		Schemes Completed upto 30.06.2024	Current Financial Year (2024-25)						Total intervention Completed (since Inception)	Verification Status
				AWP Target	WUAs Registered	Survey / Design Finalized	Civil Works Interventions				
							Initiated	In progress	Completed		
1	Improvement of Community Irrigation	A1.1 Canal Command watercourses upto 50% (Nos)	453	365	516	491	79	56	23	476	462
		A1.2 Canal W/Cs Partially Improved 15% -> 50% (Nos)	1171	650	1216	945	201	138	63	1234	1233
		A1.3 Canal W/Cs Partially Improved 25% -> 50% (Nos)	145	108	202	182	73	55	18	163	163
		A2.1 Non-Canal (Civil canals) Large W/Cs =>3 cfs 50% (Nos)	200	314	243	158	41	23	18	218	197
		A2.2 Non-Canal (Civil canals) Large W/Cs =>3 cfs 15%->50% (Nos)	52	32	79	66	12	9	3	55	52
		A2.3 Non-Canal (Civil canals) Large W/Cs =>3 cfs 25%->50% (Nos)	8	2	32	21	0	0	0	8	8
		A3 Non-Canal Area W/C (PCPS) 50% (Nos)	1967	1065	2000	1457	517	374	144	2111	2051
		A4 Non Canal Area Pipe Schemes (Nos)	5945	3683	3825	3344	1079	779	301	6246	5959
		Sub total-A	9941	6250	8113	6664	2002	1434	570	10511	10125
2	Promoting Inovative Tecnologies	B1: Installation of HEIS Systems (acres)	358.2	2500	_	768.64	0	0		358.2	0
		B2: Water Storage Tanks and Ponds (Nos)	3423	1900	2509	2249	462	374	88	3511	3352
		B3. Strengthening Precision Laser Leveling Service in Private Sector (Nos)	166	90	_	_	10	2	8	174	166
3	Training /Capacity Building	C-2 Refresher courses for OFWM Technical Staff (Professional/Sub Professionas (N0s)	1341	-	-	-	-	-	-	1341	-
		C-6 Training of Farmers/WUA members (Nos)	1600	-	-	-	-	-	-	1600	-
		C-9 Establishment of demonstration Sites	7	-	-	-	11	11	0	7	-

Regular monthly progress review and planning meetings were conducted to validate data and strategize M&EC activities. These sessions involved both key and non-key staff, ensuring inclusive engagement across all project responsibilities. For detail minutes of these monthly meetings, please refer to **Annex I**, **Annex II** and **Annex III**.

Peshawar, Shah Alam, Kararay

By the end of the reporting quarter, the KPIAIP achieved remarkable progress, with over 14,500 initiatives successfully completed across multiple sub-components. These include the completion of Watercourses (A1, A2, A3 and A4), Water Storage Tanks (B2), installation of High Efficiency Irrigation Systems (HEIS) and the delivery of Precision Laser Leveling (PLL) services.

These milestones underscore the project's dedication to boosting agricultural productivity and optimizing water resource management. Together, these achievements have laid a robust groundwork for the ongoing enhancement of the province's irrigation systems. A comprehensive overview of all interventions under KPIAIP, as of the end of August 2024, is detailed in the table above.

Impact and outcome data from 1,790 sampled sub-component schemes have been collected and thoroughly analyzed by the end of this quarter. It is important to note that this sample was drawn from a total of 13,362 schemes completed by the end of year 2023-24. The findings offer valuable insights into the KPIAIP's performance and the effectiveness of its interventions. A detailed summary of the quarterly data collection visits conducted by the M&EC is presented in the table below.

Quarterly Achievement of the Field Visits conducted by the M&EC Team as of end September 2024							
Region	Monitoring and Impact Data collected of Sub-Components						
	Quarter 1 (Apr-Jun 2023)	Quarter 2 (July-Sep 2023)	Quarter 3 (Oct-Dec 2023)	Quarter 4 (Jan-Mar 2024)	Quarter 5 (Apr-Jun 2024)	Quarter 6 (Jul-Sep 2024)	Cumulative
Central	143	35	79	124	86	63	530
Northern	17	107	64	62	62	40	352
Southern	94	184	187	144	182	117	908
Total	254	326	330	330	330	220	1790

During the reporting quarter, the team faced significant challenges due to delays in finalizing data for schemes completed in 2023-2024, which affected the sampling process and field activities. Despite these hurdles, including security and political concerns, the staff worked diligently to successfully visit 220 sites according to the revised schedule. Complete list along with details is available in **Annex IV** of this report and a summary of the district wise schemes is provided in the table below.

District wise Achievement of the M&EC Field Monitoring Visits during the Quarter					
Location		Sub-Component		Total	
Region	District	A	B2	District Wise	Region Wise
Central	Charsadda	16	0	16	63
	Nowshera	09	13	22	
	Peshawar	20	05	25	
Northern	Buner	06	01	07	40
	Swat	22	11	33	
Southern	D.I.Khan	37	03	40	117
	Karak	11	14	25	
	Kohat	23	02	25	
	Lakki Marwat	24	03	27	
Total		168	52	220	220

To accurately assess the true impact of the program, a stratified proportionate random sampling method is employed by the M&EC. This approach ensures that each sub-component is represented, giving every category an equal opportunity to be included in the impact analysis. By utilizing this sampling technique, the evaluation can capture a more comprehensive and balanced understanding of how each intervention contributes to the program's overall success. This method not only enhances the robustness of the data but also ensures that the results reflect the diverse range of completed initiatives. For the current quarter, the distribution of sub-components visited is outlined in the table below, providing a clear breakdown of the coverage across various interventions.

Sub-component wise Achievement of the M&EC Field Monitoring Visits during the Quarter							
Location		Sub-component					Total
Region	District	A1	A2	A3	A4	B2	
Central	Charsadda	3	0	3	10	0	16
	Nowshera	2	0	2	5	13	22
	Peshawar	8	2	7	3	5	25
Northern	Buner	0	0	0	6	1	7
	Swat	0	0	1	21	11	33
Southern	D.I.Khan	15	0	22	0	3	40
	Karak	0	0	0	11	14	25
	Kohat	0	0	0	23	2	25
	Lakki Marwat	0	0	0	24	3	27
Total		**28**	**2**	**35**	**103**	**52**	**220**

Outcome and Impact Analysis of KPIAIP Sub-component Schemes

A comprehensive analysis of 220 sampled schemes was conducted to evaluate the impact of the KPIAIP interventions during the reporting period. These schemes, representing a diverse range of completed projects, were selected to assess the outcomes of irrigation sub-components within the community. List of the visited schemes is provided in Annex IV. The evaluation was carried out using a randomly selected sample of completed sub-components, with a focus on interventions categorized under Component A (community watercourse improvement schemes) and Component B2 (water storage tanks).

Nowshera, Walai

To enhance the depth of the analysis, additional parameters were incorporated into the data collection formats. These new parameters, including cropping intensity and missing attributes of environmental impact, were introduced to capture a broader scope of project outcomes. This allowed for a more robust evaluation of the KPIAIP's influence on agricultural productivity and environmental sustainability within the target areas.

The following sections provide detailed insights from the data analysis, highlighting key findings and trends that emerged during the evaluation of these schemes.

Increase in Irrigated Area (CCA)

The Cultivable Command Area (CCA) hereinafter referred as Net Sown Area (NSA) is expressed in hectares (ha). A notable increase in the NSA has been observed across all regions, primarily due to the interventions of the KPIAIP. An overall 48.37% and 44.31% increase in the NSA of both components 'A' and 'B2' respectively was observed as shown in Table 1. Highest increase in NSA was observed in central region due to the fact that limited land was having irrigation water before the induction of the schemes under B2 sub component. Please see **Annex V** for more additional analyses of the sub-components (A1, A2, A3 and A4) and Component B2 of the KPIAIP.

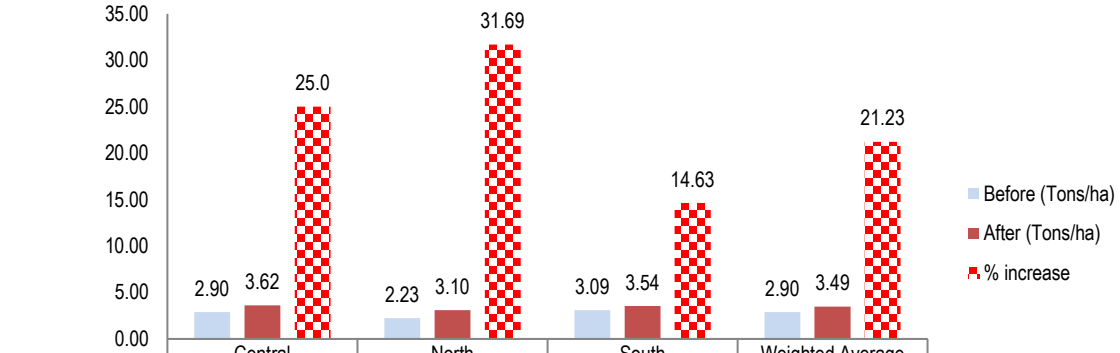
Table 1: Average Increase in Irrigated CCA/NSA by Region (ha)

Region	Component A			Component B2		
	Before (ha)	After (ha)	% increase	Before (ha)	After (ha)	% increase
Central	17.21	33.72	95.87	3.18	4.90	54.16
Northern	2.93	4.2	42.98	1.47	1.69	14.94
Southern	13.57	16.67	22.86	1.89	2.71	43.20
(Weighted average)	**12.55**	**18.62**	**48.37**	**2.24**	**3.23**	**44.31**

Increase in Crop Yield

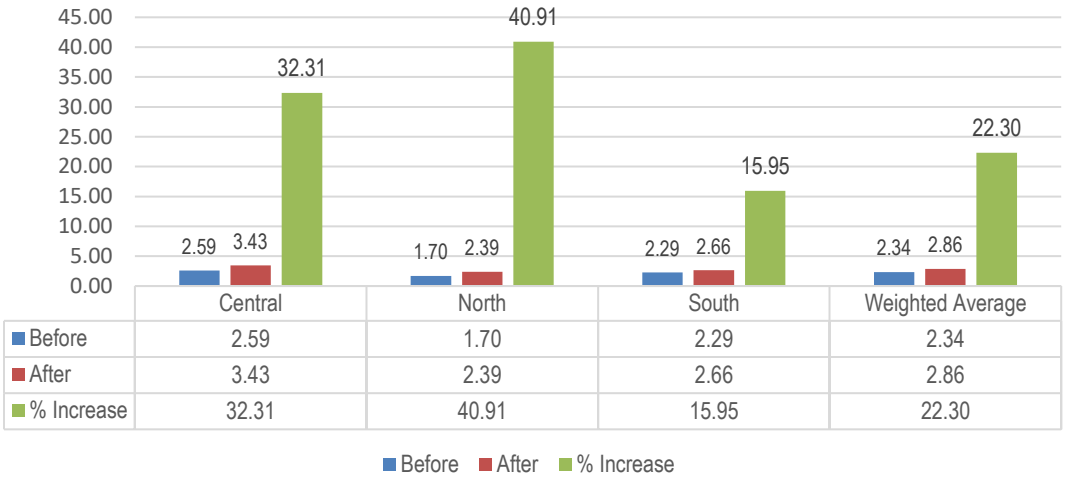
This indicator measures the impact of the KPIAIP's interventions on the yields of the different crops under the schemes. The results indicate that yields for wheat crop under component 'A' and component 'B2' has increased by 21.23% and 22.30% respectively as shown in Figure 1 & 2. Similarly, 21.8% of maize yield has increased due to the construction/improvement of community irrigation schemes (refer to Table 2A, **Annex V**) and 28.53% increased due to the construction of water storage tanks as shown in Figure 3. Further detail analyses of other crops like sugarcane, orchards and vegetables are mentioned in **Annex V.**

