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

MONTHLY MONITORING REPORT

SEPTEMBER 2022

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.

EASE-PAK

ADA Consultants Inc.

In Association with S&S Associates

Federal Project Management Unit (FPMU)
Federal Water Management Cell (FWMC)
Ministry of National Food Security & Research, Islamabad

Monitoring, Evaluation and Impact Evaluation (ME&IE) Consultants
For
Water Conservation in Barani Areas of Khyber Pakhtunkhwa

MONTHLY MONITORING REPORT
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LIST OF TABLES

LIST OF ANNEXURES

ACRONYMS

ADA	Assistant Director Agriculture
AF	Acre-Feet
ALCI	Agronomic Low-Cost Interventions
AWPB	Annual Work Plan and Budget
AWPs	Annual Work Plans
BCR	Benefit Cost Ratio
CB	Capacity Building
CMS	Content Management System
CSRD	Center for Social Research and Development
DAE	Directorate of Agriculture Engineering
DDA	Deputy Director Agriculture
DGW&SC	Directorate General of Water & Soil Conservations
EAs	Executing Agencies
EIRR	Economic Internal Rate of Return
ES-QPR	Environmental and Social Quarterly Progress Reports
FCR	Financial Completion Report
FCRs	Final Completion Reports
FMFSR	Framework for Federal Financial Management System
FOs	Farmers Organizations
FPMU	Federal Project Management Unit
FWMC	Federal Water Management Cell
GAP	Gender Action Plan
GB	Gilgit Baltistan
GIS	Geographic Information System
GoP	Government of Pakistan
GoKP	Government of Khyber Pakhtunkhwa
HEIS	High Efficiency Irrigation System
IAs	Implementing Agencies
ICR	Intermediate Completion Report
ICT	Islamabad Capital Territory
ICT	Information & Communication Technology
IRR	Internal Rate of Return
KP	Khyber Pakhtunkhwa
LFT	land for Terracing
LPS	Liter per Second
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
MT	Monitoring Template
MTE	Mid-Term Evaluation
MWA	Micro-Watershed Areas
NPC	National Project Coordinator
NPV	Net Present Value
OFWM	On Farm Water Management

PC	Project Consultants
PC-1	Planning Commission-(Form-One)
PDO	Project Development Objectives
PIC	Project Implementation Committee
PIES	Project Impact Evaluation Study
PPRF	Project Progress Reporting Framework (PPRF)
PQC	Pre-Qualification Committee
RBM	Results-Based Management
RWD	Responsive Web Design
S&WC	Soil & Water Conservation
SBS	Stream Bank Stabilization
SDS	Sand Dunes Stabilization
SOPs	Standardized Operating Procedures
SPS&TW	Solar, Pumping System and Tube Wells
SPSS	Statistical Package for Social Sciences (Software)
SSCs	Supply and Service Companies
TABs	Tablets
TOR	Terms of Reference
TPV	Third Party Validation
TWRD	Tail-Water Recovery Ditch
WCA	Water Conservation Activity
WCBAKP	Water Conservation in Barani Areas of Khyber Pakhtunkhwa
WG	Women Group
WR	Water Reservoir
WSHG	Water Seepage Harvesting Galleries
WSP	Water Storage Pound
WST	Water Storage Tank
WUAs	Water Users Associations

EXECUTIVE SUMMARY

This Report reflects the progress and monitoring activities of the Project *"Water Conservation of Barani Areas in Khyber Pakhtunkhwa (WCBA KP)"*, it includes, introduction to Client and Consultants of the Project, scope of Consultancy Services, and Deliverables. All these details are covered in different chapters. The MMR for September is comprised of 4 Chapters along with annexes.

Chapter-1 of the MMR explains profile of the Project including Executing Agencies, ME&IE Consultants of the Project, Objectives and Background of Water Conversation in Barani Areas of Khyber Pakhtunkhwa.

The proposed project is in line with both, the mandate of the Government and objectives of National Water Policy. The Prime Minister's 100 days' agenda stresses on massively expanding water conservation efforts through smart interventions to reduce water losses. Similarly, National Water Policy of the country aims at: (i) reduction of 33% in 46 MAF river flows that are lost during conveyance–watercourses lining especially in saline and semi-saline areas; and (ii) increase at least 30% in efficiency of water use by producing "more crop per drop of water".

Water is getting scared day by day and Pakistan is becoming a fast water-scarce country. Even then, a considerable amount of water from natural resources is not being harnessed. Therefore, there is a serious need to conserve this vital resource to ensure sustainable high level crop production for food security and safeguarding the socio-economic status of the farming community of KP Province.

To mitigate this problem Executive Committee of National Economic Council (ECNEC) approved this project *"Water Conservation in Barani Areas of KP"* on September 29, 2019, at a cost of Rs. 14.177 billion at 80:20 costs sharing between Government and the beneficiaries/ farmers. The implementation period of the project is 5 years. The project aims to conserve water in Barani Areas of KP through following Interventions.

ES- 1: Interventions Under WCBA KP Project

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

Chapter-2 provides detail of Scope of Consultancy Services and the Consultants for ME&IE of WCBAKP Project. For Monitoring, Evaluation & Impact Evaluation (ME&IE) of the WCBA KP, Government has engaged Consultants *"Monitoring, Evaluation and Impact Evaluation (ME&IE) Consultants"* through Federal Project Management Unit (FPMU) Federal Water Management Cell, Ministry of National Food Security & Research, Islamabad. The JointVentureofM/s G3 Engineering Consultants (Pvt.)

Ltd., EASE PAK Engineering services (Pvt.) Ltd., Centre for Social Research and Development (CSRD), ADA Consultants Inc. Canada and S&S Associates has been selected as ME&IE Consultants for WCBA KP. Formal contract agreement between Consultants the Client (Federal Project Management Unit (FPMU) was signed on November 27, 2020. Immediately after singing the contract agreement consultants mobilized its staff to start the assignment.

The Scope of the Consultants' Services for the assignment are to conducting, but not limited to the following activities:

i) Undertake baseline, midline, and end line surveys of the project activities/interventions in all the project areas.
ii) Develop monitoring strategy, framework, and Result Based Monitoring (RBM) indicators.
iii) Preparation of Monthly, Quarterly and Annual Monitoring and Evaluation of the project activities.
iv) Assessing the improvement in water availability and soil losses due to project interventions.
v) Assessing the water saving per annum due to the project interventions.
vi) Assessing the economic benefits to the agriculture in terms of changes in irrigated area, area under cultivation, crop yields, cropping pattern, cropping intensity, farm income and employment.
vii) Assessing the extent of community mobilization, financial and administrative sustainability of Soil & Water Conservation Associations (SWCAs) and ensuring the maintenance of project interventions.
viii) Carryout impact evaluation of the project investment on the economy and stakeholders.

Chapter-3. provides status of consultants' activities conducted during the reporting month. The consultants' activities include field visits / monitoring of the project interventions, coordination meetings held with relevant Government Departments (Client) and other stakeholders of the project, including farmers. This chapter also describes the purpose of preparation and submission of Monthly Monitoring Report (MMR) and explains the procedure developed by the consultants to conduct the assignment

Chapter-4 is related to the Quarterly Work Plan / Activities Schedule set by the consultants to perform the quarterly activities. This chapter also provides the status of reports and documents submitted by the consultants as per schedule of deliverable under the contract agreement. The schedule is as **Annex-E** to this MMR.

CHAPTER – 1: PROJECT INTRODUCTION

This section of the Monthly Monitoring Report includes profile and brief introduction of Water Conservation in Barani Area (WCBA) and background of Water Conservation in Barani Area of Khyber Pakhtunkhwa (WCBA KP)

1.1 PROJECT PROFILE

Project Name	Water Conservation in Barani Areas of Khyber Pakhtunkhwa
Project Areas	Project covers 35 Districts of Khyber Pakhtunkhwa falling under Malakand, Hazara, Peshawar & Mardan, Kohat & Bannu, and Dera Ismail Khan Divisions.
Sponsoring Agency	Ministry of National Food Security & Research
Executing Agencies (EAs)	Federal Project Management Unit (FPMU), Federal Project Management Unit (FPMU) Federal Water Management Cell
Project Period	5 Year (2019-2024)
ME&IE Consultancy Period	4 years
ME&IE Consultant:	JV of G3 Engineering Consultants (Pvt.) Ltd., EASE PAK Engineering services (Pvt.) Ltd., Centre for Social Research and Development (CSRD) and ADA Consultants Inc. Canada and S&S Associates.
ME&IE Consultant Mobilized	December 24, 2020

1.2 PROJECT DESCRIPTION

Detail of the Project "WCBA KP" is as under:

1.2.1 Introduction

The common features of Barani and Arid lands are low precipitation, high temperature, high evaporation, low humidity, poor rainwater efficiency, water percolation and low productivity. These lands can be made more productive for cultivation and crop production through soil and water conservation activities, as this is need of the hour to overcome scarcity of water and food for the human as well as for livestock. Barani areas are facing huge shortage of water. Therefore, to overcome this shortage Govt. of Pakistan has established Provincial Soil & Water Conversation Departments. These Departments are providing services to the farmers for agricultural purpose through district governments. Main tasks of Soil & Water Conservation which are considered important are following:

- To contain soil erosion process in the cultivable area and the adjoining uncultivated lands and to save these areas from further degradation.
- To make maximum use of run-off water by conserving it into the field by various moisture conservation measures.
- To bring more area under cultivation through reclamation and gully control techniques.
- Exploitation of water resource through various means of providing assured water supply for irrigation purposes (mini dams and ponds)

Some of the works being undertaken for soil and water conservation are:

- Construction of Mini Dams
- Water Storage Tanks
- Construction of Water Outlet Structures
- Retaining Walls
- Land Reclamation through Gully Plugging
- Stream Bank Training
- Moisture Conservation Practices such as Terrace Forming & Deep Ploughing.

1.2.2 Background of WCBA KP

Khyber Pakhtunkhwa (KP) borders the mountainous regions except to the South-East portion of the province. Therefore, geographically the province is intertwined with various rivers, floods waterways and hill torrent runoff water resources. Water is the limiting factor in the rain- fed Districts of KP that hinder the production of crops and adversely affects

human and animal life. Precipitation received through these mountains of the region drains out of the watershed quickly because of the undulating topography; the uneven terrain of the foothills which drain the areas quickly. Hence enormous amounts of water are being lost through runoff without being utilized, carrying with it fertile topsoil. These waters induce flash floods on one hand and decrease the storage capacity of the dams due to siltation, on the other. The runoff water, if harvested and stored in small units at local level, can be used to supplement irrigation for increase in agriculture production, stabilize the ground water table by inducing ground water recharge, can be used for human and animal use and improve climatic conditions of the rain- fed areas.

While the plains of Peshawar valley (comprising of district Peshawar, Charsadda, Mardan, Swabi and Nowshera) is irrigated by the river Kabul and its tributaries, D.I. Khan which are being irrigated through the CRBC canal from the Indus and steps being taken for Gomal Zam dam, majority of the agriculture lands of the province need to be supplemented through local water harvesting because of the uneven terrain.

In relation to the scope of the problem and the opportunity at hand, previously the idea of conversion of rain fed agriculture to irrigated agriculture have not been taken as it should have been. The conservation of these vital resources is a need of the hour to ensure sustainable high level crop production for food security and safeguarding the socio-economic status of the farming community of KP.

The runoff water, if harvested and stored in small units at local level, can be used to supplement irrigation for increase in agriculture production, stabilize the ground water table by inducting ground water recharge, can be used for human and animal use and improve climatic conditions of the rain-fed areas.

The Directorate General Soil & Water Conservation Khyber Pakhtunkhwa is functional in 24 Districts of the province and is striving for the protection and conservation of agricultural lands and rain water through conservation structures like Inlet and outlet structures, field spillways, cemented water storage ponds, Spurs and protection bunds/walls cemented, G.I. wire spurs and protection bunds, runoff diversion structures and source development, rain fed water retention reservoirs, earthen ponds and earthen embankments, contours and terraces. In addition, water harvesting interventions such as check dams, water reservoirs etc.

1.2.3 Project Objectives

The main objective of agriculture sector is to make the country self-sufficient in food grains and make raw material available for agriculture-based industries. The project will be encouraging the farming community through financial assistance for water conservation for ensuring timely irrigation. The project has designed to achieve the following long-run objectives:

- *To conserve land and water resources through various interventions for supplemental irrigation, livestock, farm forestry and fish farming*
- *To increase cropping intensity and per unit of land and water productivity*
- *To improve livelihood standards of poor fanners*
- *To improve socio-economic stability*

The project objectives in quantifiable terms are as follows:

i) To induce aquifer/ground water recharge by pounding water in> 300 water storage reservoirs.
ii) To convert 15,032 acres of culturable wastelands into productive agriculture lands through development of 70 micro-watersheds.
iii) To reduce soil erosion by containing flash floods through provision of soil & water conservation structures and check gulley erosion by plugging gullies through 3,000 check dams.
iv) Minimize the adverse effects of drought by maximizing the irrigation water supplies through exploitation of sub-surface water from tube wells.
v) Conversion of around 43,225 acres of rain fed land into irrigated land through installation of 300 agricultural tube wells and solarization of 700 existing/new tube wells.
vi) To enhance the capacity of the stakeholders in water harvesting and for sustainable use of land and soil resources for increased agriculture production.

vii) To improve the socio-economic status of the farmer community.