Figure 1: Increase in Wheat Yield (Tons/ha) region wise Component 'A'



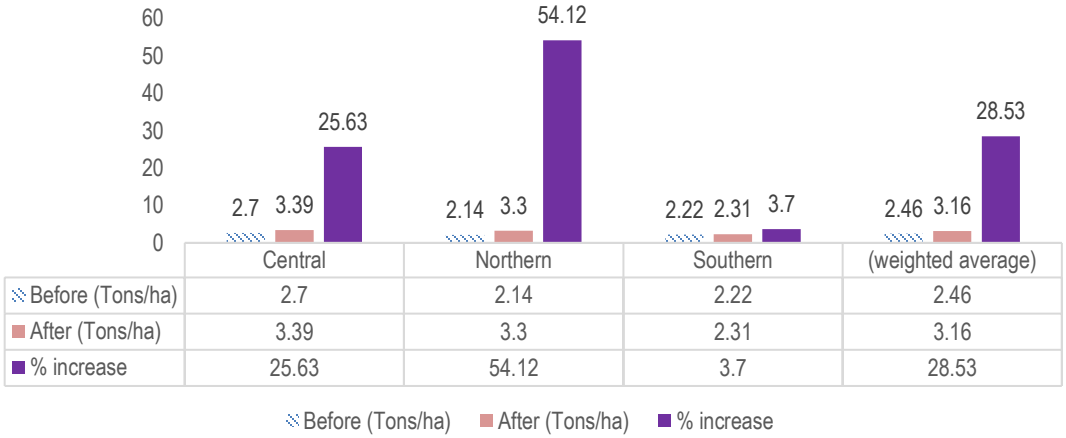
	Central	North	South	Weighted Average
Before (Tons/ha)	2.90	2.23	3.09	2.90
After (Tons/ha)	3.62	3.10	3.54	3.49
% increase	25.0	31.69	14.63	21.23

Figure 2: Increase in Wheat Yield (Tons/ha) region wise Component 'B2'



	Central	North	South	Weighted Average
Before	2.59	1.70	2.29	2.34
After	3.43	2.39	2.66	2.86
% Increase	32.31	40.91	15.95	22.30

Figure 3: Increase in Maize Yield (tons/ha) Component B2



	Central	Northern	Southern	(weighted average)
Before (Tons/ha)	2.7	2.14	2.22	2.46
After (Tons/ha)	3.39	3.3	2.31	3.16
% increase	25.63	54.12	3.7	28.53

Change in Cropping Pattern

The change in cropping pattern refers to the alteration in the types of crops grown in a specific region over time. The farmers have initiated growing high-value crops (fruits and vegetables) in addition to growing traditional crops like wheat and maize. As shown in the Table 2, Wheat area has increased by 52.40% under component 'A' and 56.10% under component B2. This increase in crops area can be attributed to all regions as mentioned in **Annex V**.

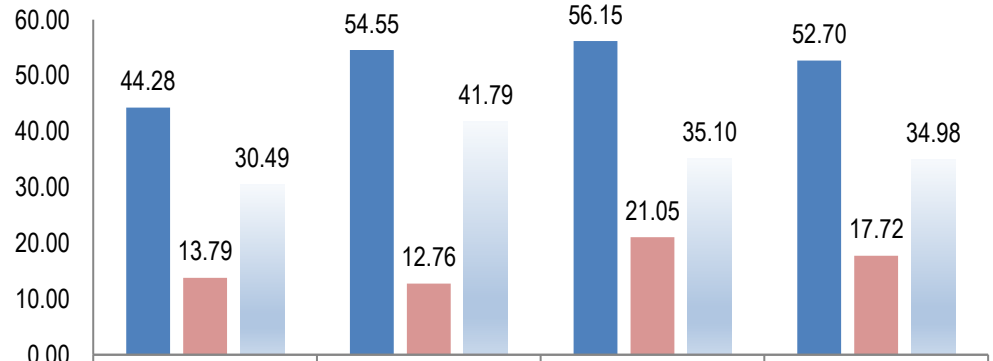
Table 2: Average Change in Wheat Crop area (Ha)

Region	Component A			Component B2		
	Before	After	% increase	Before	After	% increase
Central	10.86	22.23	104.64	1.34	2.17	62.18
Northern	0.84	1.30	55.17	0.31	0.59	88.24
Southern	8.41	10.13	20.38	1.40	2.07	48.11
(Weighted average)	7.81	11.90	52.40	1.15	1.79	56.10

Reduction in Water Losses

Analyses reveal that the watercourse improvement has helped in reducing water losses from 52.70% to about 17.72% leading to about 34.98% savings in the irrigation water (shown in Figure 4). This is impressively encouraging savings of the water due to watercourse lining which was lost in the conveyance of ill-managed structured watercourses. All regions recorded a significant reduction in water losses due to watercourse lining. The results indicate that the project has reduced water losses to 34.98%, more than the project target of 25%.

Figure 4: % Reduction/Saving in water Losses Region wise - Component A

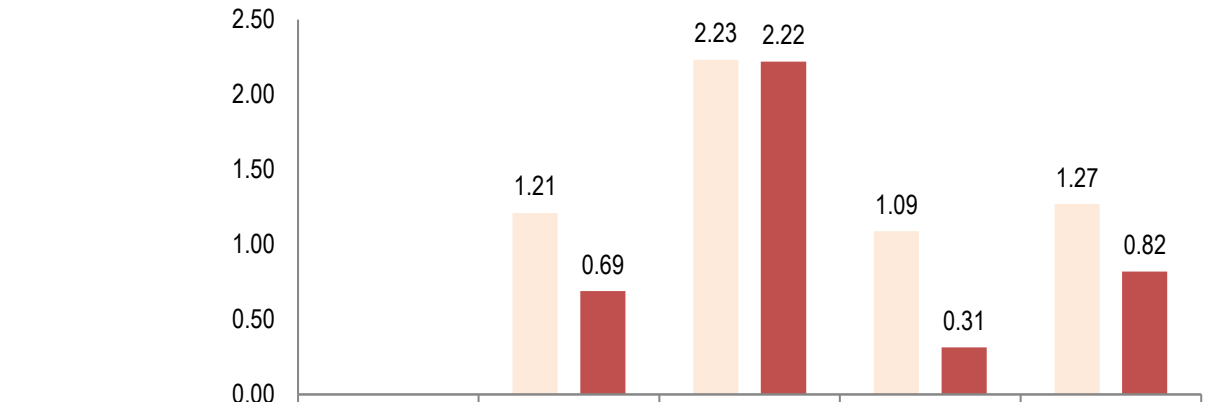


	Central	North	South	Weighted Average
Before	44.28	54.55	56.15	52.70
After	13.79	12.76	21.05	17.72
% Reduction /Saving	30.49	41.79	35.10	34.98

Water Productivity

Water productivity is being measured in terms of kg/m^3. Water Productivity has been calculated for Wheat and Maize crop yields. As shown in Figure 5, water productivity for Wheat and Maize was measured as 1.27 kg/m^3 and 0.82 kg/m^3 respectively. While water productivity for both Wheat and Maize is significantly higher in northern region, other regions also showed some increase in water productivity.

Figure 5: Water Productivity (Kg/m3) of Wheat and Maize

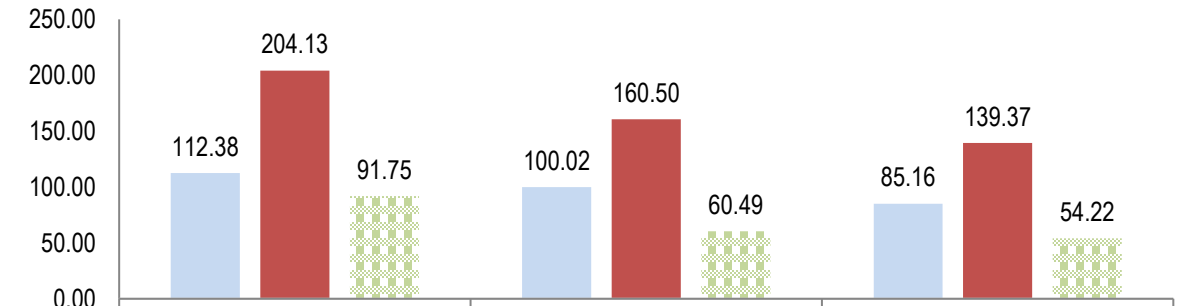


	Central	North	South	Total Weighted Average
Weighted Average (wheat)	1.21	2.23	1.09	1.27
Weighted Average (Maize)	0.69	2.22	0.31	0.82

Cropping Intensity

Cropping intensity refers to the frequency with which crops are grown on a particular piece of land during a year. Figure 6 shows the average percentage change in annual cropping intensity. The Central region shows the highest increase in cropping intensity from 112.38% (before) to 204.13% (after), with a 91.75% net change after the construction of improved schemes. The Northern region cropping intensity increased from 100.02% (before) to 160.50% (60.49% change (after), while the Southern region from 85.16% (before) to 139.37% (54.22% change (after).

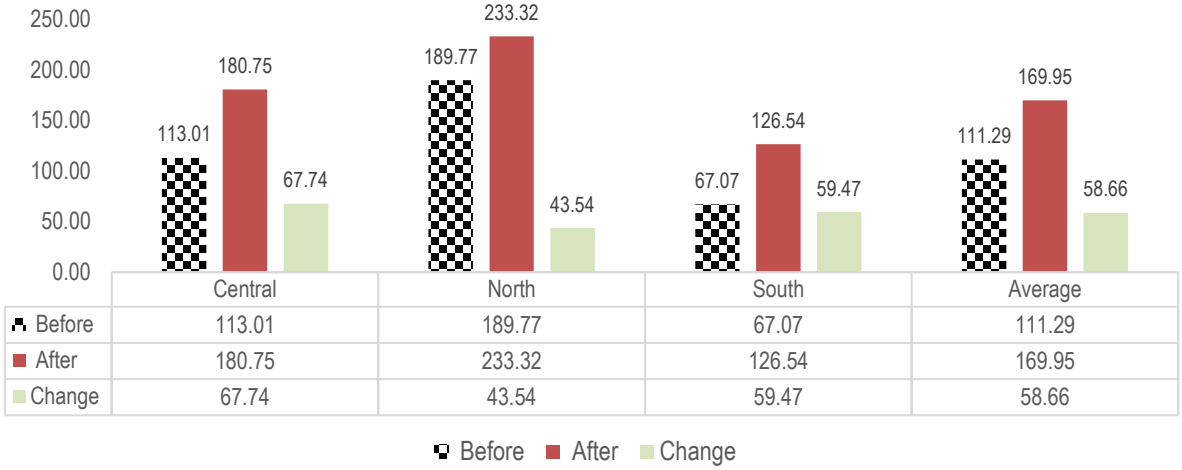
Figure 6: Average % change in Annual Cropping intensity - Component A



	Central	Northern	Southern
Before	112.38	100.02	85.16
After	204.13	160.50	139.37
Change	91.75	60.49	54.22

In Component 'B2', as shown in Figure 7, the cropping intensity increased significantly in all regions. The Central region showed an increase from 113.01% to 180.75% (before), showing a 67.74% increase (after). In Northern region, cropping intensity increased from 189.77% to 233.32%, which is 43.54% increase. The South region showed an increase in cropping intensity from 67.07% to 126.54%, with 59.47% changes. Overall, the average change across all regions was 58.66%.

Figure 7: Average % change in Annual Cropping intensity Component B2



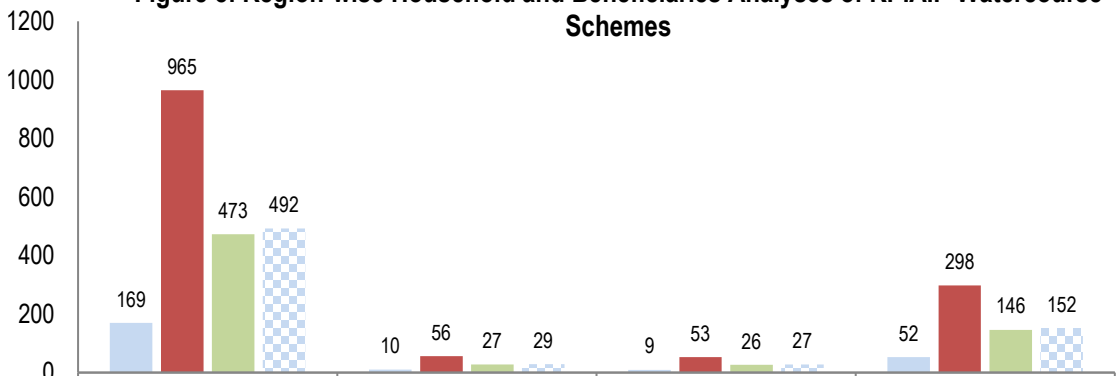
	Central	North	South	Average
Before	113.01	189.77	67.07	111.29
After	180.75	233.32	126.54	169.95
Change	67.74	43.54	59.47	58.66

Before After Change

Community Well-being

The KPIAIP aims to improve beneficiary's well-being and social indicators have been used to measure the impact on farmers' lives. The results revealed that on average 52 households are getting benefited from the KPIAIP watercourse improvement initiative. This comprised of 152 females and 146 males on average in the sampled schemes who are getting benefits from the KPIAIP interventions per scheme as shown in Figure 8. Similar analyses were carried out for the sampled schemes 'B2' component and the results indicate that the number of households benefiting is understandably lower than the component 'A'. On average 09 households are getting benefits from water storage tanks with significant variations among the regions as mentioned in **Annex V**.

Figure 8: Region-wise Household and Beneficiaries Analyses of KPIAIP Watercourse Schemes



	Central	North	South	Weighted Average
Households	169	10	9	52
Persons	965	56	53	298
Male	473	27	26	146
Female	492	29	27	152

The Environmental & Social Management Compliance Analyses

Random assessment of environmental and social compliance was carried out on 220 completed sub-component schemes. The key project interventions were monitored during the visits and detail discussions with beneficiaries were held. As indicated in Table 3 below, 79% of solid waste and construction materials were properly disposed off, with only 21% of cases showing residual waste on-site. The beneficiaries explained that greenhouse gas emissions were managed through several practices, including precision land leveling, better manure management and controlled use of pesticides, together, these practices contribute to a more sustainable farming system with lower greenhouse gas emissions.

Table 3: Response on the Environmental Aspect of the KPIAIP (in 220 sites) Schemes

Region	Were the solid wastes disposed off properly?		Was the extra soil properly disposed off?		Was the left-over construction material disposed off?		Is environmental quality being monitored including GHG emission?		Is there any standing water around the lined watercourse?		Any damage (cracking, settlement, leakages illegal connections etc.) observed?	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Central	20%	80%	20%	80%	22%	78%	0%	100%	0%	100%	0%	100%
North	100%	0%	100%	0%	100%	0%	100%	0%	0%	100%	0%	100%
South	100%	0%	100%	0%	99%	1%	2%	98%	1%	99%	0%	100%
Weighted Average	79%	21%	79%	21%	79%	21%	18%	82%	1%	99%	0%	100%

Tree cutting was observed in all regions. It was reported that the majority of tree cutting occurred in the North region. However, it is important to note that farmers have undertaken healthy tree replanting efforts. Details of tree cutting and replanting, as discussed with members of the Water User Associations (WUAs), are highlighted in Table 4.

Table 4: Details of Tree Cutting and Plantation (in 220 sites) during the Reporting Quarter

Region	Response on Tree cutting during execution of Schemes		Total Number of trees cut during execution of Schemes	Total number of Trees planted
	Yes	No	Number	Number
Central	0%	100%	0	0
North	4%	96%	100	1,700
South	3%	97%	65	1,520
Sub Total			165	3,220

Integrated Pest management (IPM) use of pesticides, chemicals (spray) on crops was discussed with members of WUAs regarding its application and safe practices. Data assessment from the field revealed that 93% of the beneficiaries have proper awareness regarding safe use of pesticides, only 2% of the beneficiaries informed that due to overuse of pesticides in field crop yield was decreased and in future they will be careful in applying timely use of pesticides in close coordination with agriculture department.

Table 5 Analysis of IPM Use by the Farming Community

Region	Have the knowledge of pest management		Understand managing unwanted pesticide waste		Practicing green farm manure to improve soil structure.		Observance of adverse impact due to pesticides chemical etc.		Environmental quality being monitored including GHG emission		Understanding of applying a suitable timeframe for pesticides	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Central	83%	17%	83 %	17 %	44 %	56%	6%	94%	28%	72%	89%	11%
North	96%	4%	85 %	11 %	96 %	4%	4%	96%	100%	0%	78%	22%
South	97%	3%	95 %	5%	57 %	43%	0%	100%	34%	66%	97%	3%
Sub Total	**93%**	**7%**	**90 %**	**9%**	**60 %**	**40%**	**2%**	**98%**	**44%**	**56%**	**91%**	**9%**

Promoting Female Empowerment and Gender Equality

Equal opportunities and outcomes for females and men are important in order to have a vital role in socio-economic development of the communities. Social indicators have been used to measure the impact on the female segment of the benefiting communities. On an average 68% of women have directly benefited due to KPIAIP interventions in the project area in terms of easy access to clean water, kitchen gardening and availability of water for domestic purpose. More details are mentioned in table 6.

Table 6: Region-wise Female Beneficiaries' Analyses of KPIAIP Water Storage Tanks

Region	Women benefited	Easy access to clean water	Kitchen Gardening	Clean drinking water	Clean water for bathing & washing	Clean water for cloth washing places	More time for socio-economic activities	Easy irrigation for women	Accessible road
Central	62%	89%	89%	84%	53%	22%	11%	7%	4%
North	93%	82%	93%	0%	0%	79%	89%	75%	4%
South	62%	74%	67%	62%	31%	7%	11%	24%	0%
Weighted Average	**68%**	**79%**	**78%**	**57%**	**31%**	**24%**	**25%**	**28%**	**2%**

Increase in Employment Opportunities

Another related advantage of KPIAIP's interventions is the creation of employment opportunities, which has a positive impact on the livelihoods of both farmers and the broader community. This boost in employment has benefitted both skilled and unskilled workers, making such opportunities more readily available at an increased rate. By comparing the current employment opportunities to those before the KPIAIP's intervention, the resulting impact has been calculated. Analyses of the data have shown that there is marked increase in employment of skilled and unskilled labour due to the watercourse interventions as shown in table 7 & 8. The data indicates a significant improvement, especially with unskilled labours now having more employment per scheme, showing a higher likelihood of finding employment because of the KPIAIP.

Table 7: Average Increase in Employment Opportunities due to Watercourse in Numbers

Region	Unskilled Labour		Skilled Labour	
	Before	After	Before	After
Central	7.67	8.93	8.04	9.42
North	12.52	31.39	0.00	7.71
South	40.78	44.35	11.15	12.39
Weighted Average	**27.20**	**32.70**	**8.46**	**10.82**

Table 8: Average Increase in Employment Opportunities due to Water Storage Tanks in Numbers

Region	Unskilled Labour		Skilled Labour	
	Before	After	Before	After
Central	5.06	6.83	5.17	7.11
North	3.55	12.00	0.00	0.00
South	10.91	12.57	2.22	2.57
Total Average	**7.33**	**10.46**	**2.77**	**3.60**

Synthesis of Data Analyses of 220 Sub-component Schemes visited during the quarter

A thorough assessment was conducted on 220 completed schemes during the reporting period. These schemes were divided into two key components: Component A (Community Watercourse Improvement) and Component B2 (Water Storage Tanks), both of which were completed prior to June 2023. The findings revealed promising results that align closely with the targets set forth in the PC-1 document of the project. Notably, all performance indicators are showing significant progress, nearing their established goals as indicated in the analyses. This upward trend suggests a strong likelihood of continued success in achieving the desired outcomes as we approach the next year of the KPIAIP.

Overall, the project is on track not only to meet its intended objectives but also to potentially exceed them in certain areas. This positive momentum is a testament to the effective implementation and management of the irrigation schemes. Looking ahead, the focus of the M&EC will shift to analyzing Component B1 (Installation of High-Efficiency Irrigation Systems i.e. HIES) and Component B3 (Provision of Laser Land Leveling Units), in addition to the completed watercourses and water storage tanks. There is a strong expectation that the targets associated with all these components will be met in the upcoming year. The ongoing success of these initiatives will play a crucial role in enhancing the project's overall impact. By ensuring sustainable improvements in the irrigation system, the project aims to create lasting benefits for the communities involved, ultimately fostering agricultural productivity and resource efficiency.

Key Challenges and Risks:

The M&EC team encountered several challenges that impacted the timeline and progress of key activities. These challenges, along with the corresponding mitigation measures, are given below;

End-Year Data Finalization and Reconciliation Challenges

During the reporting quarter, delays in finalizing data for schemes completed in 2023-2024 posed a major challenge, impacting the sampling process and field activities. Furthermore, the data cleaning phase uncovered gaps and inconsistencies, which further hindered the process. Resolving these discrepancies required additional coordination with district offices to gather missing information. The IT teams, in collaboration with M&E specialists from KPIAIP and M&EC, worked diligently to expedite the reconciliation

process. The delays led to the development of a revised schedule for impact data collection, with sampling data finalized by mid-August. Moving forward, close coordination will be maintained to prevent similar issues, with ongoing efforts directed at enhancing data accuracy and consistency to ensure smooth and timely project operations.

Internet Connectivity Issues
The broken and slow internet services in certain operational districts posed additional challenges for field staff. Staff was instructed to record data systematically and accurately despite these connectivity issues. To prevent delays in reporting, FEs were directed to upload their data at OFWM district offices using reliable Wi-Fi connections, ensuring that timely updates were provided for all ongoing field activities.

Political and Security Concerns
The ongoing political and security developments across the province further complicated field operations in the last month of the quarter. Field teams were instructed to exercise heightened vigilance during site visits and to maintain continuous communication with district officials to mitigate any potential risks. This proactive approach aimed to ensure the safety of the teams and prevent disruptions to project activities.

Updating of Digitized Data Collection Format
Another significant challenge was updating the impact data collection formats to incorporate new parameters, as agreed by the PIU and M&EC experts this quarter. This process required additional coordination and necessitated revisiting and modifying the digitized formats that had been in use by the M&EC over the past year. Despite these challenges, the updated and digitized formats were successfully implemented during the reporting period.

Progress in Data Cleaning and Reconciliation
Significant progress was made in cleaning and reconciling digital data for both the M&EC and KPIAIP during the quarter. IT teams from both offices collaborated to streamline data collection processes and improve data quality. These efforts will continue, with a focus on developing mechanisms that ensure accurate, reliable, and accessible data for timely decision-making and reporting.

Next Quarter Activities

1. In the coming quarter, the M&EC team will conduct field visits across three regions based on a revised plan to cover 410 sampled sub-component sites completed by the KPIAIP. Several key activities are planned to ensure the continuation of monitoring, data collection and project assessment. The primary focus will be on monitoring the impact and outcomes of the KPIAIP schemes completed before June 2024. Ongoing schemes will also be monitored during this period.
2. The team will submit monthly and quarterly progress reports, which will include detailed insights from the field visits, data analysis, and overall project progress.
3. Regular coordination with the PIU and other stakeholders will continue to ensure all activities remain aligned with the project's objectives. Meetings will focus on reviewing progress, addressing any emerging issues, and planning for upcoming fieldwork.
4. The team will continue to evaluate the updated data collection formats, integrating feedback from field teams and farmers to facilitate a thorough analysis of the KPIAIP interventions. Focused case studies will be undertaken by the M&EC team, with topics and details to be finalized by end October 2024.
5. The IT team will hold targeted meetings with PIU experts from the Finance and IT sections to review the MIS dashboard and the data uploaded on the server. Efforts will continue to ensure integration of KPIAIP data at different levels, making it accessible to all stakeholders on an as-needed basis.