The project is in line with specific objectives of National Water Policy and Provincial Implementation Plan of the agriculture sector for enhancing water productivity, efficient and harvesting runoff water to ensure farm productivity, economic uplift of small farmers and improving economy of the country. The proposed project is closely related to the recently completed water conservation schemes, which form an essential element of the integrated rural development program within the agriculture sector.

1.2.4 Project Components

The project has two components: Component - A & B.

- **Component-A**

Component-A is being executed by the Directorate General Soil & Water Conservation KP through its provincial setup. It comprises the following activities as listed in **Table 1.1**.

Table 1.1: Activities under Component A (Executed by Soil & Water Conservation KP)

Sr. No.	Name of Activity	Sr. No.	Name of Activity
1.	Water Ponds	2.	Check Dams
3.	Water Reservoir	4.	Stream-bank stabilization
5.	Gated field Inlet Outlet/ Spillway	6.	Terracing
7.	Micro-Watershed Development	8.	Water Seepage harvesting Galleries
9.	Agronomic low-cost interventions	10.	Sand Dunes stabilization
11.	Capacity Building		

- **Component-B**

The Component-B is being implemented by the Directorate of Agricultural Engineering, KP. It comprises of the following activities:

i) Installation of Tube wells.
ii) Solarization of Agricultural Tube Wells.

1.2.5 Project Targets and Outputs

Project targets and outputs of both components are presented in **Table 1.2**.

Table 1.2: Project Targets and Outputs

S.#	Input	Output
1.	Construction of 5,000 water ponds	Approximately 12,500 acres of agriculture land will be irrigated from these interventions.
2.	Construction of 3,000 Check dams	Approximately 7,500 acres of the land will be reclaimed.
3.	Construction of 330 Water Reservoir	Approximately 9,900 acres of land will be irrigated from this intervention.
4.	Construction of 2,500 Stream bank stabilization.	Protecting/ reclaiming about 6,250 acres of agricultural land from erosion with floods water.
5.	Construction of 1,000 Gated field Inlet Outlet/Spillway	Enough water will be provided to about 2,500 acres of land for irrigation in rod kohl areas of the province.
6.	Development of 370 acres land for terracing	Farmer's income will be increased by increasing agricultural land due to terraces development.

S.#	Input	Output
7.	Development of 70 numbers of micro-watershed areas	Approx. 7,000 acres of the area will be converted into agriculture/ forest land which will improve the aesthetic value of the area.
8.	Constructing 370 numbers of water Seepage harvesting Galleries	Approx. 925 acres of land will be irrigated from this intervention.
9.	800 numbers of Agronomic low-cost interventions	Approx. 2000 acres of land will be protected from erosion by these interventions.
10.	230 acres of Sand Dunes stabilization	Approx. 230 acres land of sand dunes will be stabilized by growing kana plants.
11.	500 Nos Capacity Building	An estimated 500 trainings will be conducted for stakeholders including farmers and departmental staff.
Agricultural Engineering Component		
12.	Procurement and installation of 700 Solar, pumping System and 300 Tube Wells.	Irrigation of 17,500 hectares (43,225 acres) of land.
13.	700 on-site training of farmers in adaptation of new techniques for pumping sub-surface water.	Irrigation water Pumping cost will be reduced by adopting solar technology.

CHAPTER – 2: SCOPE AND SERVICES OF ME&IE CONSULTANTS

2.1 THE ME&IE CONSULTANTS

Chapter 2 explains the selection of ME&IE consultants for WCBAKP and scope of consultants' services.

Client conducted a competitive bidding process for selection of ME&IE consultants for Water Conservation of Barani Areas in Khyber Pakhtunkhwa (WCBAKP). A Joint Venture of companies' M/s G3 Engineering Consultants (Pvt.) Ltd., Ease-Pak Engineering Services (Pvt.) Ltd., Centre for Social Research and Development (CSRD) and ADA Consultants Inc. Canada and S&S Associates has been selected as ME&IE Consultants of the project. After signing the contract agreement with client, consultants mobilized its Team Leader on 15 December 2020 and other staff on December 24, 2020, to start project activities.

2.2 SCOPE OF ME&IE CONSULTANTS' SERVICES

The scope of the ME&IE Consultants is as follow:

The ME&IE Consultants for Water Conservation in Barani Areas of Khyber Pakhtunkhwa (WCBA KP) are responsible for monitoring, evaluation, and Impact Evaluation (ME&IE) of the project interventions conducted by implementation Consultants and in this context carry out, but not limited to the following activities:

i) Undertake baseline, midline, and end line surveys of the project activities/interventions in all the project areas.
ii) Develop monitoring strategy, framework, and Result Based Monitoring (RBM) indicators.
iii) Preparation of Monthly, Quarterly and Annual Monitoring and Evaluation of the project activities.
iv) Assessing the improvement in water availability and soil losses due to project interventions.
v) Assessing the water saving per annum due to the project interventions.
vi) Assessing the economic benefits to the agriculture in terms of changes in irrigated area, area under cultivation, crop yields, cropping pattern, cropping intensity, farm income and employment.
vii) Assessing the extent of community mobilization, financial and administrative sustainability of Soil & Water Conservation Associations (SWCAs) and ensuring the maintenance of project interventions.
viii) Carryout impact evaluation of the project investment on the economy and stakeholders.

2.3 CONSULTANTS PROCEDURE FOR ME&IE ASSIGNMENT

The Consultants are conducting ME&IE of WCBA KP in two parts.

The First Part of monitoring is being conducted through field visits and surveys of water storage reservoirs, micro-watersheds, check dams, tube-wells, etc., and all other water conservation activities under the WCBA KP project. The processes, timelines and physical progress against targets set are marked in the Annual Work Plans (AWPs). The monitoring activities include baseline, midline and end-line surveys. The water saving assessment will be simultaneously conducted with the improvement activities of construction of water storage tanks and installation of tube-wells. The economic benefits to the agriculture sector will also be estimated in addition to the impact evaluation on the stakeholders and economy. For each monitoring activity checklists have been developed based on planned SOPs (Modus Operandi) and timelines. The activities are being monitored according to the checklists.

All the checklists were got approved from the client before executing in the field. Additional checklists will be devised if required when and where required during the implementation phase. The outcome of the monitoring activities is expected in three states, i.e., the progress is on track, lagging or faster than planned. Reasons for lagging progress will be identified with workable solutions. In case of faster progress, good practices will be identified to replicate in the project. All the physical progress is being monitored for quality as well.

The Second Part of the ME&IE assignment is development, operation, maintenance and handing over the Management Information System (MIS) to

the client at the end of the project. Major features of the MIS are briefly presented as under:

Planning and input-output process monitoring, as well as the tracking of results indicators, assume a critical role in the management of development projects. Consultants proposed to develop, set up and implement a Web Based Monitoring Information System (MIS) useful for:

- Monitoring the progress of project implementation and provide timely feedback to all project stakeholders,
- Monitor, assess, and summarize achievements (outputs and outcomes),
- Analyze factors affecting the project's implementation and achievements.

➢ The basic functions of the MIS are to:

- Enable the FPMU-FWMC and PC to track the outcome indicators and assess progress in implementation against timescales and targets, and resources used against budgets, based on agreed annual work plans.
- Describe the factors and reasons triggering variations,
- Record and reflect new targets, whenever it is required,
- Draw important lessons to guide the decision-making,
- Enable forecasting for project accomplishment in comparison to the currently reported progress,
- Enable the project management to generate reports to funding partners, project beneficiaries and other stakeholders on the status and progress of the project implementation,
- Integrate GIS components to the MIS to complement field-level surveys and measurements.

➢ Potential users' profiles could be the following:

- Federal Ministries
- NPC FPMU-FWMC
- WCBA Project Consultants (AGES)
- ME&IE Consultants
- Provincial concerned departments / maintaining system administrators.

➢ The MIS will allow the project to enter the Annual Work Plan and Budget (AWPB) to enable process monitoring. This interface should facilitate the user to create activities for the current year and go back in previous years.

➢ The following project information will be always accessible:

- Project description
- Project's objectives
- Implementation partners
- Locations of implementation
- Timelines
- Project activities (and % of accomplishments)
- Budgets (% of spending)
- The dashboard is a "real-time" user interface showing graphical and tabular information of multiple data sets. Dashboards allow users to appreciate a situation briefly and aids in making informed decisions. The way in which data are presented directly affects how they are understood and interpreted/ consequently the decisions that are made because of the data.

➢ The multiple data that can be represented in the dashboard includes:

- Activity/indicator completion rates
- Budget expenditures
- Information disaggregated by localities (map views)
- Timelines, etc.

➢ Notifications/Alerts

For each type of events (e.g., incoming deadlines, new data input, requests, etc.) the user will receive notifications/alerts of said events within the MIS and via e-mail either:

- As the event is created
- Daily / Weekly/ Monthly/Quarterly updates.

When an alert generated and in what form and frequency will be decided in consultation with users/clients.

➢ Change Tracking

The system records actions of users such as creating data, removing data, data entry, data validation, etc. (e.g., latest update to an open quarterly report). The system records the name of the user, the date and time of change, actions made, code of items altered. This function is crucial to monitor the ME&IE processes.

➢ Key Principles:

Following are the key principles:

- The system provides Excel-like functionality including filtering/sorting columns (reducing data-entry and increasing ease-of-use).
- The data entry and validation of plans and different reports are linked to user profiles
- The system displays an error message when not able to save the data.
- For all operations, the system keeps an audit trail with the user, date, and time of the operation.

2.4 MONITORING STRATEGY OF CONSULTANTS

The basics of ME&IE system for WCBA KP Project, being developed by consultants is explained below in detail.

2.4.1 Basics of ME&IE System

The ME&IE of WCBAKP Project is grounded in Results-Based Management (RBM), which is a management strategy focusing on the performance and achievement of results in terms of outputs, outcomes, and impacts. It is a tool used for strategic control. It uses feedback loops to help managers monitor and then (hopefully) achieve strategic goals. These goals may take the form of physical outputs, organizational or behavioral changes, workflow changes, or form contribution to some other higher-level goal. A key function of ME&IE is therefore, to evaluate and determine whether the project's objectives and causal analysis (i.e., the sequence of expected results based on certain inputs and activities) articulated in the project design holds true; and if not, why not, and what should be done to address this and learn lessons.

The ME&IE systems for WCBA KP are formulated based upon the project's logical framework (log-frame), which is one type of program logic model. A log-frame is a useful tool in project design and management, mapping the multiple levels of objectives and associated results (measured through indicators) in the short, medium, and long term. Indicators are units of measurement in the form of qualitative and quantitative that determines whether the objectives formulated in the log-frame have been achieved or not. The Monitoring Log-frame developed for WCBAKP is placed at **Annex-A**.

The matrix in **Table 2.1** summarizes standard log-frame objectives and results, and the types of indicators used to measure them, which form the basis of a project ME&IE system and plan.

Table 2.1: Matrix for Levels of Log-Frame Objectives and Indicators

Log-frame objectives definitions		Objectively verifiable indicators that measure objectives	
Impact (Goal/Overall Objective)	Higher level project objectives in terms of long-term benefits to beneficiaries and the wider benefits to society. The goal will not be achieved by the project alone. The project aims to contribute to its goal.	**Project impact indicators**	Impact indicators measure this long-term change in conditions of the community (e.g., % change in household income, reduction in poverty, etc.)
Outcome	The short term and medium-term	**Outcome**	Outcome indicators describe the

Log-frame objectives definitions		Objectively verifiable indicators that measure objectives	
(Purpose Specific Objective)	objectives in terms of benefits to the project beneficiaries due to the intervention's outputs; the project can only indirectly control achievement of outcomes; behavior change is often a key component.	**indicators**	medium-term effects of an intervention's outputs (e.g., % change in cropping pattern and intensities, crop yields etc.)
Output (Results)	The output produced by undertaking a series of activities. This is what will be achieved to the intended beneficiaries or target group, and it should be possible for project management to be held accountable for this delivery	**Output (indicators)**	Output indicators describe the immediate effects of an activity, tangible products, goods and services, and other immediate changes that lead to the achievement of outcomes (e.g., number of Wisps, Check dams, WR, SBS, Solar TW, etc.).
Activities	The tangible goods and services delivered by the project (e.g., provision of material inputs, staff, etc.)	**Process indicators**	Process indicators describe the activities undertaken (e.g., process of Wisps, Check dams, WR, SBS, Solar TW, etc.), process of delivering these activities.
Inputs	The financial, human, and material resources used for the development intervention	**Input indicators**	Indicators used to measure the utilization of inputs (e.g., utilization of budget, and services of project staff, labor by the communities)

2.4.2 MIS / GIS for ME&IE System

For optimal results of ME&IE of the WCBAKP project, consultants are developing MIS /GIS for the project. To minimize the complexities and make the MIS/GIS Database a useful tool for Input-output, process and result monitoring, the consultants adopted the following key principles and guidelines during the development and implementation of WCBAKP MIS/GIS Database:

i) Information needs, and indicators to capture such information are identified in a participatory manner involving all key stakeholders of the project at all levels.
ii) The potential users of MIS/GIS Database are convinced and understand the usefulness of the MIS/GIS Database and their role in data collection, recording, transmission and use of information.
iii) The system provides a two-way flow of information, such that those who collect and transmit the information receive the feedback.
iv) The MIS/GIS Database does not impose a high workload at any level in PIU and other Implementing Agencies (IAs);
v) There is no information/data 'overload' at any level.
vi) The system is flexible enough to accommodate internal learning changes in future.
vii) The system provides user friendly interfaces to interact with.