Annex I: MoM of Progress Review and Planning Meeting July 2024

The M&EC Team Meeting on Progress Review and Planning

Purpose	Monthly Progress Review and Planning Meeting
Location /site	M&EC Project Office Peshawar
Dates	July 31, 2024
Time	11:30 AM to 02:00 PM

Participants of the Meeting:

1. Mr. Intisar Ahmed (M&E Specialist)
2. Dr. Sajidin Hussain (Agri Expert) via WhatsApp
3. Mr. Amir Hadi (IT Expert)
4. Mr. Zulqarnain (Environmental Expert) via WhatsApp
5. Mr. Mubarik Syed (Admin Assistant)
6. Mr. Umar Khan (HR and Admin)
7. Ms. Rakshanda Tayyab (M&E Assistant)
8. Ms. Sumayya Khan (Field Enumerator)
9. Mr. Iftikhar Bashir (Field Enumerator) via WhatsApp
10. Mr. Abdul Fattah (Field Enumerator) via WhatsApp
11. Mr. Faheem Ullah (Field Enumerator) via WhatsApp
12. Mr. Jawad Ahmed (Field Enumerator) via WhatsApp
13. Mr. Waqar Younis (Field Enumerator) via WhatsApp
14. Mr. Harris Rehman (Field Enumerator) via WhatsApp
15. Mr. Shahryar (Field Enumerator) via WhatsApp
16. Mr. Wajahat Ullah (Field Enumerator)
17. Mr. Sohrab Khan (Data Analyst)
18. Mr. Rafiqullah (Field Enumerator) via WhatsApp
19. Mr. Aammad Ahmed Khan (Data Analyst) via WhatsApp

Agenda of the Meeting

1. Progress Review as per Work-plan submitted for July 2024
2. Data Cleaning of KPIAIP Schemes completed during 2023-24
3. Work Planning for the month of August 2024
4. Any other issues

Details of the meeting

The meeting began with the recitation of the Holy Quran, followed by a welcome address from the M&E specialist, who outlined the key agenda items.

The participants were informed that as per the submitted work plan, the field team had planned to begin visits in the last week of the current month. However, due to delays in finalizing the sampling for completed schemes up until the end of June 2024, the visits could not proceed as scheduled. The IT team, led by Mr. Amir Hadi, maintained close coordination with PIU staff to obtain clean updated data. M&E specialist informed that the sampling process will take place in the coming month, in collaboration with PIU experts.

Field staff were asked to share their previous data collection experiences and suggestions for improving impact and outcome analysis. Their valuable feedback was collected to refine the digitized formats for the upcoming year. Addressing a query raised by Mr. Wajahat regarding field visit targets, M&E specialist assured that any backlog caused by delays in sampling or other factors can be managed in the following months. He highlighted the importance of maintaining the quality of sampling data and adherence to agreed processes, noting that these are critical for accurate impact data collection. He also referred to previous successful joint sampling exercises conducted by PIU and M&EC as examples of this approach.

The IT staff provided updates on the KPIAIP completed schemes data for the year 2023-24, which is currently being cleaned and reconciled in collaboration between PIU and M&EC. Participants were briefed on the existing data gaps and the procedures being implemented to expedite the reconciliation process. It was communicated that the finalized data would be made available to all stakeholders, including M&EC, by mid-August 2024, for sampling and other related activities.

Following detailed discussions on the field visits and related activities, the key experts agreed that a work plan should be developed once the sampling exercise is completed and client consent is obtained. The field teams were instructed to maintain close coordination with the respective regional and district staff of OFWM to ensure smooth collaboration throughout the process.

The meeting concluded with a note of appreciation to all attendees for their participation and contributions.

Annex II: MoM of Progress Review and Planning Meeting August 2024

M&EC Staff Meeting on Progress Review and Planning on August 29, 2024

Purpose	Monthly Progress Review and Planning
Location /site	AiD Project Office Peshawar
Dates	August 29, 2024
Time	12:00 Noon to 03:00 PM (Thursday)

Participants of the Meeting

1. Mr. Intisar Ahmed (M&E Specialist)
2. Dr. Sajidin Hussain (Agri Expert) via WhatsApp
3. Mr. Amir Hadi (IT Expert) via WhatsApp
4. Mr. Zulqurnain (Environmental Expert) via WhatsApp
5. Mr. Mubarik Syed (Admin Assistant)
6. Mr. Umar Khan (HR and Admin)
7. Ms. Rakshanda Tayyab (M&E Assistant)
8. Ms. Sumayya Khan (Field Enumerator)
9. Mr. Iftikhar Bashir (Field Enumerator)
10. Mr. Abdul Fattah (Field Enumerator)
11. Mr. Rafiqullah (Field Enumerator)
12. Mr. Faheem Ullah (Field Enumerator)
13. Mr. Jawad Ahmed (Field Enumerator)
14. Mr. Waqar Younis (Field Enumerator)
15. Mr. Wajahat Ullah (Field Enumerator)
16. Mr. Umar Saeed (MIS Technician)
17. Mr. Sohrab Khan (Data Analyst)
18. Mr. Aammad Ahmed Khan (Data Analyst)

Agenda of the meeting

- Update on Sampling of the Completed schemes of KPIAIP completed till end year 2023-24
- Update on the August activities
- Work Planning for the month of September 2024
- Any other Issue

Detail of the meeting

The meeting started with the recitation of the Holy Quran by Mr. Abdul Fattah. Following this, the M&E specialist, extended a formal welcome to all staff including those joining via WhatsApp and emphasized the key agenda points.

The participants were informed that the long-awaited sampling exercise has been successfully conducted by the experts from M&EC and PIU. It was shared that a total of 4,972 completed schemes from the 2023-2024 period were considered for sampling. These included watercourse improvements under Component A and water storage tanks/ponds under Sub-component B2. From this data, 900 schemes were selected for sampling, along with an additional 900 schemes from previously completed projects. A complete list of the 1,800 sampled schemes, along with the sampling process, has been formally submitted to PIU for approval this month. The team is expected to commence field operations on these schemes in the coming month.

M&ES shared a summary of a highly productive meeting held at the PIU on 12 August 2024. The meeting served as an introduction to the new management and provided technical guidance on the ongoing activities

of M&EC. Key issues, including impact monitoring, environmental compliance, and the digitization of KPIAIP data through MIS, were thoroughly discussed. The M&EC was requested to submit a revised work plan for the remaining 17 months, as well as to adapt reporting to new formats. This meeting is expected to enhance the quality of periodic reports and make a strong contribution to effective project implementation.

During the meeting, the existing data collection formats used by M&EC were updated with valuable input from Dr. Sajidin (Agriculture Economist) and Mr. Zulqurnain (Environmental Expert). The necessary changes were made to capture additional information on cropping intensity, environmental and social parameters, and integrated pest management. These key areas were missing in assessing the impact previously.

A detailed review of the work plan for September 2024 was conducted, during which staff were informed that follow-up meetings with PIU experts would be held in the coming weeks to finalize the periodic reporting formats. The field team was instructed to submit their field visit targets for the upcoming month in coordination with OFWM staff. To make up for the time lost during the current quarter, it was agreed that additional sub-components will be covered in the months of September, October and November 2024. Following extensive input and coordination with district officials, a total of 220 site visits will be conducted across the nine districts as outlined in the table below.

Field Monitoring and Data Collection Target for the Month of September 2024		
Region	**District**	**No. of Schemes Planned for the Visit**
Central	Peshawar	25
	Charsadda	16
	Nowshera	20
Northern	Swat	33
	Buner	07
Southern	D I Khan	40
	Kohat	27
	Karak	26
	Lakki Marwat	26
Total		**220**

With no other issues to discuss, the meeting concluded with a note of thanks to all the participants.

Annex III: MoM of Progress Review and Planning Meeting September 2024

M&EC Staff Meeting on Progress Review and Planning on September 26, 2024

Purpose	Monthly Progress Review and Planning
Location /site	M&EC Project Office Peshawar
Date	September 26, 2024
Time	11:30 PM to 01:00 PM (Thursday)

Participants of the Meeting

1. Mr. Intisar Ahmed (M&E Specialist)
2. Dr. Sajidin Hussain (Agri Expert) via WhatsApp
3. Mr. Amir Hadi (IT Expert) via WhatsApp
4. Mr. Zulqarnain (Environmental Expert) via WhatsApp
5. Mr. Mubarik Syed (Admin Assistant)
6. Mr. Umar Khan (HR and Admin)
7. Ms. Rakshanda Tayyab (M&E Assistant)
8. Ms. Sumayya Khan (Field Enumerator)
9. Mr. Iftikhar Bashir (Field Enumerator) via WhatsApp
10. Mr. Abdul Fattah (Field Enumerator) via WhatsApp
11. Mr. Shahryar (Field Enumerator)
12. Mr. Rafiqullah (Field Enumerator)
13. Mr. Faheem Ullah (Field Enumerator) via WhatsApp
14. Mr. Jawad Ahmed (Field Enumerator) via WhatsApp
15. Mr. Muhammad Hamza (Field Enumerator)
16. Mr. Waqar Younis (Field Enumerator) via WhatsApp
17. Mr. Wajahat Ullah (Field Enumerator)
18. Mr. Umar Saeed (MIS Technician)
19. Mr. Sohrab Khan (Data Analyst)
20. Mr. Aammad Ahmed Khan (Data Analyst)

Agenda of the Meeting

1. Progress Review as per Work-plan submitted for September 2024
2. Work Planning for the month of October 2024
3. Update on Meetings held in PIU in the last month on Periodic Reporting

Details of the Meeting

The meeting started with the recitation of the Holy Quran, followed by welcoming the participants and outlining important agenda points.

The staff presented a report on their office activities and the data collected during field visits. Mr. Jawad, Mr. Faheem, Mr. Iftikhar, Mr. Waqar and Mr. Abdul Fatah shared updates on the impact data collection, which was uploaded to the Kobo server during the month. The IT team and enumerators were asked to work on cleaning and conducting of analysis of data for the upcoming periodic reports. The summary details of the field visits against planned target as presented is given below in the table.

Target Vs. Achievement of September 2024 for the M&ECs Field Monitoring Visits			
Region	District	No. of Schemes Planned	Achieved during the Month
Central	Peshawar	25	25
	Charsaddah	16	16
	Nowshera	20	22
Northern	Swat	33	33
	Buner	07	07
Southern	D I Khan	40	40
	Kohat	27	25
	Karak	26	25
	Lakki Marwat	26	27
Total		220	220

The M&E Specialist outlined the targets for field visits for the upcoming month of October 2024, following thorough input and coordination with district officials of OFWM. It was agreed to conduct 170 sub-component site visits across the seven districts as per the details below.

Field Monitoring and Data Collection Target for the Month of October 2024		
Region	District	No. of Schemes Planned for the Visit
Central	Charsaddah	16
	Peshawar	25
Northern	Malakand	27
	Swat	18
Southern	D I Khan	35
	Karak	21
	Lakki Marwat	28
Total		170

The participants were informed that the pending reports of the last quarter on the newly agreed formats are being drafted in consultation with PIU staff. Hopefully the backlog will be covered in the coming month.

The meeting concluded with a vote of thanks to all participants.