The system's outputs are presented in formats that can be easily converted to other formats and data types without human intervention.

2.4.3 Participatory Design of the MIS/GIS Activities

The proposed approach to design the MIS/GIS is fully participative. Consultants have made utmost efforts to ensure that all key stakeholders are fully involved throughout the ME&IE MIS/GIS design and implementation process.

Before launching the MIS/GIS database system, multiple feedback and validation sessions will be conducted with client and all the stakeholders of the project. Finally, a restitution/validation workshop will be conducted to which the key partners would be invited to get the real feedback on the proposals and achievements.

2.5 MONITORING, EVALUATION AND IMPACT EVALUATION PLAN

This section presents brief introduction about the ME&IE and Impact Evaluation Plan of ME&IE Consultants.

The monitoring and evaluation functions are interrelated but distinct. Monitoring is the provision of information, and the use of that information, to enable management to assess progress of implementation and take timely decisions to ensure that progress is maintained according to schedule. Monitoring assesses whether project inputs are being delivered, are being used as intended, and are having the initial effects as planned. It is an internal project activity, an essential part of good management practice and therefore an integral part of day-to-day management. Evaluation also assesses the overall project effects, both intentional and unintentional and their impact. It involves comparisons requiring information from outside the project either in time, area, or population. The relative role of monitoring and evaluation varies with type of project.

2.5.1 Framework for ME&IE System

The initial steps for designing monitoring and evaluation system are:

i) A review of the project objectives to systematize them in sequence.
ii) Identification of the users of both the monitoring and evaluation information. For monitoring, the users will be the hierarchy of project management. The type of information transmittal will be geared to the needs of each level of project management. The users of evaluation analysis range from project management through the responsible directorate/ ministry, to the national planners.

Evaluation will be drawn on the data generated by the monitoring system to help explain the trends in effects and impact of the project. Monitoring data may reveal significant departure from expectations which may warrant the undertaking of an on-going evaluation exercise to examine the assumptions and premises on which the project design was based. Such a review, as also in the case of ex-post evaluation, can be of immense value to sectoral management in its policy formulation role.

Monitoring must be integrated within the project management structure but evaluation, with its wider horizons requiring comparative information, is not necessarily such an integral component. A central evaluation facility may be justified on the grounds that:

i) The demanding professional skills required to interpret evaluation data are either unavailable or uneconomic for each project individually.
ii) The data needed extend from before a project is initiated to a period long past its completion.

Although the design and analytical facility for evaluation may be centralized, the data collection resources within a project will be used to provide much of the required data. If the same unit is collecting data both for eventual evaluation and for quick, timely monitoring, the latter must not suffer due to the greater demands of the former.

2.5.2 Monitoring and Managing of Project Progress

The primary goal is to monitor project progress, given that the project has been carefully appraised, i.e., there is a strong assumption towards certain

stimuli and inputs will achieve specific outputs, effects, and its impact. The role of management in the initial implementation phase is to create the condition that allows this chain of events to be occurred.

In the early years of project implementation, the emphasis is on monitoring of project progress and the delivery of the inputs to the intended recipients. The main source for this aspect of monitoring is meticulously organized in project records. The other concerns of management at this stage are to use these inputs and reaction of the recipients.

Adoption rates give management a strong inference whether the project is succeeding or not. Information on the recipients' attitudes and perception is important to explain any departure in response behavior to that postulated in the project design. Such unpredicted behavior may determine the success or failure of the project.

The information required for monitoring of project implementation does not require complex data systems. A monitoring system exists even if it is merely a subjective accumulation of impressions by project staff. If common sense rules of good standard management practices are adhered to, the monitoring system can be limited to the minimum of parameters to be recorded regularly over time. The goal is to make the data collection as objective as possible, and to ensure that the means exist for fast collation, summarization, and presentation of the information to the decision makers.

Once management has satisfied itself that the delivery system is working, its attention should shift to the outputs generated, i.e., are they materializing according to expectation. Focus on output measurements must not, however, be at the expense of monitoring the input delivery system. The measurement of outputs is more properly a function of evaluation, for identifying trends is not an easy task in view of the exogenous influences at work and is often impossible without an extended time series.

The key to successful monitoring is the provision of regular, timely, decision-oriented information to the project management. This can be achieved if the necessary staffs are in place early, are seen to be part of the management team, and are given guidance on the priority information needs of the management.

2.5.3 Project Progress Reporting Framework (PPRF)

The Project Progress Reporting Framework (PPRF) developed by the consultants, is a format for reporting summary of physical and financial progress achieved during the period for various interventions. A regular flow of this data is expected from Clients, Field Teams/ Project Consultants. However, detailed data on the processes and beneficiaries' feedback is being gathered / transmitted through Android based application using smart phones. The PPRF format is given as **Annex-B.**

2.5.4 Evaluation - An Assessment of Results

Evaluation aims to determine whether the project objectives set in the ME&IE of expected outputs, effects and impact are being met or not. This leads to an assessment of the results achieved, and the lessons to be drawn for future improvements in a later phase or in similar projects elsewhere.

Output levels are a measure of the result of the input utilization by the beneficiaries. If the changes in outputs are considerable, they may be detected even during the implementation phase of a project. An evaluation system requires the development of a series of data commencing before the project is implemented and continuing well past the completion of the implementation period. Unlike a monitoring system with its emphasis on rapid assessment, an evaluation system requires a longer time span before even tentative conclusions can be drawn.

2.5.1 Impact – Quantification of Tangible Benefits and Assessment on Intangible Benefits of Project Interventions/ Investment

In the ME&IE process, tangible benefits of agricultural projects can arise either from an increased value of production or from reduced costs. The specific forms, in which tangible benefits appear, however, are not always obvious, and valuing them may be quite difficult.

Increased physical production is the most common benefit of the agricultural sector. To maintain better water control so that farmers can obtain higher yields. The project makes resources available for farmers to increase both their operating expenditures for current production-for fertilizers, seeds, or pesticides-and their investment-for water conservations techniques and solar water tube wells. The benefit is the increased production from the farm. In a substantial proportion of agricultural projects, the increased production will be marketed through commercial channels. In many agricultural projects, however, the benefits may well include increased production consumed by the farm family itself. The home-consumed production from the projects increased the farm families' net benefit and the national income just as much as if it had been sold in the market. Indeed, we could think of the hypothetical case of a farmer selling his output and then buying it back. Since home-consumed production contributes to project objectives in the same way as marketed production, it is clearly part of the project benefits in both financial and economic analysis.

2.5.2 Design and Development of ME&IE GIS Based Information System

Management Information System (MIS) is the tools and techniques used in project management to deliver information. Project managers use the techniques and tools to collect, combine and distribute information through electronic and manual means. It is used by upper and lower management to communicate with each other.

The monitoring and evaluation functions are interrelated but distinct. Monitoring is the provision of information, and the use of that information, to enable management to assess progress of implementation and take timely decisions to ensure that progress is maintained according to schedule. Monitoring assesses whether project inputs are being delivered, are being used as intended, and are having the initial effects as planned. It is an internal project activity, an essential part of good management practice and therefore an integral part of day-to-day management. Evaluation also assesses the overall project effects, both intentional and unintentional and their impact. It involves comparisons requiring information from outside the project either in time, area, or population. The relative role of monitoring and evaluation varies with the type of project.

Based on the participatory approach, the Information System proposed is being designed and developed as a permanent instrument for the planning, monitoring, evaluation, and adjustment of project management, based on common information tools made available to all stakeholders concerned by the implementation of the project. This approach aims at strengthening the overall results of the project, increasing the sustainability of activities, and improving resource utilization and management of risks and difficulties of the project implementation.

Design & development of ME&IE GIS based Information Management System is based on Agile Methodology as Software Development Process. Under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and end user / field experiences. The adaptation of agile development methodology ensured the early completion of task and keeps evaluating it for better results as per the project requirement. It would be helpful to strategize the design and development phase, successful implementation, on-going maintenance, and up-gradation of the GIS based Information System.

Our experience shows that data generated in the field by client, field staff and project consultant is

not timely communicated to PMUs. As a result, the dashboard/ Information System remain behind the actual progress on the ground. Therefore, prompt, and real time data communication is essential to the Information System. For this purpose, one focal person in each province/ area is required.

CHAPTER – 3: CONSULTANTS' ACTIVITIES DURING THE MONTH OF SEPTEMBER

This chapter of the Monthly Monitoring Report (MMR) provides detail of consultants' completed the activities during month of September 2022. The activities included submission of regular MMR and its objectives, Field visits & Monitoring of project interventions in the field, Consultants' coordination meetings with Client and other stakeholders of the project, including farmers.

3.1 SUBMISSION OF MMR

MMR explains the understanding towards all activities of ME&IE assignment to be carried out as per TORs and their completion within stipulated time frame. As per deliverables of the assignment, Consultants have submitted 20 MMRs till the month of Aug 2022, and current 21st MMR for September 2022 is under preparation and will be submitted shortly.

3.1.1 Objectives of MMR

Reporting is an integral part of monitoring and evaluation framework. The main objective of MMR is to update the Client about the activities conducted by the ME&IE Consultants during the reporting period along with its procedures.

3.2 ACTIVITIES DURING SEPTEMBER 2022

Routine regular monitoring is an important activity of the ME&IE consultants for ME&IE of the WCBA KP Project. Consultants conducted different field activities and coordination meetings with client and other stakeholders of the project including farmers. Detail of consultants' activities / field visits under regular monitoring is given below in detail.

3.2.1 Field Visits / Monitoring of Project Interventions

Schedule for field survey and visits in was prepared and shared with the management and the departments i.e., S&WC & DAE for their cooperation in the field activities, support of the ME&IE team and nominate the field staff to accompany the ME&IE team in field surveys and case studies etc.

During the month of September 2022, for Monitoring and Baseline survey the M&E Consultants Field Team-1 visited three Water Pond interventions — one in Swat on 1st Sep 2022, and two in Abbottabad on 5th & 6th Sep 2022.

To highlight the impact of interventions, a special report comprising of 7 Case Studies has been articulated and already been shared for review.

Following are the district-wise details of the BLS and monitoring surveys conducted during the previous month August 2022.

3.2.1.1 BLS & Monitoring visit to Swat

The ME&IE team visited swat interventions from 1st August 2022. The ME&IE team visited 20 S&WC interventions and 01 DAE intervention. Each intervention is discussed in detail below.

Mr. Noor Muhammad Khan, SCA Mingora S&WC and Mr. Amin Ullah, Field Officer Mingora S&WC facilitated and accompanied the ME&IE team while visiting the interventions in Babuzai and Mingora. Mr. Sajjad, SCA Matta S&WC facilitated and accompanied the ME&IE team while visiting interventions in Matta. Mr. Zaman Shah, Director Swat S&WC, accompanied the ME&IE team during visits to interventions in Kabal, Swat. Engr. Israr and Engr. Mansoor ullah Khan facilitated the team while visiting DAE intervention in Barikot, Swat.

Impact of Terracing on Crop Production at kozabakhel, Kabal-Swat, KP

The WCBA-KP team observed that this intervention has brought a lot of change in the farmer's household, earlier they used to buy fodder for livestock from the market but now after this intervention they grow their own fodder along with other needs. Also fulfills which includes education and treatment of patients.

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

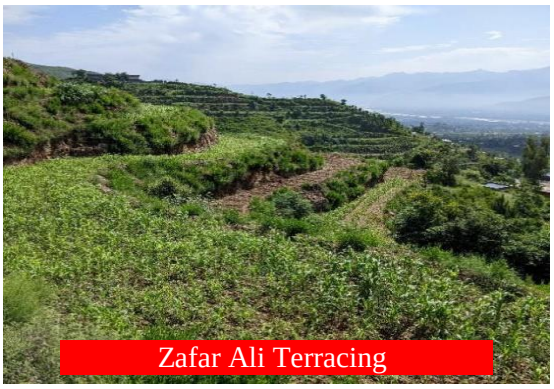

Figure-3.1: *Contour type Terracing (Zafar Ali, Terracing Kabal, Swat)*

Measurements:

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

Intervention:

A team of "WCBA-KP and Soil and conservation department visited Zafar Ali terracing Kozabakhel, Kabal-Swat. The team determined that extraordinarily fertile land with moderately well drained soil is way higher used for business fruits & vegetable crops. The owner benefited masses from this intervention, he said that presently it's improved the economic conditions of our house and it jointly cowl the value of children's education.

Reclaimed Area:

As the farmer were interviewed, he said that before this activity, the whole area was barren about 12-kanals no plant was grown here except weeds because the surface was irregular and every time specially in rainy season the land was sliding, but after the intervention the total 12-kanals land was recovered and able for cultivation not only that but also stop land sliding. The activity has turned that land into cultivable and this year the farmer had sown maize, which had not been cultivable before. The following table show the details of the annual crop.