Annex IV: List of KPIAIP Schemes Visited by the M&EC for Monitoring & Impact Assessment in the Quarter

District	Tehsil	Village	1.1: Name of the Scheme?	components	Coordinates latitude	Coordinates longitude
Peshawar	Badhber	SOREZAI	21200/L, Urmar Minor	A1.2	33.9474006	71.6669284
Peshawar	Peshawar	Mera Kacgori	59000/L, Hazar Khwani Branch	A1.2	33.9619347	71.6632043
Peshawar	Chamkani	URMAR MIANA	70000/L, HKBC	A1.2	33.9558175	71.6885665
Peshawar	Chamkani	Sardar Ghari	WC 114750/L Joe Sheikh Distry	A1.1	34.0243461	71.6313549
Peshawar	Mathra	Bache Kproona	24000/L WGC	A1.1	34.0782663	71.4128364
Peshawar	Badhber	Surizai Payan	96025/L WGC	A1.2	33.9671084	71.6168066
Peshawar	Pishtakhara	Afridi Road	500/L Mashogagar Minor	A1.1	33.8747662	71.5369417
Peshawar	Badhber	Kandar Stop	WC 127000/L WLC	A1.1	33.849688	71.6251162
Charsadda	Tangi	Jinday	Mogha NO 2483/RT	A1.2	34.3412715	71.7000203
Charsadda	Tangi	Piran Kallay	Mogha No 4865/L	A1.1	34.347779	71.7283601
Charsadda	Tangi	HisaraNehri	Mogha No 19225/R chk 2	A1.2	34.3513869	71.7670626
Nowshera	Pabbi	Khudrizi	Mogha# 9500/R	A1.2	34.017358	71.7878956
D.I.Khan	Parao	Jattah	WC No: 37300/R D-13	A1.2	31.6400452	70.7821702
Nowshera	Pabbi	Pabbi	Mogha#167536/L	A1.3	33.9986363	71.7880947
D.I.Khan	Parao	Chah khanwala	WC No: 53270/L D-14	A1.2	31.8306134	70.8915157
D.I.Khan	D.I.Khan	Rakh Mandhran	WC No: 30653/R D-5	A1.2	31.8283335	70.8956145
D.I.Khan	D.I.Khan	Hisam	WC No: 16512/L D-4	A1.2	31.8253903	70.8913957
D.I.Khan	Parao	Qayyum Nagar	WC NO: 36500/L Mehmood Minor	A1.2	31.7365133	70.8353117
D.I.Khan	Parao	Jattah	WC No: 47220/L D-13	A1.2	31.8254901	70.8913771
D.I.Khan	D.I.Khan	Rakh Mandhran	WC No: 32300/R D-5	A1.3	31.694712	70.1212595
D.I.Khan	Parao	Qayyum Nagar	WC NO: 33100/L Mehmood Minor	A1.1	31.741924	70.8402243
D.I.Khan	Parao	Qayyum Nagar	WC No: 18295/L D-11A	A1.2	31.7319121	70.8126171
D.I.Khan	Parao	Fateh Mando	WC No: 51764/R D-13	A1.1	31.619925	70.8249867
D.I.Khan	Paharpur	Band Kurai	WC No: 1956/L Band Kurai Minor	A1.2	31.7264842	70.8481779
D.I.Khan	Parao	Kat Shahani	WC NO: 42800/TF	A1.3	31.8252247	70.891186
D.I.Khan	Parao	Bhutaiser	WC NO: 21985/R D-19	A1.2	31.8253975	70.8913791
D.I.Khan	Parao	Gara Ashiq	WC No: 21270/L D-14	A1.2	31.8254047	70.891238
D.I.Khan	Parao	Rakh Ghas	WC No: 37850/R D-19	A1.2	31.825388	70.8912582
Peshawar	Shah Alam	Landi Daudzai	Sar Beland Khan LIS	A2.2	34.101659	71.6804445
Peshawar	Badhber	Adezai	Abul Kalam Civil Canal	A2.2	33.7914745	71.5779076
Peshawar	Badhber	Aza Khel	Subhan Sher TWC	A3	33.8377601	71.63066
Peshawar	Badhber	Urmar Miana	Shoab Rehman TWC	A3	33.8832172	71.7275199
Peshawar	Peshawar	Baghbanan	Yaqoob TWC	A3	33.8855843	71.7048976
Peshawar	Badhber	Adam Khan Kally	Hamid Usman TWC	A3	33.7622964	71.53902
Peshawar	Pishtakhara	Afridi Road	Suliman Khan TWC	A3	33.8692549	71.5367081
Peshawar	Badhber	Poray Say	Muhammad Jamal TWC	A3	33.8171981	71.5433193
Peshawar	Badhber	Mashogager	Muhamad Sadiq TWC	A3	33.8818609	71.5683513
Nowshera	Jehangira	Wattar	Niaz Amin TWWC	A3	33.9910088	72.0641641
Charsadda	Charsadda	Palosa	TWC Ismail Khan	A3	34.1288906	71.8398936
Charsadda	Charsadda	Yaseen Zai, Agra	TW+Canal Sajid Khan	A3	34.1430338	71.7126946
Charsadda	Tangi	Chindru Dag	Hayat Muhammad TWWC	A3	34.3182024	71.6753903
Swat	babozai	Gul Mera Maglawa	Muhammad Adil WC	A3	34.8219213	72.4936623
D.I.Khan	D.I.Khan	Long Kher Shah	Saad Ullah TW WC	A3	31.9878072	70.996753
D.I.Khan	Parao	Fateh Mando	Ghulam Jaffar TW WC	A3	31.6286575	70.8579501
D.I.Khan	Parao	Jhoke Ladhu	Muhammad Aqib TW WC	A3	31.7116306	70.8977061
Nowshera	Pabbi	Aman Kot	Mehboob Rehman TWWC	A3	34.0351236	71.8024972
D.I.Khan	Parao	Kat Jhoke Tahir	Asmat Ullah Khan TW WC	A3	31.750858	70.8763278
D.I.Khan	Parao	Malana	Zahid Latif TW WC	A3	31.7391035	70.8855756
D.I.Khan	Parao	Jhoke Jheda	Falak Sher TW WC	A3	31.6493917	70.8488121
D.I.Khan	Parao	Kat Jhok Tahir	Shafqat Ullah TW WC	A3	31.71717	70.8933378
D.I.Khan	Parao	Kat Jhoke Tahir	Muhammad Adnan TW WC	A3	31.7277627	70.9123635
D.I.Khan	Paharpur	Long Kher Shah	Muhammad Raheel TW	A3	31.9985358	70.9979166
D.I.Khan	Paharpur	Mandhrn	Muhammad Nawaz TW WC	A3	31.8254656	70.8913537
D.I.Khan	Parao	Kat Jhoke Tahir	Mehboob Ali TW WC	A3	31.7295198	70.8803483
D.I.Khan	Parao	Thath Sohlan	Muhammad Kashif Nazir TW WC	A3	31.8253709	70.8914384
D.I.Khan	Parao	Babar Kacha	Shahjahan TW WC	A3	31.825397	70.8912654
D.I.Khan	Parao	Jhoke Ladhu	Qamar Ud Din TW WC	A3	31.7240863	70.9092428
D.I.Khan	Parao	Thath Sohlan	Allah Wasaya TW WC	A3	31.8254771	70.891278
D.I.Khan	Parao	Jhoke Ladhu	Tariq Habib TW WC	A3	31.7132823	70.9026709

D.I.Khan	Parao	Kat Jhoke Tahir	Shehla Gul TW WC	A3	31.7155811	70.8910417
D.I.Khan	D.I.Khan	Mandhran Saidan	Bakhtawar Khan TW WC	A3	31.8253872	70.8913143
D.I.Khan	Paharpur	Dahotar	Bilal Farhat TW WC	A3	31.8253895	70.8913532
D.I.Khan	D.I.Khan	Mandhran Saidan	Khan Zaman TW Wc	A3	31.8254631	70.8913043
D.I.Khan	Paharpur	Long Kher Shah	Bashir Ahmad TW WC	A3	31.9948432	71.0064563
D.I.Khan	Parao	Jhoke Makha	Samar Iqbal TW WC	A3	31.8546914	70.9067599
Buner	Daggar	Mulayousaf	T/W WC Aslam Khan	A4	34.47021	72.4160986
Buner	Mandanr	agra	T/w W/c Sherzad ullah	A4	34.3811222	72.5240005
Buner	Mandanr	Koga	T/w W/c Ghani Akbar	A4	34.3967529	72.5016345
Buner	Mandanr	Koga	T/w W/c Mukramin Khan	A4	34.3983487	72.5123425
Kohat	Kohat	Dhoda	Muhammad Amin TW/WC	A4	33.4636183	71.4983354
Kohat	Manda Khel	Manda Khel	Hamesh Gul TW/WC	A4	33.41744	71.5563333
Kohat	Kohat	Dhoda	Nasur Ullah	A4	33.4799839	71.5209092
Buner	khadokhail	Sura	T/w W/c Amir Zada	A4	34.3947012	72.5556373
Buner	Daggar	Mulayousaf	T/W WC Yousaf Zar	A4	34.4754823	72.428696
Kohat	Kohat	Kamal Khel	Mohabat Shah	A4	33.4207228	71.550959
Kohat	Kohat	Dhoda Sharif	Javed Iqbal	A4	33.4801737	71.5218366
Kohat	Lachi	Lachi	Irfan Ullah Khan TW/WC	A4	33.3719988	71.3336418
Kohat	Lachi	Sumari	Raza Khan	A4	33.4694805	71.3248789
Peshawar	Badhber	Tela Band	Jamdad TWC	A4	33.8910741	71.6334039
Peshawar	Badhber	Sharikera	Gul Azam TWC	A4	33.750973	71.6115024
Karak	Tekhti Nasrat	Wagi Banda	Raza Khan WC	A4	32.9702408	71.0512318
Karak	Tekhti Nasrat	Jahangeri	Naseem Ullah WC	A4	32.9585443	70.9923075
Karak	Tekhti Nasrat	Yaqoobi Kala	Wali Khan WC	A4	32.9268934	70.998291
Karak	Tekhti Nasrat	TakhtiNasrati	Khalid Usman WC	A4	33.0182382	71.0705273
Karak	Tekhti Nasrat	Fateh Khan Banda	Muhammad Aslam WC	A4	32.89149	71.0349885
Kohat	Kohat	Kot	Abdullah Shah TW/WC	A4	33.483963	71.5453659
Kohat	Kohat	Dhoda	Rehmat Gull TW/WC	A4	33.4729684	71.5306329
Kohat	Kohat	Kot	Haq Nawaz TW/WC	A4	33.4818557	71.5518466
Kohat	Lachi	Sumari Paya	Ramdat	A4	33.4651676	71.5024963
Kohat	Kohat	Kharmato	Ghani Ur Rehman TW/WC	A4	33.5086471	71.5283874
Kohat	Kohat	Kot	Shoukat Ali Khan TW/WC	A4	33.4917993	71.5417118
Kohat	Kohat	Kharmato	Amir Khan TW/WC	A4	33.4893068	71.5107661
Karak	Tekhti Nasrat	Kashmiri Banda	Naqeebullah WC	A4	32.8527034	70.962672
Karak	Tekhti Nasrat	Yaqoobi Kala	Hussain WC	A4	32.9227558	70.9945828
Karak	Karak	SoorDaag	MudassirMehmood WC	A4	33.0991681	70.9401169
Karak	Karak	Sharif Wala	Roman WC	A4	33.0732066	70.8881513
Karak	Karak	AkarWala	Muhammad Ismail WC	A4	33.0749584	70.899214
Karak	Karak	Mandawa	Taj ud Din WC	A4	33.037105	70.842515
Swat	Barikot	Landakay Barikot	Mohammad Fayaz PWC	A4	34.6596509	72.1385114
Swat	Barikot	Kandak	Nazar Hussain PWC	A4	34.6328561	72.1894399
Swat	Barikot	Not Maira	Ishaq Khan PWC	A4	34.6592429	72.2252579
Swat	kabal	Kuza bandai Kabal	Zakir PWC	A4	34.8287072	72.3710954
Swat	Barikot	Khazana Barikot	Gul Bacha PWC	A4	34.7262316	72.1650265
Swat	Barikot	Barikot	Fawad Ali PWC	A4	34.6603733	72.2515247
Kohat	Gumbat	Nari Kak	Muhamamd Fayaz TW/WC	A4	33.5092606	71.5830815
Kohat	Gumbat	KohatiDhok	Dost Muhammad TW/WC	A4	33.4924282	71.5917781
Kohat	Kohat	Togh Bala	Zarif Khan	A4	33.5646914	71.5021495
Kohat	Gumbat	Billitang	Muhammad Ishtiaq	A4	33.4865553	71.5865913
Kohat	Gumbat	Nari Kak	Lachi Khan	A4	33.5039379	71.58528
Kohat	Gumbat	Gandialey	Asif Khan TW/WC	A4	33.5106367	71.6065883
Kohat	Gumbat	Gandialey	Rehmat Ullah TW/WC	A4	33.5105593	71.6034065
Peshawar	Badhber	Sharekera	Wajid Khan TWC	A4	33.7689328	71.6295644
Swat	kabal	Maloch	Aziz Khan PWC	A4	34.8426176	72.2969289
Swat	kabal	kala kalay	Khan Nawab PWC	A4	34.8519273	72.2893135
Kohat	Kohat	Sour Gull	Zahid Jan TW/WC	A4	33.4977738	71.4151353
Kohat	Kohat	Shaheeda Banda	Abdul Hameed No.1 TW/WC	A4	33.5079712	71.4800386
Swat	Barikot	Kota	Masal Khan PWC	A4	34.6457707	72.1566625
Swat	Barikot	Kota Barikot	Fazle Rabi PWC	A4	34.6394699	72.1644036
Swat	Barikot	Kota	mohammad nawab pwc	A4	34.6381375	72.1537973
Swat	kabal	Bara Samai	Bakht Mandyar PWC	A4	34.9329374	72.2297012

Swat	Barikot	Nawakali	Talemand PWC	A4	34.6557014	72.1652602
Swat	Barikot	talang	Umar Nasir PWC	A4	34.6094744	72.1447072
Swat	charbagh	zangai	Gul Farin PWC	A4	34.8571331	72.4913406
Swat	Barikot	Not Maira	Waqar Ali Khan PWC	A4	34.6596971	72.2293768
Swat	Barikot	Churkhi	Ahmad Khan PWC	A4	34.6235526	72.1409233
Nowshera	Pabbi	Speen Kana	Tajamul TWWC	A4	33.9266276	72.0230806
Nowshera	Nowshera	Bahader Khel	Raz Ali TWWC	A4	33.9228346	72.0168066
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Irfan Ullah Khan Watercourse	A4	32.6843018	70.6990448
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Parvez Khan Watercourse	A4	32.6821132	70.7038418
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Mujeeb ur Rehman Watercourse	A4	32.6837681	70.6930366
Lakki Marwa	Lakki Marwat	Baji Mughal Khel	Bismila jan TW W/C	A4	32.7113711	70.6494909
Lakki Marwa	Lakki Marwat	Baji Mughal Khel	Gul Zaman TW W/C	A4	32.70651	70.645742
Lakki Marwa	Ghazni Khel	Baji Mughal Khel	Alamgir Khan Watercourse	A4	32.7094138	70.6495617
Lakki Marwa	Ghazni Khel	Baji Mughal Khel	Kiramat Ullah Watercaourse	A4	32.7171142	70.658497
Swat	Barikot	Kandak	Razi Mand PWC	A4	34.6366317	72.1937836
Swat	Barikot	Kandak	Said Rehman PWC	A4	34.6375425	72.1890488
Nowshera	Jehangira	Suraya Khel	Fazil TWWC	A4	33.9827667	72.0866733
Charsadda	Tangi	Koz Behram Dheri	PWC Taj Muhammad Said	A4	34.4082044	71.7317508
Charsadda	Tangi	Sado Kallay Behra	Gohar Zaman	A4	34.4168693	71.7549048
Charsadda	Tangi	Koz Behram Dheri	PWC Ijaz Khan	A4	34.4127102	71.7561
Charsadda	Tangi	Behram Dheri	Shamshad	A4	34.4204937	71.7531391
Charsadda	Tangi	Bara zai	Jan Nisar PWC	A4	34.3979094	71.6667356
Lakki Marwa	Ghazni Khel	Guli Khel	Shareen Jan Watercourse	A4	32.6331061	70.5011853
Lakki Marwa	Ghazni Khel	Tari Khel	Qudrat Ullah Watercourse	A4	32.6119509	70.5882209
Lakki Marwa	Ghazni Khel	Baji Adam Khan	Khalil-ur-Rehman Watercourse	A4	32.713433	70.6615753
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Wali Dad Khan Watercourse	A4	32.6886217	70.7033427
Lakki Marwa	Ghazni Khel	Suleman Khel	Gulistan Watercourse	A4	32.656754	70.4990928
Lakki Marwa	Ghazni Khel	Daraki Tajori	Jan Khan Water Course	A4	32.6247471	70.5459584
Swat	babozai	Marghuzar	Taj Muhammad PWC	A4	34.6516076	72.3537469
Charsadda	Tangi	Torkhat	Hazrat Khan PWC	A4	34.4033714	71.6660224
Charsadda	Tangi	Palay Qalla Behra	PWC Sher Baz Khan	A4	34.4049677	71.6640225
Charsadda	Tangi	Behram Dheri	Imrad Ullah	A4	34.3826026	71.6480851
Charsadda	Tangi	Manan Baba kalay	Muhammad Dawood PWC	A4	34.3770116	71.6436006
Charsadda	Charsadda	Kier ra	PWC Abdullah	A4	34.3603342	71.6047022
Swat	charbagh	Allah Abad Charba	Sana Ullah PWC	A4	34.8517285	72.454467
Lakki Marwa	Ghazni Khel	Kotak Dary Khan B	Usman Ullah Water Course	A4	32.6440271	70.5077336
Lakki Marwa	Ghazni Khel	Kotak Sher Mast	Muhammad Umer Water Course	A4	32.6857526	70.6458637
Lakki Marwa	Ghazni Khel	Awat Khel	Ramzan Watercourse	A4	32.6519895	70.4944945
Lakki Marwa	Serai Naurang	Gandi Umer Chika	Sharif Ullah Water Course	A4	32.7526113	70.81325
Lakki Marwa	Ghazni Khel	Umer Abad	Aziz Khan Watercourse	A4	32.6794	70.7258169
Lakki Marwa	Ghazni Khel	Umer Abad	Arshad Jameel Watercourse	A4	32.6940004	70.7069468
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Naseer Muhammad Watercourse	A4	32.6413166	70.6925717
Lakki Marwa	Lakki Marwat	Bachken Ahmadza	Mushtaq Ahmad TW W/C	A4	32.6566632	70.7286041
Lakki Marwa	Ghazni Khel	Bachkan Ahmadza	Farid Ullah Watercourse	A4	32.6636469	70.7120014
Lakki Marwa	Ghazni Khel	Kotka Khaidar Kha	Zahir U Din Watercourse	A4	32.66285	70.7508817
Lakki Marwa	Serai Naurang	Gandi Umer Chika	Abdul Majeed Khan WC	A4	32.724729	70.8303323
Nowshera	Jehangira	Wattar	Wajahat Khan TWWC	A4	33.9730051	72.0696066
Nowshera	Jehangira	Wattar	Bakhtiar Amin TWWC	A4	33.9689309	72.0553318
Buner	Khadokhel	Panjtaar	WST Dilawar Khan	B2	34.2238734	72.534658
Peshawar	Chamkani	SHAMSHATO	Akhtar Ali wst	B2	33.836902	71.734904
Peshawar	Badaber	Baghbanan	Yaqoob WST	B2	33.8855875	71.7048229
Peshawar	URMAR PAYA	URMAR PAYAN	Muhammad Haroon wst	B2	33.892954	71.743605
Peshawar	Peshawar	Urmar Miana	Khan Salam WST	B2	33.9272601	71.754516
Karak	Takhti Nasrat	Manzini Banda	Abdul Subkhan WST	B2	32.9369735	70.964547
Karak	Takhti Nasrat	Kari Dhand	Maiz Ullah WST	B2	32.875348	70.9880574
Karak	Takhti Nasrat	Kari Dhand	Muhammad Taif WST	B2	32.8680347	70.9813174
Peshawar	Badaber	Azakhel	Yasin Shah WST	B2	33.8493072	71.6157093
Karak	Karak	Changhos	Shahid Ullah WST	B2	33.093027	70.8389902
Karak	Karak	Aral Tor Adam Bar	Gul Ahmad Khan WST	B2	33.0915492	70.8218391
Karak	Takhti Nasrat	Ghundi Kalla	Gulladar Khan WST	B2	33.0509116	71.0213987
Karak	Karak	Shobli Banda	Naveed Ur Rehman WST	B2	33.0975302	70.8986575

Karak	Karak	Kass Banda	Taimoor Khan WST	B2	33.0989802	70.8431368
Swat	kabal	Bekanrai shah	Nayer Ali WST	B2	34.8386667	72.28689
Kohat	Kohat	Shah Pur	Iftekhar Hameed WST	B2	33.5569228	71.3995777
Kohat	Kohat	Usterzai Payan	Syed Muhammad Shah WST	B2	33.642968	71.2477103
Swat	Barikot	Malkidam	Sher Alam Khan WST	B2	34.6524985	72.1905011
Swat	kabal	Tarkano	Jamil Khan WST	B2	34.8874498	72.3100701
Swat	kabal	tall	Atta Ullah WST	B2	34.9186852	72.219816
Swat	charbagh	Toha	Wajid ali khan WST	B2	34.8544021	72.5197151
Karak	Karak	Soor Daag	Mudassir Mehmood WST	B2	33.0992758	70.9401208
Karak	Karak	Sharif Wala	NahidUllah WST	B2	33.0842797	70.8820465
Karak	Karak	Nazim Abad	Ibrahim WST	B2	33.0748577	70.8812765
Karak	Karak	Latambar	Sikandar Azam WST	B2	33.0911599	70.8788446
Nowshera	Nowshera	Dheri Kati Khel	Darwesh Khan WST	B2	33.9828883	72.0509967
Nowshera	Pabbi	Dag Ismail Khel	Naeem Uddin WST	B2	33.8791469	71.7832787
Nowshera	Nowshera	Tangi khattak	Malik Tabish Ibrar WST	B2	33.9302566	72.0110415
Nowshera	Nowshera	Gul Dheri	Mughesuddin WST	B2	33.9469914	72.0904949
Nowshera	Nowshera	Maraji Payan	Almas Khan WST	B2	33.913262	71.9920972
Nowshera	Jehangira	Chasma	Tasbeeh Ullah WST	B2	33.9611065	72.1442348
Nowshera	Nowshera	Badrashai	Taj Khan WST	B2	33.977535	72.0323867
Karak	Karak	Akar Wala	Farhat Ullah WST	B2	33.0695592	70.9042027
Swat	Barikot	Malkidam	Sajjad Khan WST	B2	34.6356981	72.1973379
Swat	Barikot	Churkhi	Dil Rose WST	B2	34.6235704	72.1401349
Swat	Barikot	Kandak	Muhammad Hussain WST	B2	34.6271904	72.1896088
Nowshera	Pabbi	Dag Ismail Khel	Umar Gul WST	B2	33.8727775	71.7859839
Karak	Takhti Nasrat	Nazi KhelYaghiMu	Muhammad Naeem WST	B2	32.9709421	70.9780666
Swat	charbagh	Ashar Banr	MOHAMMAD ISHAQ WST	B2	34.8614735	72.4955739
Swat	charbagh	Toha	Zahid WST	B2	34.8576228	72.5030638
Swat	Babuzai	Dangram	Zafar iqbal WST	B2	34.763121	72.4124936
Nowshera	Nowshera	Walai	Hassan Khan WST	B2	33.9899473	72.0641089
Nowshera	Nowshera	Walai	Chan Badshah WST	B2	33.96226	72.06212
Nowshera	Nowshera	Meraji Payan	Sardar Hussian Khattak WST	B2	33.91867	71.9618733
Lakki Marwa	Lakki Marwat	Daraka Aziz Khan	Habib Ullah Khan W.S.Tank	B2	32.6667542	70.5510437
Lakki Marwa	SERAI NOURA	Mangala	Sanoor Rehman W.S.Tank	B2	32.7825111	70.8943979
Nowshera	Nowshera	Manki Sharif	Pirzada Noor WST	B2	33.9313378	71.9816658
Nowshera	Nowshera	Manki Sharif	Sadiq Nawaz WST	B2	33.9151183	72.0057964
D.I.Khan	Paroa	Jhoke Ladhu	Tariq Habib TW WST	B2	31.7133401	70.9031761
Lakki Marwa	Lakki Marwat	Mash Masti Khani	Payo Khan W.S.T-II	B2	32.8167131	70.895561
D.I.Khan	D.I.Khan	Diyal	Arif Saeed TW WST	B2	31.8254009	70.891356
D.I.Khan	Paroa	Paroa	Ishaaq Ahmad Sajeel TW WST	B2	31.8254265	70.8913939