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

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

Figure-3.2: *Reclaimed Area (Zafar Ali, Terracing Kabal, Swat)*

Impact on Livestock Rearing:

Due to this activity, Farmers are raising fodder for livestock instead of relying on wild and native shrubs to feed their livestock, farmers raise cattle forage. The feed increases their income by selling animals for meat and milk production. Raising bushes to feed their animals. This increase in fodder and improvement in quality raise their income 10% through selling animals for meat and milk production. Rearing more animals is not only increasing female member's income but also making them independent in decision making. These activities will improve nutrition status of all family members in general and specifically in 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 to all that has enhanced the

cropping patterns, cropping intensities, production 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 rain water and to utilize the stored rain water for irrigation purpose.

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 where good prices can be obtained. And can be obtained the new technology interventions have transformed the lives of their families and become an inspiration to many neighboring famers in the village of Kozabakhel, Kabal, Swat and their surrounding area.

Results:

- Before the intervention, the whole area was barren, but after the intervention about 12-kanals area were able for cultivation.
- After the intervention he had grown crop of maize over 1.5-acre.
- Decreases 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 a sloping land.

Figure-3.3: *Plantation in Reclaimed Area (Zafar Ali, Terracing Kabal, Swat)*

Impact of Solarization of Tube Well on Crop Production at Malkidam, Barikot-Swat, KP

The team determined that with this intervention, the farmer not only increased the production of peaches, but also grew a variety of vegetables in the orchard for his home consumption, which allowed him to eat home-grown vegetables instead of buying them from the market. And after this intervention, his electricity bill has also reduced to a great extent because this tube well is powered by solar panels, besides now they use drinking water from this tube well instead of bringing it from far away. The extra expenses that were there before the intervention have now reduced, so now they will spend this money on the treatment of patients and the better future and education of the children.

Beneficiary:	Fazal Akbar
Village:	Malkidam
Tehsil:	Barikot
District:	Swat
Financial Year:	2020-21

Specifications of (Tube well and Solar panels):

Water table:	260-ft
Pipe Dia:	2.5-inch
Motor Horse Power (HP):	15 hp
Number of Solar Panels:	50
Solar capacity:	370w
Before Intervention:	36-Kanal
After Intervention:	28-Kanal
Command Area:	28-Kanal

Intervention / Technology:

A team of ME&IE Team and Agriculture Engineering Department Field staff visited Malkidam, Barikot-Swat. The crew observed the notably fertile land with fairly well drained soil is far better utilized for vegetation. Farmers were very satisfied with the AED intervention; the intervention made the farmer self-sufficient with grains and vegetables. Plants in particular Peach & Pear are the specialty of the area.

Yield with and Without Technology:

As interviewed from the farmer, prior to this activity, the farmer said that previous year his peach plants did not make much money because

the production was not good due to lack of water. farmers were getting grains from their farms but insufficient for their domestic uses and besides the production, farmers had to purchase grains from the market to cover the shortfall for their domestic use. Because that intervention reclaimed up to 28 Kanals of area. Thus, making the total area under cultivation to 64 Kanals. Other farmers also used water on payment basis. Their crop production per unit area has increased by 80% as intercropping has been established after the intervention. Apart from this, farmer had grown vegetables & fruit plants. The excess crop/produce is sold in the market generating valuable monetary value that is sufficient for other household expenses such as better nutrition and schooling of his kids.

Figure-3.4: *Fazal Akbar Tube Well & Solarization of TW (Barikot, Swat)*

Impact on Livestock Rearing:

The homes have drinking stations for cattle and buffaloes. Instead of relying on wild and native shrubs to feed their livestock, farmers got water drinking facility for cattle & buffaloes. Farmers are raising fodder for livestock instead of relying on wild and native shrubs to feed their livestock, farmers raise cattle forage. This feed increases and quality improvement increases their income by selling animals for meat and milk production. Raising bushes to feed their animals. This increase in fodder and improvement in quality raise their income (5 to 10 percent) through selling animals for meat and milk production. Rearing more animals is not only increasing female members' income but also making them independent in decision making. They are planning to go for fish farming in the days to come. These activities will improve nutrition status of all family members in general and specifically in females and kids.

- Reduce poverty (people)
- Increase food production (livestock)
- Reduce pressure on scarce water resources and the environment.

Figure-3.5: *Improved Yield and Quality of Orchards (Fazal Akbar Tube Well & Solarization of TW Barikot, Swat)*

Line Departments Collaboration for Development:

Agriculture Engineering Department has established their interventions i.e., Installation of Tube Wells and Solarization of Tube wells. The impact of these interventions is quite clear to all that has enhanced the cropping patterns, cropping intensities, production 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 rain water and to utilize the stored rain water for irrigation purpose. AED being responsible for two above mentioned interventions only, therefore, a consensus with the line departments is a must to cover the area requirements through different interventions.

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 where good prices can be obtained. And can be obtained the new technology interventions have transformed the lives of their families and become an inspiration

to many neighboring famers in the village of Malkidam, Barikot and their surrounding area.

Results:

- With this activity the production of peach is obviously increased but they also added intercrops like ladyfinger, green chilli eggplants and other vegetables.
- Ground water is easily available.
- The table is fairly close to the surface.
- Able to irrigate a much larger area.
- More reliable during periods of drought when surface water dries up.

3.2.1.2 BLS & Monitoring visit to Dir Lower

The ME&IE team visited Dir Lower interventions. The team visited 5 S&WC interventions. Each intervention is discussed in detail below.

Mr. Ahmed Zeb, district officer (Director, S&WC) Dir Lower facilitated the ME&IE team in Dir Lower. Mr. Hassan Ali, Field Watcher, Dir Lower accompanied the team while visiting the below S&WC interventions.

Impact of Stream Bank Stabilization (SBS) In Dir lower, KP


Stream Bank Stabilazation (SBS)

Figure-3.6: *Rahman Ud Din SBS (Adinzai, Dir Lower)*

We selected SBS named Rahman ud Din two field Engineers Mr. Amjad Ali and Mr. Khaleeq Uz Zaman from WC-KP along with Field team of S&WC Timergara. First, we measured the dimensions of Stream bank Stabilization (SBS) and our other field member interviewed the landowner, that because of this activity, not only his crops has increased, but also its financial condition has improved due to the income that comes from it and along with it the expenditure incurred on children's education is also covered.

Total cost is 878,767/-RS govt share of 80% is 700,000/-RS and the farmer share of 20% is 178,767/-RS.

Date of starting of work 11-04-2022 and date of completion is 12-05-2022.

Beneficiary: Rahman ud Din
Village: Kamal Khan
UC: Adenzai
Distt: Dir Lower


WC-KP Team with Farmers Participating in Case-study

Figure-3.7: *Visiting & Interviewing the Beneficiary of Rahman Ud Din SBS (Adinzai, Dir Lower)*

Measurements of SBS:

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

A team of WCBA-KP Project ME&IE Consultants and Soil and water Conservation staff visited Kamal khan UC: Taza Gram dist. Lower Dir. The team observed that the soil erosion was stopped which was caused by flooding due to rain. It also reclaims 4-kanals area. The property owner benefited a lot from this intervention, he has improved the economic conditions of our house and it also cover the cost of children's education. The owner said that I hear about the project from my relative that I visit the S&WC office and they told me that write an application for the activity in which you give only 20% while govt give you 80% share.

Yield Production:

The farmer was interviewed about his intervention, he said that before this intervention, about 4-kanals of the land was submerged in water, but after the construction of this intervention, the entire land (4-kanals) has been reclaimed/ protected and become cultivable. Due to this the crop productivity and income were also increased. This will produce an additional 600-800 kgs. of maize.

Stakeholder/ Government:

Soil and Water Conservation Department has established their interventions i.e., Water ponds, Stream Bank Stabilization (SBS), Terracing inlet outlet spillways etc. The impact of these interventions is quite clear to all that has enhanced the cropping patterns, cropping intensities, Soil erosion, production yields and thus has changed the socio-economic status of the farmers. The stone were available to the farmer which are near in the hills.

Major Benefits:

Before the intervention, the land was eroding gradually each year by the flash floods during the rainy season.

The anticipation of farmer towards the intervention and the impact that has been brought to the farmer by this intervention. This intervention has changed the farmer's life. Crop productivity, crop intensity and income were increased due to this activity.

Results:

- Soil erosions were stopped.
- Recovered 4-kanals land for cultivation.
- It has improved the economic conditions of his household as he has increased the number of livestock, the additional land will cater to the fodder needs of his livestock as the byproduct of crop can be used for animals. This will save the money he spent on buying the fodder earlier thus increasing his buying power. Improvement in his buying capacity further add to raising of his living standards and it also cover the cost of children's better education.
- The economic conditions of his household had improved to a great extent as he is having extra monitory value than earlier.
- Before this intervention, the farmer was running his household expenses on loans from multiple sources but since then he paid off all the loans because the harvest was plentiful, he sold the excess crop after catering to his needs as he had no need to take a loan thus improving his financial capacity to divert these proceeds to more productive chores.

3.2.1.3 BLS & Monitoring visit to Chitral

The ME&IE team visited Chitral district interventions. During the four days the team visited 7 S&WC interventions. Each intervention is discussed in detail below.

Mr. Amin ul Haq, district officer (Director, S&WC) Chitral facilitated and accompanied the ME&IE team while visiting the interventions in Chitral.

Impact of Water Pond in Chitral lower, KP"

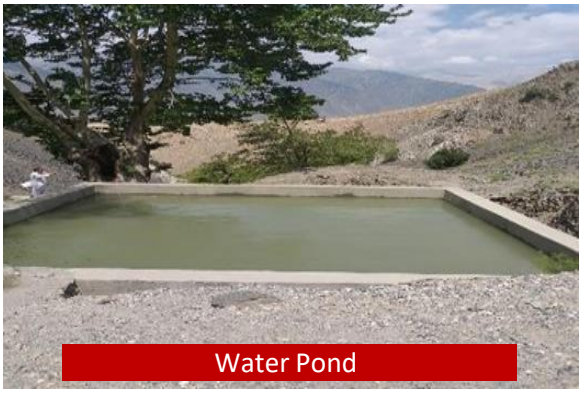

Figure-3.8: *Asad Water Pond (Chitral Lower, Chitral)*

This pond increase farmer income before the land is not suitable for cultivation. After the construction of pond famer now irrigate 56-kanals land which he planted Apple trees and pick up fruits then sell into markets. So, farmer become more stable financially before the pond construction. Farmer have only one educated child after this he admit all his children in school and give better health facilities and 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 irrigate the 56-kanal.

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

Dimensions:

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

Intervention:

A team of WCBA-KP 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. Water is used for irrigation and livestock drinking.

Status of Beneficiary:

Before the intervention, the whole land was burnt and have no plants and crops, while after the intervention the command area of the water pond is 56-kanals and now planted different orchards of Apple, Peach and pomegranates. The area is famous for the pomegranates.

Command Area:

The farmer told us that for the 1st time we cultivate wheat and the production of one year is equal to last 5 years. The total wheat production this year from 28-kanals that gives 62-maunds and byproduct were sold of Rs.93,000. Now the all land of 56-kanals is culturable for wheat and also for different vegetables and fodder crops. Before the intervention, the farmer has no income while after the intervention the crop productivity and income increased to 60,000-rupees per season.

Impact of Check Dam in Chitral lower, KP

The construction of check dam has positively impacted to socio-economic status of the villagers, there has been an increase in income by 200%, improvement in standard of living, education, eating habits, crop productivity, farmers have now become financially independent and sound, generation of new employment opportunities.

Beneficiary: Maqsood Check Dam
Village: Orghouch
UC: Chitral 1
Distt: Chitral Lower
Division: Chitral
Finical year: 2021-22

Dimensions:

Length: 100ft
Width: 8ft
Depth: 8ft
Reclaimed Area: 8-kanals
Protected Area: 800-kanals

Protected area:

Due to this intervention, about 800-kanals of irrigated land has been secured from seasonal flash flood, including cropland, along with 150 houses, School, Mosque and pomegranate plantation.

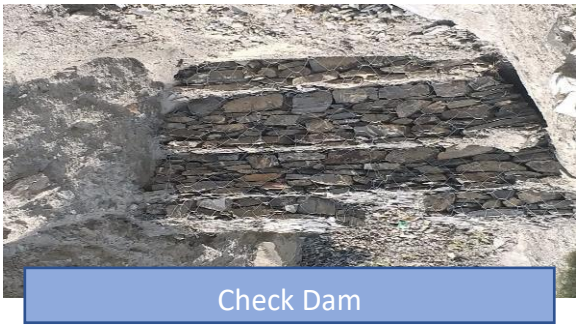

Figure-3.9: Maqsood Check Dam (Chitral Lower, Chitral)

Purpose of Check Dam:

Check dams are transient constructions erected across ditches, swales, and drainage systems to control storm water runoff, stop erosion, trap silt, and stop it from escaping the dam. Rocks, sediment retention fibre rolls, stones, and sand

and gravel bags are typically used to build check dams. When a check dam is installed correctly, it lowers runoff velocity, stops erosion, and ensures sedimentation.

By lowering flow velocity, check dams enable sediment to settle out. A check dam is a structure built of rock, rock bags, or specialized goods that is positioned across a swale or channel that is either man-made or natural. They resemble ditch checks but are stronger because of their design. Silt fence should not be used for construction.

Construction of Check Dam:

Check dams can be constructed from a range of materials. They are frequently constructed using readily available and inexpensive materials such pebbles, gravel, logs, hay bales, and sandbags since they are frequently utilized as temporary buildings. Sand bags check dams are typically constructed for temporary uses, while log and rock check dams are typically permanent or semi-permanent. Additionally, there are check dams made of wooden planks or rock fill. These dams are often exclusively used in narrow, open channels that drain 10 acres (0.04 km2) or less, and they are typically no taller than 2 feet (0.61 m). To keep fine debris in a gully, check dams made of woven wire can be built. It is frequently employed in settings where the gully has a limited drainage area, a moderate slope (less than 10%), and is located in an area where flood flows don't frequently convey big pebbles or boulders. In almost all cases, check dams are utilized in conjunction with biodegradable open-weave erosion control blankets. These coverings aid in promoting vegetation development along ditch bottom shorelines, and slopes.

Control mechanism for water quality:

Stream pools are frequently formed by check dams. In low-flow situations, water either seeps through or beneath the dam, evaporates, or seeps into the ground. Water flows over or through the structure when there is a high flow rate or flood. Runoff often deposits coarse and medium-grained material behind check dams, whereas finer grains pass through. Check dams also catch floating trash, which increases their effectiveness as water quality control measures.

Control system for grades:

Check dams have historically been used in two settings: along channel bottoms and on sloping terrain.

Check dams are generally used to regulate water flow, preserve soil, and enhance land. When other flow-control strategies, like lining the channel or building bios wales, are unfeasible, they are utilized. As a result, because of their short lifespan, they are frequently utilized in eroding temporary channels, where permanent stabilization is impossible and financially unsustainable. They are also employed when bad weather and construction hold up the timely installation of other erosion control measures. This frequently occurs when large-scale permanent dams or erosion control are being built. As such, check dams serve as temporary grade-control mechanisms along waterways until resolute stabilization is established or along permanent swales that need protection prior to installation of a non-erodible lining.

Water quality control mechanism:

As a strategy to stabilize mountain streams, the construction of check dams has a long tradition in many mountainous regions dating back to the 19th century in Europe. Steep slopes impede access by heavy construction machinery to mountain streams, so check dams have been built in place of larger dams. Because the typical high slope causes high flow velocity, a terraced system of multiple closely spaced check dams is typically necessary to reduce velocity and thereby counteract erosion. Such consolidation check dams, built in terraces, attempt to prevent both headward and downward cutting into channel beds while also stabilizing adjacent hill slopes. They are further used to mitigate flood and debris flow hazards.

Quantitative assessment of Check Dam

Quantitative Assessment of the Check Dam system impacts on catchment flood characteristics – a case in hilly and gully area of Chitral.

A numerical model was applied to a check dam system in the Chitral basin to quantify the effects

of check dam systems on regional flood characteristics. The model was calibrated using associated Manning and infiltration coefficients and a chosen rainfall event (on July 15, 2012, lasting roughly 10 hours). The rainfall-runoff event was effectively and accurately replicated by our numerical model, which also captured the peak flow and flood peak timing in a challenging topography area. To explore the flood characteristics under two scenarios, numerical computations were made. 17 check dams in the basin were taken into account in Scenario 1, but none in Scenario 2. Check dams greatly lengthen the so-called runoff lag durations (lag to generation, lag) according to the results.

Reclaimed area:

In the village of Orhoch, Chitral a check dam was constructed to guard against flooding during the rainy season. It preserved 800-kanals and reclaimed one acre of land. Additionally, 150 homes, schools, and mosques are protected. Now that the land has been preserved, it can be farmed. They raised orchards, vegetables, walnuts, and other crops.

3.2.1.4 BLS & Monitoring visit to Abbottabad

The ME&IE team visited Abbottabad District. The team visited 1 DAE intervention and 7 S&WC interventions. Each intervention is discussed in detail below.

On arrival to Abbottabad, the ME&IE team was received by the Mr. Bilal, Agricultural Engineer Haripur, DAE. Engr. Bilal facilitated and accompanied the team during visit to DAE intervention in Havalian, Abbottabad. For visiting the S&WC interventions, the team was facilitated by the Mr. Alam Shah, Field Officer Abbottabad S&WC and accompanied by the field watcher. Due to heavy rain in Abbottabad, Mansehra and Batagram, the team revert back to project office instead of moving to Mansehra and Batagram.

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 kanals. After the construction of this water pond, famer now irrigate 40-kanals land and now the farmer has cultivated maize in the whole area. The farmer is now self-sufficient in food and grains.

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

Figure-3.10: *Abdul Wahid Water Pond (Gumthala, Abbottabad)*

Intervention:

ME&IE team and the S&WC 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 or plantation and farmer used to plant vegetable only on 0.25 acres which was not sufficient for their home use. After the construction of water pond, the farmer is now proficient for watering the land of about 5 acres and now the farmer has cultivated maize on the whole area while the farmer was eager to cultivate wheat in the coming season.

whole area while the farmer was eager to cultivate wheat in the coming season.

Command Area:

The former said that they have cultivated maize for the 1st time and the production of maize is expected 25 mds. He was eager about the cultivation of wheat on his land which he was confident about production approx. 30 mds. The farmer said, through this intervention, production from the land has made us self-sufficient in food, grains etc.

Figure-3.11: Command Area of Abdul Wahid Water Pond (Gumthala, Abbottabad)

3.2.2 Way Forward

The ME&IE team has shared 3 months (October to December 2022) plan for field visits for BLS & monitoring to the management for review and release of expenditure for the facilitation of field teams. Further visits for surveys are subjected to the release of expenses from the management.

3.2.3 Strengthening Coordination with the Stakeholders

Consultants conducted / performed various meetings / activities during the reporting period. The basic objectives of these meetings were development of continuous linkages, coordination, and cooperation to run the project activities smoothly and efficiently. Details of these meetings / activities are given below.

i) Meeting at Directorate of Agriculture Engineering to discuss project activities, progress, and way forward on 12th September 2022

Date:	12th September 2022
Venue:	Directorate of Agriculture Engineering, Tarnab, Peshawar
Participants:	
i) Ms. Kalsoom, D.D Headquarters DAE, Peshawar. ii) Ms. Afshan Sahreen, Project Engineer & Focal Person for WCBA-KP, DAE HQ, Peshawar. iii) Dr. Fazl e Hakim Khattak, Team Leader WC-KP. iv) Mr. Nasir Khan, ICT Manager WC-KP. v) Mr. Amjad Ali, Computer Operator WC-KP.	
Meeting Agenda:	
To discuss project activities, progress, Data Collection Formats and Data for On-line Dashboard for WCBA-KP	
Discussions held:	
• Director DAE, Mr. Nazeer Abbass was attending Assembly Question Session in Secretariate and therefore he was not available at office.	

- The Team Leader WCBA-KP, Dr. Fazli Hakim Khattak detailed the agenda for meeting.
- TL WC-KP furthered that strong coordination among project stakeholders is necessary to seek for solutions for the hurdles in project.
- TL WCBA-KP asked about the data required for on-line dashboard.
- Ms. Kalsoom, D.D Headquarters DAE replied that DAE has provided complete data for the fiscal years of 2019-20 and 2020-21 on the format finalized for dashboard.
- Mr. Nasir Khan, ICT Manager WCBA-KP stated that we have requested Ms. Afshan Shareen to fill the formats for the interventions of fiscal year 2021-22 as well.
- Ms. Afshan Shareen, Agriculture Engineer & Focal Person for WCBA-KP, DAE HQ replied that she has already started working on the filling of the formats for interventions of 2021-22 and has shared worked done till date. She will complete the formats for 2021-22 and share with ME&IE consultants once she gets the data from concerned stations.
- Ms. Kalsoom, D.D Headquarters DAE stated that DAE said that we are waiting for the live dashboard of the project with the facility of evaluation the impact of interventions, as DAE is working on the interventions but have proper mechanism of evaluating the impact of these interventions.
- Ms. Kalsoom, D.D Headquarters DAE said that the dashboard should be able to monitor the interventions as well as to evaluate their impacts.
- Ms. Kalsoom, D.D Headquarters DAE further said that data for 2019-20 and 2020-21 is complete for dashboard of the project and at least the impact of interventions done in 2019-20 should be seen on the dashboard.
- Ms. Kalsoom, D.D Headquarters DAE suggested that cropping intensity before the interventions and after the establishment of interventions should be included in the dashboard format.
- Ms. Kalsoom, D.D Headquarters DAE further said that delay in the project is caused due to distribution of project funds through different provincial and federal authorities.
- In the last year, DAE has disbursed 364 million from ADP (provincial part) while only 54 million from the federal.
- DAE has asked for access to RS data for ground water but till now they did not get any positive response.

ii) Meeting at Directorate of S&WC to discuss project activities, progress, and way forward on 12th September 2022

Date:	12th September 2022
Venue:	Directorate of S&WC, University Road, Peshawar
Participants:	
i) Mr. Jameel, Director Planning, S&WC Directorate Peshawar. ii) Mr. Abdullah, Dy. Director and District Officer Dir Upper, S&WC. iii) Mr. Naseem, Asstt. Director, S&WC Directorate Peshawar. iv) Dr. Fazl e Hakim Khattak, Team Leader WC-KP. v) Mr. Nasir Khan, ICT Manager WC-KP. vi) Mr. Qaisar Khan, Manager Accounts WC-KP.	
Meeting Agenda:	
To discuss project activities, progress, Data Collection Formats and Data for On-line Dashboard for WCBA-KP	
Discussions held:	

- DG S&WC, Mr. Yasin Wazir was attending Assembly Question Session in Secretariate.
- The Team Leader WCBA-KP, Dr. Fazli Hakim Khattak detailed the agenda for meeting.
- TL WC-KP furthered that strong coordination among project stakeholders is a must to seek for solutions for the hurdles in project.
- TL WCBA-KP asked about the status of data required for on-line dashboard.
- Mr. Jameel & Mr. Abdullah from S&WC responded that the directorate asks for the data from the district officers but in response they get improper or incomplete data from district offices.
- Mr. Jameel, Director Planning furthered that Ms. Sown Khan is already working on filling of the missing data but the ME&IE team should also visit and experience the data collection from the district offices.
- Mr. Abdullah said that most of the files are incomplete and therefore the directorate doesn't get proper and complete data from the field offices.
- Mr. Jameel said that select the nearest districts and visit the district offices to get the data from the files available at district offices. By doing so, we can assess what is lacking in the completion of data formats.
- Mr. Jameel further said that do avoid extra and un-necessary details in the formats, instead do focus on the impact analysis of the interventions.

Way Forward:

- The ME&IE Consultants should grab required information from field, district offices and from the data provided by the department.
- Prepare a proposal for visiting nearest districts for filling out the missing data in Data Collection Formats for dashboard of the project.
- Meeting after the training of Ms. Sowm Khan, (Focal Person for data collection and dashboard, S&WC) to discuss the way out for filling out the missing data in the Data Collection Formats for On-line dashboard of the project.

Exhibits

Figure-3.11: *ME&IE Team in discussion with the Soil & Water Conservation Officials at S&WC Directorate*

iii) Meeting at AGES (Project Consultant's) Office regarding coordination, cooperation, support and sharing of project data on 13th September 2022

Date:	13th September 2022
Venue:	AGES Consultants, WCBA Project Office, Peshawar
Participants:	
i) Mr. Tahir Kamran, Team Leader WC-KP (AGES) ii) Mr. Shah Jahan, Construction Engineer, AGES. iii) Mr. Mansoor, Office Engineer/ QS/ Document Controller, AGES. iv) Dr. Fazli Hakim Khattak, Team Leader ME&IE Consultants, WCBA-KP. v) Mr. Qaisar Khan, Manager Accounts ME&IE Consultants, WCBA-KP vi) Mr. Nasir Khan, ICT Manager ME&IE Consultants WCBA-KP.	
Meeting Agenda:	
To discuss project activities, progress, Data sharing, coordination, cooperation and support.	
Discussions held:	
• Dr. Fazli Hakim Khattak, TL ME&IE Consultants started by referring a meeting at NPC office, where policy discussions were done. During the meeting, impact assessment of the project interventions was also discussed and in the same meeting Mr. M. Naeem Akhtar DPC FPMU appreciated the working of AGES consultants especially in the context of impact assessment of the project interventions and the situation before and after the intervention. • Mr. Tahir Kamran, TL AGES replied that AGES proceeds for monitoring activities on regular basis and do visit the schemes for follow-ups. • Mr. Tahir Kamran, TL AGES further suggested that ME&IE Consultants should co-ordinate before field visits and should finalize their field schedule after discussing the same with AGES.	