Annex V: Supporting Graphs and Tables Derived from the Data of Sampled visited Schemes

1. Cultural Command Area of 220 sub-component schemes

Table 1A: Average % Increase in Cultural Command Area by Sub Components A (Watercourses)

Region	A1	A2	A3	A4	Average % Increase
Central	86	173	147	97	96
Northern	0	0	13	50	43
Southern	4	0	6	111	23
Weighted Average	19	173	38	92	48

Table 1B: Average increase in Irrigated CCA under B2 Scheme by region

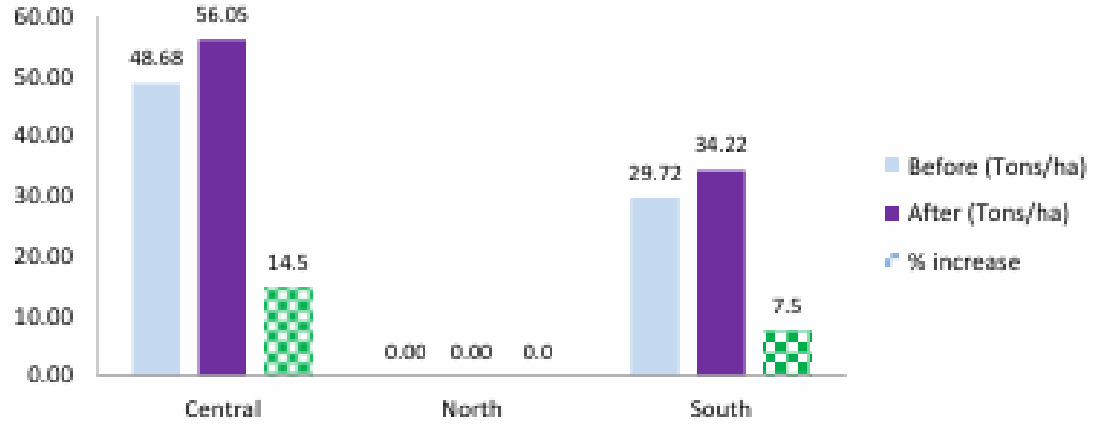
Region	Before (ha)	After (ha)	% Increase
Central	3.18	4.90	54.16
North	1.47	1.69	14.94
South	1.89	2.71	43.20
Total weighted average	2.24	3.23	44.31

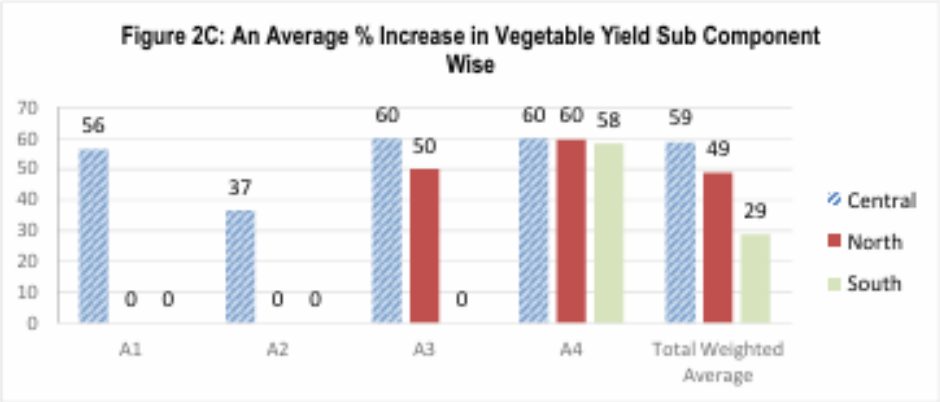
2. Increase in crops yields

Table 2A: Average Increase in Maize Yield (tons/ha) Component A

Region	Before (Tons/ha)	After (Tons/ha)	% increase
Central	2.71	3.39	24.96
Northern	2.92	4.92	55.82
Southern	1.96	1.42	9.43
(weighted average)	2.32	2.53	21.81

Figure 2A: Average increase in Sugarcane Yield (Tons/ha) Yield Component A





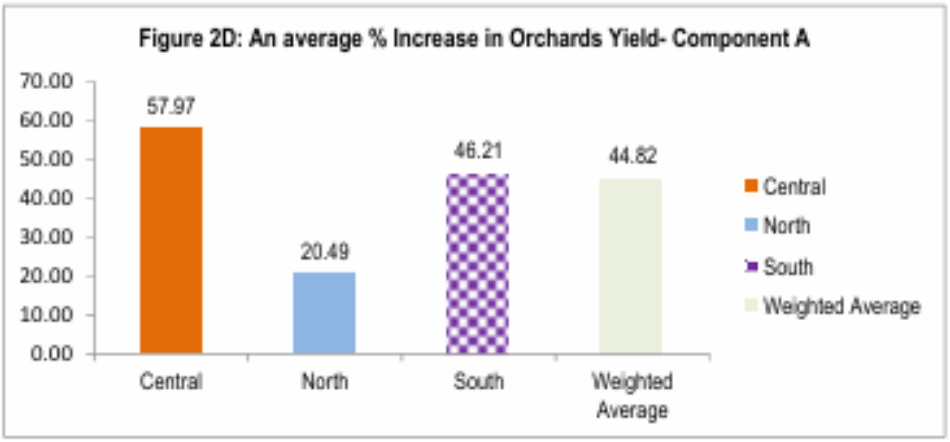
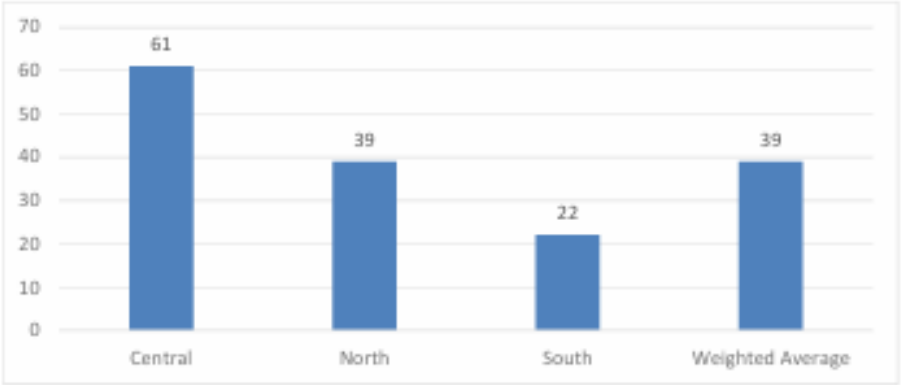
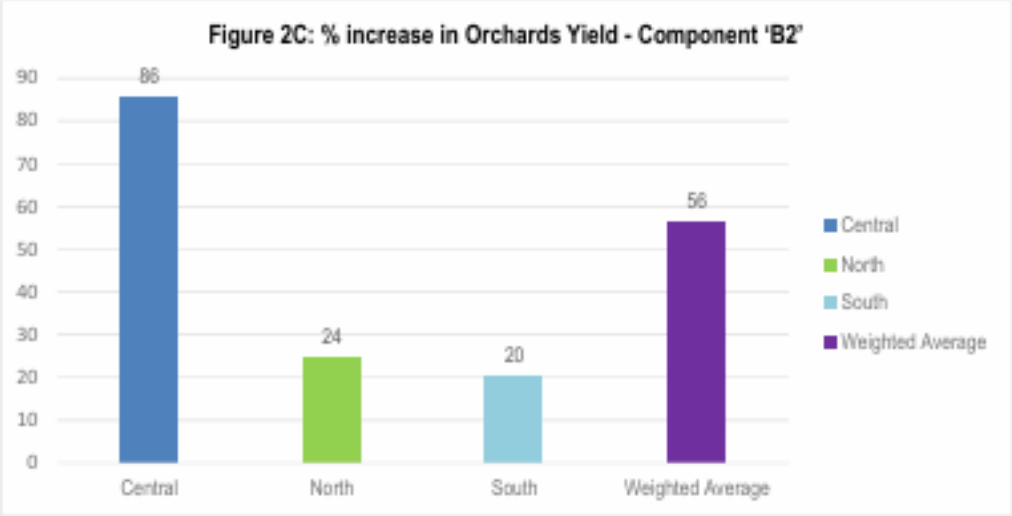


Table 2B: An Enhancement in Sugarcane Yield (Tons/ha) - Component B2

Region	Before	After	% Increase
Central	0.00	0.00	0.00
North	0.00	0.00	0.00
South	79.07	85.25	7.81
Weighted Average	**79.07**	**85.25**	**7.81**

Figure 2B: % increase in Vegetable Yield - Component 'B2'





3. Change in Cropping Pattern

Table 3A: An average change in Maize Crop area (Ha)

Region	Component A			Component B		
	Before	After	% increase	Before	After	% increase
Central	4.34	11.81	171.84	0.43	0.92	115.79
Northern	0.06	0.40	587.50	0.18	0.42	130.00
Southern	0.34	0.66	91.18	0.18	0.29	65.00
(weighted average)	**1.37**	**3.66**	**167.61**	**0.26**	**0.54**	**102.94**