- Mr. Tahir Kamran, TL AGES stated that "Result Based Monitoring Indicators" are already given in the PC-I and AGES ensure the compliance of these indicators.
- Mr. Tahir Kamran TL AGES suggested that AGES and ME&IE Consultants should make a combine effort for the upcoming interventions and should take the interventions from feasibility stage till the impact of the same interventions.
- Dr. Fazli Hakim Khattak, TL ME&IE Consultants stated that ME&IE Consultants are working sample based.
- Mr. Tahir Kamran, TL AGES responded that ME&IE consultants have visited the north and central regions mostly, besides these regions ME&IE should also focus on the south districts and visit the interventions in south districts.
- Mr. Tahir Kamran, TL AGES continued that south districts have rainy terrain and there are success stories in this region and some discrepancies and lacking/ gaps as well which need to be pointed out for rectifications and improvements.
- Mr. Tahir Kamran, TL AGES elaborated their process of monitoring and validation and stated that AGES do not issue validation certificates without physically visiting the interventions, however, for marking a site feasible for intervention, if the provided photographs are enough to evaluate the feasibility, then feasibility may be granted without visiting the site location physically.
- Dr. Fazli Hakim Khattak, TL ME&IE Consultants asked about the terracing intervention for which Mr. Tahir Kamran Replied that there are several success stories in the districts of Dir Upper, Dir Lower and Swat.
- Mr. Tahir Kamran, TL AGES continued that the interventions of Terracing are done in completely barrel lands and these terracing convert the waste land into productive land as well as protect the land sliding/ erosion.
- The team leaders also discussed the allocation of funds, percentages of ADP & PSDP and release of the funds for the project interventions.
- Mr. Tahir Kamran, TL AGES stated that AGES have marked some new interventions in Swat, Karak and D. I. Khan etc. ME&IE consultants should also visit

these sites/ locations as actual case for an intervention can be justified by visiting the site before the intervention as well as after completion of work.

- Mr. Tahir Kamran, TL AGES stated that Annual Work Plan for the interventions is not properly managed, and it changes time to time and priority of the interventions also changes time to time. AWP for the year 2021-22 was approved in June 2022.
- Mr. Tahir Kamran, TL AGES suggested that a quarterly meeting should be conducted in the FPMU among all the stakeholders of the project to discuss and rectify the issues and to be on the same page. There is lack of coordination among the stakeholders.
- Mr. Tahir Kamran, TL AGES stated that I am surprised that why ME&IE Consultants are not the part of Provincial Implementation Committee (PIC) for the project.
- Mr. Tahir Kamran, TL AGES appreciated the interventions and their requirements in the project areas and said that most complicated task in the project is the execution and implementation of the interventions.
- Mr. Tahir Kamran, TL AGES stated that funds distribution for S&WC interventions is not clear.
- Mr. Tahir Kamran, TL AGES furthered about the Low-Cost Agronomic Intervention, that several low-cost agronomic interventions have been done in south region but proper procurement or distribution records are not available. Similarly, impacts of these interventions are also unknown.
- PC-I scop of the Low-Cost Agronomic Intervention and committee for these interventions was also discussed.
- Mr. Tahir Kamran, TL AGES stated that AGES provided standardized designs for the project interventions and also proposed for training of the departmental staff.
- Regarding the Agriculture Engineering interventions, Mr. Tahir Kamran said that improvements have been made in the design. 10 to 15% un-justified schemes are still there in DAE interventions.

Recommendations, Suggestions and Way Forward:

- ME&IE consultants should consult and coordinate with AGES before visiting interventions.
- ME&IE consultants should also focus on south districts for visiting the interventions.
- ME&IE consultants should also visit newly feasible sites for interventions to compare and assess the impact of these interventions.
- Joint meeting of the project stakeholders for Annual Work Plan for year 2022-23 should be conducted.
- Quarterly meetings in FPMU among all the project stakeholders was suggested in the meeting.
- Kurram Agency has extreme scop of project interventions but farmers in that area are not trained. Discussing mechanism for the training of farmers with the authorities.

Exhibits

Figure-3.12: *ME&IE Team in discussion with the Project Consultants (AGES) at AGES project office*

iv) Meeting at Directorate of S&WC to discuss and finalize process of data collection for project MIS Dashboard on 28th September 2022

Date:	28th September 2022
Venue:	Directorate of Soil and Water Conservation, University Road, Peshawar

Participants:

i) Mr. Irfan Ullah Dy. Director Planning, S&WC Directorate.
ii) Ms. Sowm Khan, Soil Conservation Officer and Focal Person for Dashboard Data Collection Process, S&WC Directorate.
iii) Ms. Aiman Usman, Soil Conservation Field Officer, S&WC.
iv) Mr. M. Asif, Soil Conservation Field Officer, S&WC.
v) Mr. Rishteen Khattak, Soil Conservation Field Officer, S&WC.
vi) Mr. Fawad Ahmed, ICT/ Technology Specialist, ME&IE Consultants.
vii) Mr. Saquib Altaf, ICT/ Technology Specialist, ME&IE Consultants.

Meeting Agenda:

Provision of incomplete and out of format data by the S&WC field officers. Process of data collection for project MIS Dashboard.

Discussions held:

- Meeting started with the greeting notes. Mr. Irfan Ullah welcomed the ME&IE consultants and introduced his team.
- Fawad Ahmed (M&E Consultant) discussed different issues regarding format and data accuracy with the Soil and Conservation department team. Only 2 years (i.e., 2019-20 & 2020-21) data has been provided by Directorate of few districts, along that, year 2021-22 is still pending.
- After brief discussion between ME&IE Consultants and Directorate Staff, ME&IE consultants presented shared data summary and highlighted the missing and errors in data input formats. Mr. Fawad Ahmed also identified the gaps according to the given formats.
- The following issues regarding data were addressed by Mr. Fawad Ahmed (ME&IE Consultants):

  I. Coordination pattern with directorate and districts on data submission.
  II. The submitted data was not according to the finalized formats (finalized by Directorate and ME&IE Consultants).
  III. Missing data was highlighted in different fields along incorrect data.
  IV. All districts still haven't shared the data with Directorate of years (i.e., 2019-20 & 2020-21).
  V. District wise progress of S&WC will be shared by Miss. Sown Khan in soft form with Mr. Fawad Ahmed.

- Miss Sowm Khan discussed the above said matters with Director General Mr. Yaseen Wazir. It was decided that all District officers will be informed to visit the Directorate Peshawar by 30th September 2022 at 11.00 am regarding the data submission for PMIS Dashboard.

Exhibits:

Figure-3.13: *ME&IE ICT Team in discussion with the S&WC officials regarding the data collection for project MIS dashboard*

3.3 ICT ASSIGNMENT

The ICT Technology Team of ME&IE Consultants WC-KP team has performed the following activities during the month of September 2022.

Data collection for MIS dashboard has been started and the DAE department has provided complete data for FY 2019-20 & 2020-21 while working to complete data for FY 2021-22. The S&WC department has provided some data for FY 2019-20 & 2020-21 which still have a lot of missing columns and difference in formats. The ME&IE ICT team is in continuous consultation with the department to complete the data for FY 2019-20 & 2020-21 at the earliest. The team is working on fulfilling the requirements for project MIS dashboard.

3.3.1 Development of Customized Android Based Applications

The ICT Technology Team of ME&IE Consultants WC-KP will develop a Customized Android Based Applications for data collection. Data entry in this application will be done directly by the field monitoring teams of all the zonal/ regional/ districts offices and will be uploaded to the MIS system. The data will be observed and monitored by the ICT team of the ME&IE Consultants.

Departmental officials and field staff who will use the customized android app, shall be trained by the ME&IE ICT team accordingly.

Android is a mobile operating system based on a modified version of the Linux kernel and other open-source software, designed primarily for touch screen mobile devices such as smart phones and tablets.

Data collection android application would have following features:

- Well optimized application for better work in online/offline environment User friendly interface
- Consume less internet bandwidth for better connectivity at low internet/remote areas
- Data is automatically uploaded when a connection is detected
- Data immediately available right after it's collected
- signatures, photos and much more
- Strong safeguards against data loss
- Synchronize data via SSL, ensures data can't be read by a third party
- Encrypted data will be saved at device and server.

3.3.2 Data collection of interventions in MIS/GIS dashboard

The activity of data collection of all the completed Interventions in MIS/GIS database is in progress. Some data has been taken from the departments in the form of SFTs (Social, Technical & Financial) sheets which were developed by the departments, project consultants (Ages) and the provincial PMU.

A lot of data is missing in the given SFTs formats of the S&WC Department, and the team is in continuous collaboration with the department to collect the missing data.

After completion of the project interventions data for FY 2019-20 and 2020-21, the team will start collecting data for FY 2021-22 and training of the departmental staff for the collection of data through ODK/ Android Application.

3.3.3 Data Collection Formats for Directorate of Agriculture Engineering (DAE) Interventions

The ICT team was thru in consecutive meetings and coordination with the officials of Directorate of Agriculture Engineering. The data collection formats for DAE interventions were finalized with the department and the data provided by department in the form of SFTs (Social, Financial & Technical) spreadsheets was fed into the formats but the national ICT specialist has made some changes in the formats according to the necessitating requirements of the dashboard. The formats are now finalized with the department and the department was asked to fill out the missing columns. The department reshared the formats with all the data filled in mid of June which were

forwarded to the national team for review and further action.

Data for FY 2019-20 & 2020-21 is completed. The department is now working on compiling data for FY 2021-22.

Summary tables of DAE interventions i.e., Establishment of Tube wells and Solarization of Tube wells completed during 2019-20 and 2020-21 financial years are given below. The same has been reflected in data collection formats for the project MIS dashboard.

STATION & DISTRICTWISE SOLAR SCHEMES

Station	Districts	FY 2019-2020		FY 2020-2021	
		Targets	Achievement	Targets	Achievement
Peshawar	Peshawar	9	9	6	6
	Charsadda	6	6	5	5
	Nowshera	14	14	7	7
Mardan	Mardan	5	5	6	6
	Swabi	5	5	5	5
Kohat	Kohat	5	5	7	7
	Hangu	3	3	1	1
Bannu	Karak	5	5	6	6
	Bannu	5	5	5	5
	Lakki Marwat	4	4	4	4
D.I. Khan	D.I.Khan	6	6	4	4
	Tank	2	2	5	5
Mansehra	Mansehra	1	1	6	6
	Battagram	0	0	0	0
	Tor Ghar	0	0	0	0
	Kohistan	0	0	0	0
Haripur	Abbatabad	1	1	0	0
	Haripur	5	5	7	7
Malakand	Malakand	5	5	8	8
	Lower Dir	2	2	3	3
	Upper Dir	0	0	0	0
Chitral	Chitral	0	0	0	0
Swat	Swat	2	2	6	6
	Buneer	5	5	4	4
	Shangla	0	0	0	0
NMAS	Merge Districts	0	0	18	18
Total		*90*	*90*	*113*	*113*

STATION & DISTRICTWISE TUBEWELL SCHEMES

Station	Districts	FY 2019-2020		FY 2020-2021	
		Targets	Achievement	Targets	Achievement
Peshawar	Peshawar	1	1	2	2
	Charsadda	1	1	2	2
	Nowshera	3	3	3	3
Mardan	Mardan	3	3	2	2
	Swabi	0	0	2	2
Kohat	Kohat	1	1	2	2
	Hangu	0	0	1	1
Bannu	Karak	1	1	2	2
	Bannu	1	1	2	2
	Lakki Marwat	2	2	1	1
D.I. Khan	D.I.Khan	2	2	2	2
	Tank	0	0	2	2
Mansehra	Mansehra	1	1	3	3
	Battagram	0	0	0	0
	Tor Ghar	0	0	0	0
	Kohistan	0	0	0	0
Haripur	Abbatabad	1	1	0	0
	Haripur	0	0	4	4
Malakand	Malakand	0	0	5	5
	Lower Dir	1	1	0	0
	Upper Dir	0	0	0	0
Chitral	Chitral	0	0	0	0
Swat	Swat	1	1	3	3
	Buneer	0	0	2	2
	Shangla	0	0	0	0
NMAS	Merge Districts	0	0	0	0
Total		*19*	*19*	*40*	*40*

An Android based app shall be developed for the DAE and the DAE officers shall be trained for the data entry of ongoing project interventions after the finalization of data collection formats and on-line dashboard.

3.3.4 Data Collection Formats for S&WC Interventions

Data Collection Formats for the S&WC interventions have also been developed. The formats were shared with the department for their review and comments and have been discussed several times in the S&WC directorate. The department shared their observations and comments which were discussed with the department and the WCKP team. The formats were revised several times and presented to the department. These formats are now revised by

national ICT specialist as per the dashboard requirements. These formats are now finalized with the department and duly filled with the SFTs data provided by the department, however, there are a lot of missing columns in the finalized formats which are conversated to the department. Now the team is in coordination with the S&WC officials to fill the missing data columns. At the end of reporting month, the ME&IE ICT team had consecutive meetings in department and also trained the departmental field/ district staff regarding the filling of missing data and formatting of the data collection formats.

3.3.5 Development of website for the project

The development of Website for WCKP was started by the month of February 2021. The following activities have been completed: -

- Held meetings with the Stakeholders to identify the project website requirements
- Website layout structure prepared
- Design & Development of website completed in June 2021.

The Revision/up-dation of the Project website has been presented to NPC office on 15 September 2021. Minor modifications were proposed by the Client during the 3rd PBOM meeting on 9th November 2021, which have been incorporated accordingly as per requirements of the Client. However, before uploading the final version of the Website, it will be presented to the Client for final approval.

A website is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. All publicly accessible websites collectively constitute the World Wide Web. Nowadays, the website is the primary communication tool as well as the front face of organization. In development projects, the prime purpose of the website is to communicate the project activities, outcome, impact reports and the publication of the notices like; tenders and bid evaluation reports for the transparent procurement processes. To develop the project website, Content Management System (CMS) will be used. By the implementation of CMS based website it will ensure the interactivity at website and easy update page content, images, documents, and integration with analytical systems to track pages and site performance.

Website structure is the main content planning phase. To finalize the structure of website a close consultation with key stakeholders is required. A preliminary structure of the website will have the following pages:

- Homepage (Landing page)
- Project Introduction
- Project Components
- Project activities
- Progress Reports
- Monitoring Reports
- Impact Reports
- Project Progress
- Procurement
- Procurement of Goods, Services & works
- Evaluations and Results
- Career
- Media Gallery
- Contact
- FAQs (Frequently Asked Questions)

3.3.6 Development of MIS/GIS system

Designing of Dashboard of Project Interventions / Web-based GIS integrated MIS (PMIS System) has been Completed in the mid of August 2021. Data collection of interventions in MIS/GIS database is under progress.

The designing/development of the MIS/GIS system followed the software engineering methods. Thus, user requirements elicitation, requirements analysis, system design, system implementation and maintenance were done in a circular fashion. Thereafter, evaluation will be done to test the efficacy, effectiveness, and efficiency of the management information system in the real environment. In the system development, both structured system analysis, design, object-oriented analysis, and design approaches will be used.

An established Management Information System will enable Federal and Provincial PMUs to demonstrate to key stakeholders whether the project is achieving the stated goals, outcomes, and outputs in accordance with targeted time frame.

The GIS based MIS will provide the means of:

i. Comprehensively tracking the project inputs and outputs, using mainly the set of key performance indicators outlined under each component at frequent intervals.
ii. Monitoring of project outcome indicators.
iii. Robustly analyzing the relevant ME&IE data.
iv. Reporting progress on an open-access and regular basis, to support knowledge sharing, greater transparency, and improved project governance.

It is proposed that the Management Information System (MIS) for WCBA KP be implemented using a phased approach although due to Agile Software Development Methodology few activities will interrelate between phases. The following 2 phases are considered:

Phase-I – MIS Development

Requirement & GAP Analysis – (Completed)

The ME&IE Consultants performed Requirement Analysis to review the project processes.

A thorough assessment of any existing IT infrastructure'

a. *Perform needs assessment of the current IT capacity of individual stakeholder's and identify any infrastructure gaps and recommend necessary upgrades in IT infrastructure.*
b. *Identify hardware and network infrastructure requirements and specification at the core, access, and distribution layers along with endpoint*
c. *Determine the technical parameters of the solution based on the Bandwidth requirement based on the total number of anticipated users with a redundancy plan*

Phase-II – Data Collection Format

The ME&IE Consultants has prepared the data collection formats for all the interventions of S&WC department as well as DAE interventions according to shared files/ data and sent to department for approval. Later, all these formats were discussed with the departments thoroughly. Edited formats according to the departments' comments and requirements. The data collection process has been started. DAE has provided complete data for FY 2019-20 & 2020-21 while they are now working on the data for FY 2021-22 while the S&WC has provided some data for FY 2019-20 & 2020-21 which still have a lot of missing columns and the department is now working on the sheets to complete the missing data.

GIS Integrated MIS Development – (Completed)

Based on the requirements gathered, develop an application framework that includes user management, access control, security, and workflow for publishing information. This application framework should be based on Modular Architecture to enable modules to be added in the future and be able to share data with other applications. Test the application framework with the real users and gather feedback on the system.

Based on the feedback received from the testing by the real users, finalize the web-based/ mobile-friendly application.

MIS / Android Application Deployment and Testing (Beta Run) - (Completed)

The ME&IE Consultant deployed the MIS at the designated web server and handed over the documented source code. The ME&IE Consultant also conducted functional and operational testing. A User Acceptance Test (UAT) is to be carried out (either as part of the deployment or after).

Digitize and Migrate the Data – (Under Progress)

During this time, a lot of data has been generated, it can be in digital form or may be in hard copy form. The ME&IE Consultant must digitize the hard copy data and has to migrate the complete data in the respective database forms.

Designing and Development of Dashboard of Project interventions have been completed. The final presentation of Web-Based PMIS, integrated with GIS and M&E system was presented to NPC office and received the approvals.

Implementation of GIS Integrated MIS Dashboard - Under Progress

Operational and User Manual

Based on the feedback received from the testing by the real users, finalize and prepare operational documentation and user manuals for orienting the users. Make the user manual as a help file to the online application so that the user can refer to the manual as and when needed.

Submission of a comprehensive Operation and User Manual followed by handing over of the completed MIS. The ME&IE Consultant will submit a Soft and Hard Copy of the Operation and User Manual for the operation of the overall MIS. This manual will also be available online for users from their logins, the online manual should be properly indexed and searchable as web pages on a secured area.

Training and Capacity Building

Training and Capacity Building of staff on MIS and Android Application is an essential and final part of this assignment. Training modules will have to be designed for multiple groups of users as per their needs and requirements. Potential user groups could be the following:

- *NPC – FPMU*
- *Provincial DGs (of relevant Departments)- PMU*
    - *Regional Directors*
    - *Deputy Directors*
    - *Field Teams*
- *Project Consultants*
- *ME&IE Consultants*

A comprehensive document of the training plan must compile for this phase. As each user group has different requirements for training as mentioned below:

NPC – FPMU *National Project Coordinator and Federal Project Management Unit's needthe insight of overall national level progress and impact reports. This group will not submit any primary data. Android application training will not be delivered to the users of this group.*

Project Consultants *Project Consultants requires the MIS access and training and the Android application training as well to access and submit the data generated by Project Consultant like certifications.*

Although PCs provided the names for training, but ME&IE Consultants are of the view that PCs needs to revisit their nominations.

ME&IEC Monitoring Evaluation and Impact Evaluation Consultants provided the Android Application trainings to its field staff as well and will submit the Baseline, Edline data and Progress Monitoring and Impact Reports.

CHAPTER – 4: QUARTERLY WORK PLAN / ACTIVITIES SCHEDULE

The ME&IE Consultants' activities planned during the 3rd & 4th Quarter of year 2022 (July 01, 2022, to December 31, 2022) showing time span detail given as **Annex-E** are listed below:

i) Complete the Baseline Survey of the Project Activities

a) Preparation of Zero Baseline Survey Report and sharing with Stakeholders for comments
b) Incorporation of comments
c) Submission BLS Report after incorporation the comments of Client and other Stakeholders
d) Training of field team for Regular Monitoring of the Project Interventions in the field
e) Field data collection
f) Data cleaning, processing and analysis
g) Writing of Draft Monitoring Report & Success Stories
h) Submission of Final Monitoring

ii) Develop Monitoring Strategy, Framework, and result-based Monitoring (RBM) Indicators

a) Meeting with the Stakeholders on ME&IE
b) Draft monitoring tools for each activity to distribute among Stakeholders for Comments
c) Incorporation of comments
d) Monitoring tools' programming in Android Base Application
e) Training of field staff
f) Field data collection
g) Submission of Final MR & Success Story
h) Data collection of the intervention in the field
i) Baseline Survey Stage-II
j) Online data entry I android based application

iii) Meetings with Stakeholders and Coordinators

iv) Economic Impact of Project interventions. Preparation of success story of one of the S&WC activities (Mid-Level)

a) Listing and selection of competed activities
b) Data collection / FGD/analysis
c) Documentation / script writing
d) Draft preparation of booklet and video
e) Final preparation of booklet and video

v) Preparation of monthly, quarterly, and annual Monitoring and Evaluation Reports of the Project Activities.

vi) Development of Website containing Information of facilities, services and application, procedures, for WCBA KP activities data base

a) Development of website of WCBA KP
b) Designing of dashboard of the project interventions
c) Monitoring online data collection and Data Entry
d) Data collection of interventions in MIS/GIS Database

vii) Provide Technical Support for development of custom-design mobile application (Android) to capture on site progress, geo tagged photos, should be synchronized with the central MIS/GIS database and application for instant reporting

Deliverables

The detail of documents submitted to Client ME&IE Consultants as per contract agreement is given below, while Deliverables/Reporting Requirements is placed at **Annex-D.**

Document	Status
Draft Inception Report	Submitted
Final Inception Report	Submitted
Monthly Monitoring Report-First (DEC 2020-JAN 2021)	Submitted
Monthly Monitoring Report-Second (FEB 2021)	Submitted
Monthly Monitoring Report-Third (MAR 2021)	Submitted
Quarterly Monitoring & Evaluation Report-First (JAN-MAR 2021)	Submitted
Monthly Monitoring Report-Fourth (APR 2021)	Submitted
Monthly Monitoring Report-Fifth (MAY 2021)	Submitted

Monthly Monitoring Report-Sixth (JUNE 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Second (APR-JUN 2021)	Submitted
Monthly Monitoring Report-Seventh (JUL 2021)	Submitted
Monthly Monitoring Report-Eighth (AUG 2021)	Submitted
Baseline Survey Report (Final Draft)	Submitted
Monthly Monitoring Report-Ninth (SEPT 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Third (JULY - SEPT 2021)	Submitted
Special Reports submitted: 1) Monitoring Tools 2) PAM 3) Survey Training Report	Submitted
Monthly Monitoring Report-Tenth (OCT 2021)	Submitted
Monthly Monitoring Report-Eleventh (NOV 2021)	Submitted
Monthly Monitoring Report-Twelfth (DEC 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Fourth Quarter year 2021 (OCT – DEC 2021)	Submitted
Monthly Monitoring Report-Thirteenth (JAN 2022)	Submitted
Annual Monitoring & Evaluation Report Jan 2021 – Jun 2021 (1st AM&ER)	Submitted
Monthly Monitoring Report-Fourteenth (FEB 2022)	Submitted
Monthly Monitoring Report-Fifteen (MAR 2022)	Submitted
Quarterly Monitoring & Evaluation Report-First Quarter year 2022 (JAN – MAR 2022)	Submitted
Monthly Monitoring Report-Sixteen (APR 2022)	Submitted
Monthly Monitoring Report-Seventeenth (MAY 2022)	Submitted
Monthly Monitoring Report – Eighteenth (JUN 2022)	Submitted
Quarterly Monitoring & Evaluation Report-2nd Quarter year 2022 (APR – JUN 2022)	Submitted
2nd Annual Monitoring & Evaluation Report (July 21 – JUN 22)	Submitted
Monthly Monitoring Report – Nineteenth (JUL 2022)	Submitted
Monthly Monitoring Report – Twentieth (AUG 2022)	Submitted
Monthly Monitoring Report – Twenty-first (SEP 2022)	Report in hand

4.1 WORK SCHEDULE AND PLANNING FOR DELIVERABLE

The project Work Schedule and planning matrix for deliverables is attached to the report as **Annex-C** which shows the progress till the reporting month.

4.2 WORK SCHEDULE / ACTIVITIES (July 01, 2022, TO December 31, 2022)

Bi-annually activity plans (01 July 2022 to 31 December 2022) is attached as **Annex-E**.

ANNEXES A TO E

ANNEX - A: MONITORING LOG-FRAME

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
Component A. Soil & Water Conservation Component							
1.	- Construction of 5,000 water ponds (WSPs)	a) 5,000 small farmers mobilized to construct water ponds b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Approximately 12,500 acres of agriculture land will be irrigated from these interventions.	2,000 water ponds	Crop production per unit area will increase by conserving runoff water/ water from perennial springs. Livestock will be increased; ultimately farmer's living standards will improve.	Approximately 12,500 acres of the land will be changed into crop fields and fruits orchids, which will increase farmer's income. More than 25,000 farmers will permanently engage in agriculture sector. These will provide short term employment to approximately 40,000 labors during the construction period of the interventions.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to WSPs c) The survey will determine: • Cropping pattern before and after the improvement. • Cropping intensities before and after improvement. • Before and after crop yields. • Before and after employment. d) The difference between before and after will be considered the result of the intervention after netting out the contribution of the growth pattern of the crop sector otherwise.
2.	Construction of 3,000 Check dams (CD)	a) In each Check dam village, (small farmers mobilized will be to construct check dams b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then	Approximately 7,500 acres of the land will be reclaimed.	2,500 check dams	Approximately 7500 acres of the land will conserve; ground water table of the nearby wells will rise.	Land value of the project area will increase; more than 7,500 acres of the land will bring under cultivation. Climatic condition of the area will improve, and livestock will be benefited. More than 15,000 people will permanently engage in agriculture activities in the project area. More than 24,000 labors will be	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to check dams c) The forms used for baseline and impact surveys in case of WSP will also be used for Check dams d) Same data analysis will be conducted here as in WSPs (1)