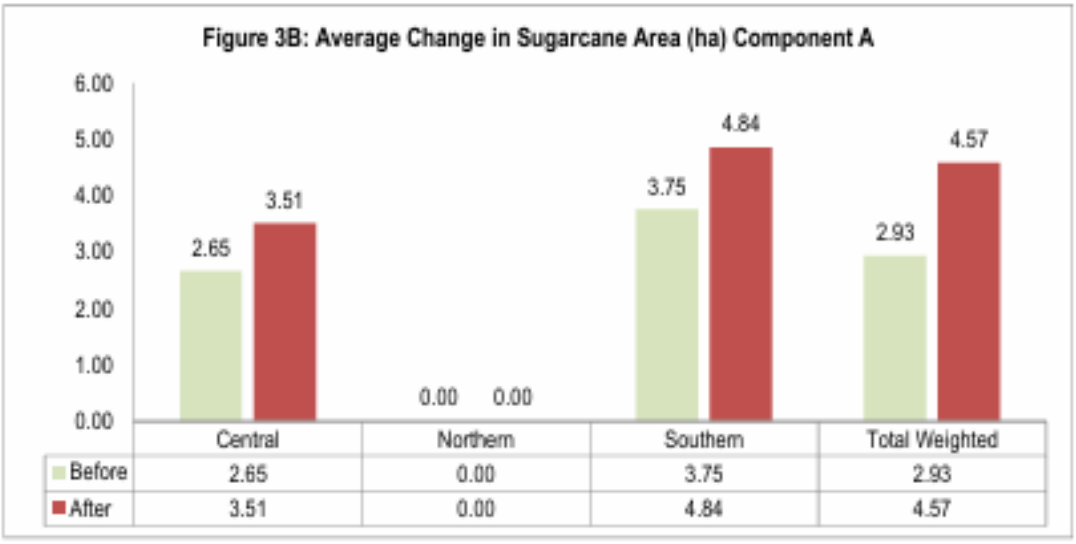
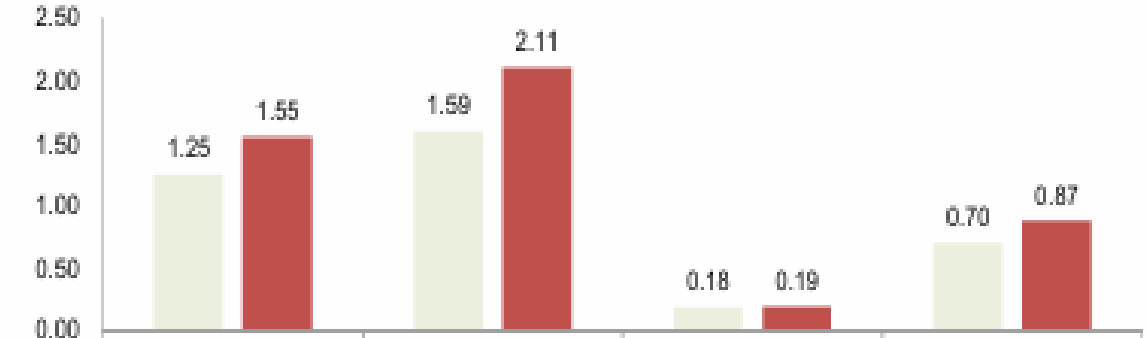


Table 3B: Showing an average change in Sugarcane Crop area (Ha) Component A

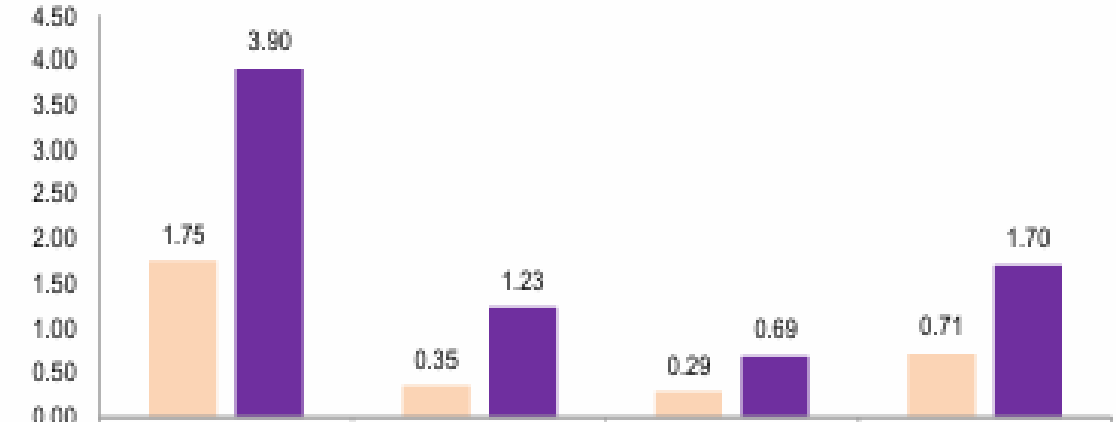
Region	Before	After	% increase
Central	2.65	3.51	32.20
Northern	0.00	0.00	0.00
Southern	3.75	4.84	29.09
Total Weighted	**2.93**	**4.57**	**56.16**

Figure 3C: Average Change in Orchards Area (ha)) - Component A



	Central	Northern	Southern	Total
Before	1.25	1.59	0.18	0.70
After	1.55	2.11	0.19	0.87

Figure 3D: Average Change in Vegetable Area (ha)) - Component A



	Central	Northern	Southern	Total Weighted
Before	1.75	0.35	0.29	0.71
After	3.90	1.23	0.69	1.70

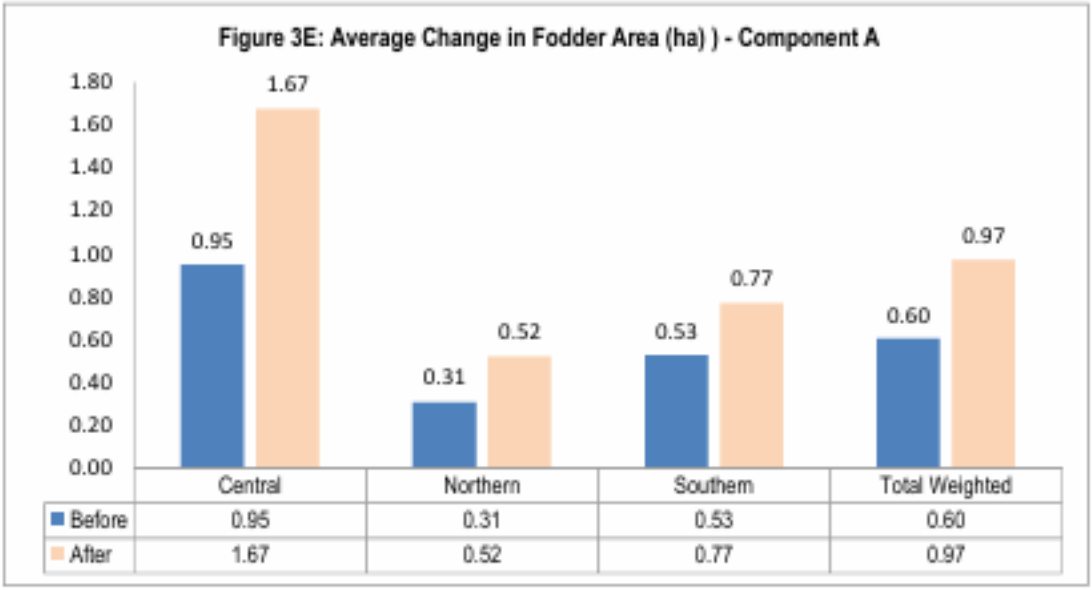


Table: 3C: Average change in Hybrid Maize Crop area (Ha)) - Component A

Region	Before	After	% increase
Central	1.64	2.94	78.90
Northern	0.64	0.94	46.07
Southern	0.03	0.11	0.00
Total Weighted	0.57	1.00	77.34

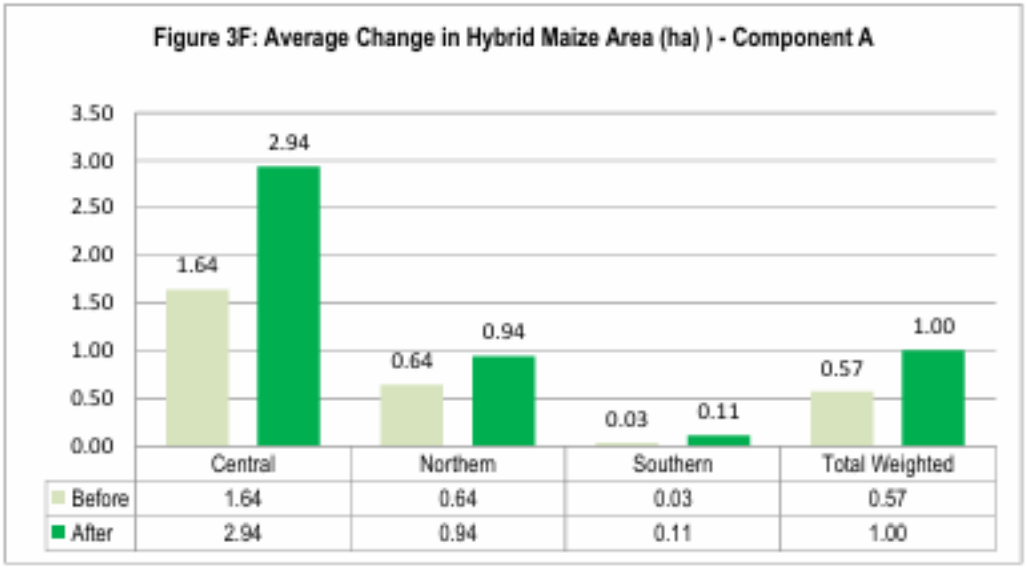
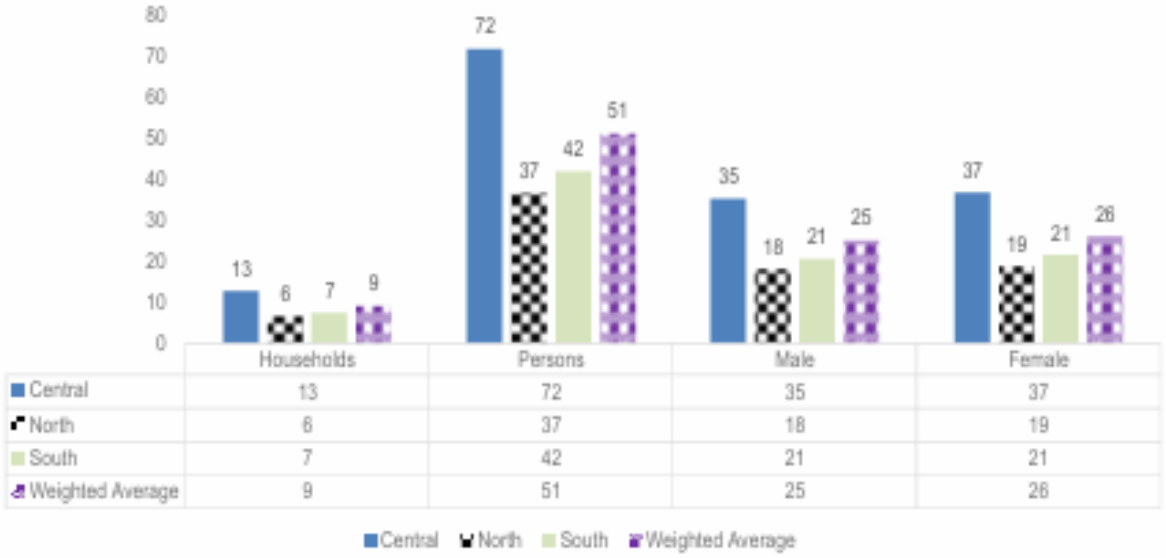


Table 3D: Average change in area (Ha) Component 'B2'

Region	Orchards			Vegetable			Fodder		
	Before	After	% increase	Before	After	% increase	Before	After	% increase
Central	2.61	4.63	77.13	0.93	1.64	75.90	0.22	0.44	96.20
Northern	1.68	1.73	2.70	0.18	0.63	240.00	0.11	0.24	108.00
Southern	0.37	0.39	5.88	0.07	0.11	50.00	0.12	0.29	140.00
(weighted average)	**1.42**	**2.14**	**50.34**	**0.39**	**0.75**	**90.10**	**0.15**	**0.33**	**113.04**

4. Community Well-being analyses of 220 schemes of component B2

Figure 4A: Region-wise Household and Beneficiaries Analyses of KPIAIP B2



5. Water Productivity by sub components

Table 5A: Average Water Productivity (Kg/m3) of Wheat and Maize by Sub Component

Region	A1		A2		A3		A4		Weighted Average	
	Wheat	Maize	Wheat	Maize	Wheat	Maize	Wheat	Maize	Wheat	Maize
Central	1.18	0.53	1.08	0.92	1.10	0.61	1.32	0.82	1.21	0.69
North	0.00	0.00	0.00	0.00	0.37	0.21	2.30	2.29	2.23	2.22
South	0.58	0.00	0.00	0.00	0.69	0.00	1.37	0.52	1.09	0.31
Weighted Average	**0.87**	**0.53**	**1.08**	**0.92**	**0.84**	**0.58**	**1.53**	**0.98**	**1.27**	**0.82**