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
		received subsidy at 80% on issuance of FCR*				provided with short term employment during the construction period of the intervention.	
3.	Construction of 330 Water Reservoir (WR)	a) In each Water Reservoir village, (small farmers will be mobilized will be to construct It. b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR	Approximately 9,900 acres of land will be irrigated from this intervention.	250 mini dams	Ground water table will be improved; farmer's income will be increased. Livestock will be benefited.	Culturable wasteland will be developed by supplying stored water. Ground water table will rise. Fish farming, livestock and forestry will be improved. Overall livelihood of the farmer community will improve. Approximately 19,800 people will permanently engage in agriculture, livestock, and fish raring etc. More than 2,640 labors will be benefited from the scheme.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to WRs c) The forms used for baseline and impact surveys in case of WSP will also be used for WRs d) Same data analysis will be conducted here as in WSPs (1)
4.	Construction of 2,500 Stream bank stabilization (SBS)	a) In each SBS village, small farmers will be mobilized b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Protecting/ reclaiming about 6,250 acres of agricultural land from erosion with floods water.	15,000 stream bank stabilization structures.	Per unit area of crop production will be saved.	Approximately 6,250 acres of agriculture land will be saved directly from floods water. This will further enhance the life of precious dams and reservoirs. This may engage approximately 12,500 farmers for long time in agriculture sector.20,000 labors will work during construction period of these intervention	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to SBSs c) The forms used for baseline and impact surveys in case of WSPs will also be used for SBSs d) Same data analysis will be carried out here as in WSPs (1)

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
5.	Construction of 1,000 Gated field Inlet Outlet/Spillway (GFIO/S)	a) In each GFIO/Spillway village, small farmers will be mobilized b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Sufficient amount of water will be provided to about 2,500 acres of land for irrigation in rod kohi areas of the province.	1,500 field inlets and spillways.	Farmer's income will increase; fertile land degradation will be minimized.	Approximately 2,500 acres of agriculture land will be benefited directly from this intervention. Approximately 5,000 farmers will permanently engage in agriculture sector for long period of time. These interventions will provide short term employment to about 5,000 labors.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to GFIO/S c) The forms used for baseline and impact surveys in case of WSP will also be used for GFIO/s d) Same data analysis will be carried out here as in WSPs (1)
6.	Development of 370 acres land for terracing (LFT)	a) In each LT village, small farmers will be mobilized b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Farmer's income will be increased by increasing agricultural land due to terraces development.	500 acres	Per unit production of farmers will increase by converting approximately 370 acres of non-culturable waste land into culturable.	Crop production will increase; land sliding will reduce due to terraces formation; rainwater infiltration will increase. Approximately 740 farmers will permanently engage in agriculture. Approximately 1,850 labors will be benefited from these interventions.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to WSPs c) The forms used for baseline and impact surveys in case of WSP will also be used for LFTs d) Same data analysis will be carried out here as in WSPs (1).
7.	Development of 70 numbers of micro-watershed areas (MWA)	a) In each MWA small farmers mobilized to construct MWA	Approx. 7,000 acres of the area will be converted into agriculture/	02 micro watershed developed	Culturable wasteland will be converted into an agricultural	Developing micro-watersheds will improve climatic condition of the area; floods chances will be minimized by harvesting	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
		b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	forest land which will improve the aesthetic value of the area.		productive land. Farmer's income will be increased through agriculture, livestock, fisheries and forestry etc.	rainwater in water harvesting interventions; land sliding and soil erosion will be minimized. Moreover, aesthetic value of the land will be improved. Approximately 14,000 people will engage in agriculture sector permanently. Approximately 14,000 labors will be directly benefited during the process of micro-watersheds development.	b) A data collection form will be designed to measure water saving due to MWA s c) The forms used for baseline and impact surveys in case of WSP will also be used for WRs d) Same data analysis will be carried out here as in WSPs (1).
8.	Constructing 370 numbers of water Seepage harvesting Galleries (WSHG)	a) In each WSHG farmers will be mobilized to construct water ponds b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Approx. 925 acres of land will be irrigated from this intervention.	15 water seepage galleries	More area will bring under cultivation by establishing crop fields and fruits gardens in the project area. Livestock will increase and more people will engage in agriculture sector.	Continuous supply of clean water for agriculture, livestock and human beings will be ensured. Water crises will be minimized in the project area. More than 1,850 number of people will engage in agriculture activities for long period of time. About 1,850 labors will be directly benefited during the construction process.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to WSHG s c) The forms used for baseline and impact surveys in case of WSP will also be used for WRs d) Same data analysis will be carried out here as in WSPs (1)
9.	800 numbers of Agronomic low-cost	a) In each ALCI village small farmers mobilized to ALCI	Approx. 2000 acres of land will be	2000 various low-cost	More area will bring under cultivation;	Land will be protected from erosion; infiltration will be	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
	interventions (ALCI)	b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	protected from erosion by these interventions.	small interventions	economic condition of the local community will be improved.	improved during rainfall; livestock will be benefited. Approximately 2400 farmers will permanently engage in agriculture. These will also provide short term employment to about 2400 labors.	b) A data collection form will be designed to measure water saving due to ALCI s c) The forms used for baseline and impact surveys in case of WSP will also be used for ALCIs d) Same data analysis will be carried out here as in WSPs (1
10.	230 acres of Sand Dunes Stabilization (SDS)	a) In each SDS locality small farmers mobilized to construct water ponds b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	Approx. 230 acres land of sand dunes will be stabilized by growing kana plants.	200 acres Sand dunes effects stabilized.	Non-culturable sand dunes will be converted into an economically productive piece of land.	Sand dunes stabilization through plantation will be a direct source of income generation for the local community by making homemade items from the stems of the kana plants. These will also help in improving climatic condition of the project area. Meanwhile about 460 numbers of labor will be benefited.	a) Adopting the Sampling formula/ sample of water ponds farmer will be surveyed b) A data collection form will be designed to measure water saving due to SDS s c) The forms used for baseline and impact surveys in case of WSP will also be used for SDSs d) Same data analysis will be carried out here as in WSPs (1

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
11.	500 Nos Capacity Building (CB)	500 small farmers capacity will be built on different traits.	An estimated 500 trainings will be conducted for stakeholders including farmers and departmental staff.	2000 Capacity building trainings conducted .	Enhanced capacity for better management of soil and water resources.	Soil and water resources of the province will better be managed with better management practices. The capacity of the stake holder will be enhanced in better management of soil and water resources of the country in general and Khyber Pakhtunkhwa in particular.	a) Pre training and post training evaluation will be conducted from all farmers to estimate the enhancement in their knowledge and skill. b) In this connection same Performa will be used before the conduct of the training after the completion of the training.
Component B Agricultural Engineering Component							
12	Procurement and installation of 700 Solar, pumping System and 300 Tube Wells (SPS&TW).	a) Solar Pumping small farmers mobilized to install SPS&TW b) They agree to contribute 20% of the cost c) Agree to first construct SPS&TW with his/her own funds and then received subsidy at 80% on issuance of FCR*	Irrigation of 17,500 hectares (43,225 acres) of land.	> 650 SPS&TW installed.	Conversion of rain fed land into irrigated land will add more value to the land and the enhance production from crops/Orchard will help in improving the socio-economic condition of the farming community.	Provision of irrigation water will lead to increase Agriculture production and self-sufficiency in food grain.	a) Adopting the Sampling formula/ sample of SPS&TW farmers will be surveyed b) A data collection form will be designed to measure water saving due to SPS&TW s c) The forms used for baseline and impact surveys in case of WSP will also be used for SPS&TW s Same data analysis will be carried out here as in WSPs (1
13	700 on-site training of farmers in adaptation of new techniques for	a) 5,000 small farmers mobilized to construct water ponds	Irrigation water Pumping cost will be reduced by	> 2,000 trainings conducted .	The cropping intensity will be enhanced.	Farmers of the project area will be educated in the modern techniques being adopted in Agriculture and therefore, pay more attention	d) Adopting the Sampling formula/ sample of trained farmer will be surveyed e) A data collection form will be designed to measure water saving due to trainings

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
	pumping sub-surface water.	b) They agree to contribute 20% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*	adopting solar technology.			to increase crop yield and Farm income.	f) The forms used for baseline and impact surveys in case of WSP will also be used for trainees Same data analysis will be carried out here as in WSPs (1

ANNEX - B: PROJECT PROGRESS REPORTING FRAMEWORK (PPRF)

Project Title…….

Report Name and Period…….

Area Name ……..

Sr. No.	STRATEGY /ACTIVITIES	Reporting Quarter								Year to Quarter(Cumulative)							
		Physical Progress				Financial Progress				Physical Progress				Financial Progress			
		Unit of Measure	Target/Planned	Actual/Achievement	Variance%	Committed Liability of Previous Year	Budget Allotted (PC-1)	Actual Expenditure	Variance%	Unit of Measure	Target/Planned	Actual/Achievement	Variance%	Committed Liability of Previous Year	Budget Allotted (PC-1)	Actual Expenditure	Variance%
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Area details……..?																	
1	Activity details ……?																
Sub Totals																	
Area details……..?																	
2	Activity details ……?																
Sub Totals																	
Total(s)																	

Note:1-Report Summary will be Prepared Separately from the data consolidated Area wise and Components Wise…..?

2- More columns will be added as per requirements….?

ANNEX - C: WORK SCHEDULE AND PLANNING FOR DELIVERABLES

WORK SCHEDULE AND PLANNING FOR DELIVERABLES

NO.	DELIVERABLE/ ACTIVITY	Years 1												Years 2												Years 3												Years 4											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	DELIVERABLES																																															
1	Draft Inception Report		↓																																													
2	Final Inception Report			↓																																												
3	Monthly Monitoring Report	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
4	Baseline Survey Report [1]					↓	↓												↓	↓											↓	↓																		
5	Midline Survey Report																								↓	↓																							
6	End Line Survey Report																																											↓	↓			
7	Quarterly Monitoring and Evaluation Report			↓			↓			↓			↓			↓			↓			↓			↓	↓			↓			↓			↓			↓			↓			↓			↓	↓
8	Annual Monitoring and Evaluation Report												↓												↓	↓											↓											↓
9	Draft Assignment Completion Report																																													↓		
10	Final Assignment Completion Report																																													↓	
11	Special Reports (As and when required)																																														

(1) The baseline report will be submitted at the end of 4th month provided sites for all interventions are pre-determined and sites are available at the outset. However, if the sites are identified during project implementation then the baseline will be done in phases.

ANNEX - D: SCHEDULE FOR SUBMISSION OF VARIOUS REPORTS

Schedule for the Submission of Various Reports the Consultants

Sr. No.	Document	Copies	Due
1	Draft Inception Report	5	45 days after the effectiveness of the Consulting Services Agreement.
2	Final Inception Report	15	One week after the issuance of comments by the Client on Draft Inception Report
3	Monthly Progress Report (Physical & Financial)	10	10th of the following month
4	Baseline, Midline and End Line Survey Reports	10	With different timelines
5	Quarterly Progress Report (Physical & Financial)	10	10th of the first month of following quarter
6	Annual Progress Report (Physical & Financial)	10	During first month of the following year
7	Draft Assignment Completion Report	5	At completion of physical works/ activities
8	Final Assignment Completion Report	25	At completion of works as well as financial transactions
9	Special Reports	10	As and when required.

ANNEX - E: WORK PLAN / ACTIVITIES FOR 3rd & 4th QUARTER YEAR 2022

Bi Annually Activity Plan (01 July to 31 December 2022)-ME&IE Consultants for Soil & Water Conservation in the Barani Areas of KP

S#	Deliverable / Activities	Jul 31st				Aug 31st				Sep 30th				Oct 31st				Nov 30th				Dec 31st			
1	Complete the baseline survey of the project activities.																								
	a. Zero Draft of BLS sharing with the stakeholders																								
	b. Incorporation of comments																								
	c. BLS Final report submission																								
	d. Training of the new field team on monitoring tools																								
	e. Field data collection																								
	f. Data Cleaning, processing & analysis																								
	g. Writing of Draft Monitoring Report & Success Stories																								
	h. Submission of Final Monitoring Report																								
2	Develop monitoring strategy, framework and results-based monitoring (RBM) indicators.																								
	a. Meetings with Stakeholders on M&E/IE																								
	b. Draft monitoring tools for each activity disturbed among stakeholders for comments																								
	c. Incorporation of comments																								
	d. Monitoring tools programming in Android																								
	e. Training of the field team																								
	f. Field data collection, analysis																								
	g. Submission of Final MR & Success Stories																								
3	Meetings with stakeholders & coordinators																								
4	Economic impact of project interventions. Preparation of success story of one of the S&WC activities (Mid-Level)																								

	a. Listing and Selection of completed Activities																									
	b. Data collection/FGD/analysis																									
	c. Documentation/script writing																									
	d. Draft preparation of booklet and video																									
	e. Final preparation of booklet and video																									
5	Preparation of monthly, quarterly, annual monitoring evaluation and validation reports of the project activities																									
6	Develop a website containing information of facilities, services and application, procedures, for WC-KP activities database. (Maintaining website should be the responsibility of project staff)																									
	a. Development of website of WC-KP																									
	b. Designing of dashboard of Project Interventions																									
	c. Monitoring online data collection and Data entry																									
	d. Data collection of interventions in MIS/GIS database																									
7	Provide technical support for the development or custom-designed mobile application (Android) to capture on site progress, geo tagged photos, should be synchronized with the central MIS/GIS database and application for instant reporting and																									

* In each quarter the ME&IE consultants will prepare success story of one of the S&WC activities which cover socio-economic aspect of the project.