FEDERAL PROJECT MANAGEMENT UNIT
MINISTERY OF NATIONAL
FOOD SECURITY & RESEARCH
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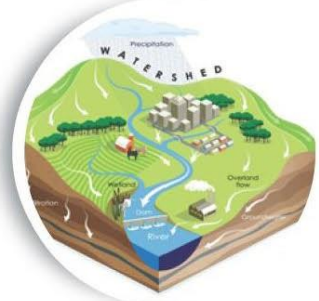

MONTHLY MONITORING REPORT

NOVEMBER 2021

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
NOVEMBER 2021

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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
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
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

The current Monthly Monitoring Report (MMR) for the Month of November 2021 comprises of 5 Chapters.

Chapter-1 describes the 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. 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 60 months. The aim of the project is to conserve water in Barani Areas of KP through listed below interventions.

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 gives detail of ME&IE Consultants of the WCBAKP Project. To evaluate the impact of this project 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 project has been awarded to the Joint Venture of 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. Consultants signed contract agreement with the Government of Pakistan on November 27, 2020 and mobilized its staff to start the assignment.

Chapter-3 describes the objectives of Consultancy Services of ME&IE Consultants. The ME&IE Consultants of WCBA KP have to 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.

Chapter-4 Describes the purpose of preparation and submission of Monthly Monitoring Report (MMR). The current MMR explained the updated status of consultants' activities upto the reporting month.

Chapter-5 describes the consultants' activities carryout throughout the current month. This chapter also includes details of coordination meetings held by the ME&IE consultants with client and other stakeholders of the project.

CHAPTER – 1: INTRODUCTION TO WATER CONSERVATION IN BARANI AREA

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 (WCBAKP)

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 year
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
ME&IE Consultant Mobilized	December 24, 2020

1.2 INTRODUCTION

The common features of Barani and Arid lands are; low precipitation, high temperature, high evaporation, low humidity, poor rain water 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.

1.3 BACKGROUND OF WCBAKP

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 top-soil. 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.

1.3.1 Project Objectives

The main objective of agriculture sector is to make the country self-sufficient in food grains and make raw' material available for agro 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 as a whole. The proposed project is closely related to the recently completed water conservation schemes, which form an important element of the integrated rural development program within the agriculture sector.

1.3.2 Project Components

The project have 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 in **(Table 1.1)**.

Table 1.1: Activities under Component A Executed by the DG 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.

1.4 PROJECT TARGETS AND OUTPUTS

Project targets and outputs of both components are presented at **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	Sufficient amount of water will be provided to about 2,500 acres of land for irrigation in rod kohi 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.
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: ME&IE CONSULTANTS FOR WCBAKP PROJECT

2.1 THE ME&IE CONSULTANTS

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

Client carried out 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 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) will be responsible for monitoring, evaluation and Impact Evaluation (ME&IE) of the project interventions carried out by implementation Consultants and in this context will 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.

CHAPTER – 3: CONSULTANTS' APPROACH AND METHODOLOGY FOR THE ASSIGNMENT

The chapter briefly discusses the basics of ME&IE system being developed by consultants for WCBA KP Project.

3.1 BASICS OF ME&IE SYSTEM

The ME&IE at 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 test and determine whether or not 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 at WCBAKP are formulated based upon the project's logical framework (log-frame), which is one type of program logic model. A log-frame is an important 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. Log-frame developed for WCBAKP is placed at **Annex-A**.

The matrix in **Table 3.1** 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 3.1: 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 (Purpose Specific Objective)	The short term and medium-term 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.	**Outcome indicators**	Outcome indicators describe the 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,

Log-frame objectives definitions		Objectively verifiable indicators that measure objectives	
			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, labour by the communities)

3.2 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 work load 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.

3.3 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 are in progress 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.

3.4 MONITORING, EVALUATION AND IMPACT EVALUATION PLAN

This section presents brief introduction about the ME&IE and Impact evaluation plan.

3.4.1 Introduction

The monitoring and evaluation functions are related 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.

3.4.2 Framework for ME&IE System

The initial steps for designing monitoring and evaluation system are:

i) A review of the project objectives in order 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 great value to sectoral management in its policy formulation role.

Monitoring has to 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.

3.4.3 Monitoring and Managing of Project Progress

The primary goal is to monitor project progress, given that the project has been carefully appraised; i.e. that 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 will be on monitoring of project progress and the delivery of the inputs to the intended recipients. The main source for this aspect of monitoring is properly 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 in order 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, above all, 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.

3.4.4 Project Progress Reporting Framework (PPRF)

The Project Progress Reporting Framework (PPRF) given as **Annex-B** 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 will be gathered / transmitted through Android based application using smart phones.

3.4.5 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, or will be, met. 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.

3.4.6 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 large 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.

3.4.7 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 related 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.

3.4.8 Regular Routine Monitoring

Consultants are now onboard for the baseline survey and regular routine monitoring to carryout ME&IE of WCBAKP. This phase of the assignment includes;

(i) The monitoring of input-output and process as defined in the Annual Work Plan and Budget (AWPB) and;
(ii) The tracking of the outcome indicators.

Regular routine monitoring will look at the extent to which the proposed project activities are being implemented as planned. We also understand that the consultants are responsible for the regular routine monitoring and should work in close collaboration with FPMU-FWMC, Project Coordinator (PC), and respective Departments of Province KP, Directorate General Soil & Water Conservation & Directorate of Agricultural Engineering KP through their district/sub-offices & farmers/ SWCA, etc.

In order to track the indicators' values and measure the project performance, the ME&IE Consultancy have to analyze the relevant ME&IE data and report every quarter, applying the agreed methodology, reporting format and content.

Periodic reports on routine monitoring shall contain, at least:

(i) A brief analysis of the results; calculating achievement rates and establishing trends;
(ii) A summary with any relevant findings that may help or constraint the future data collection activities in the established periods and, if appropriate;
(iii) Propose specific solutions assessing the advantages and disadvantages of each.

As stated in the Project TOR, additional special reports are to be produced "as and when required." We propose that some of these special reports ought to be thematic studies and case studies that can be punctually required at different times of the project implementation as to create knowledge on the implementation and its results, to be shared and further implemented.

CHAPTER – 4: MONTHLY MONITORING REPORT

This chapter of the Monthly Monitoring Report (MMR) describes the brief introduction, objective of the MMR of monthly monitoring report WCBAKP.

4.1 INTRODUCTION

Monthly Monitoring Report (MMR) explains the understanding towards the all activities of ME&IE assignment to be carried out as per TORs and their completion within stipulated time frame.

4.2 OBJECTIVE OF MONTHLY MONITORING REPORT

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

Consultants Procedure for ME&IE Assignment

The Consultants carried out ME&IE of WCBA KP in two parts.

The First Part of monitoring is carried out through field visits and surveys of water storage reservoirs, micro-watersheds, check dams, tube-wells, etc. All water conservation activities under the project. The processes, timelines and physical progress against targets set in the Annual Work Plans (AWPs) are marked. The monitoring activities includes baseline, midline and end-line surveys. The water saving assessment will be simultaneously carried out 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 as a whole. For each monitoring activity one or more checklist(s) will be developed based on planned SOPs (Modus Operandi) and timelines. The activities will be monitored according to the checklists.

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

The Second Part of the ME&IE assignment will be the development, operation, maintenance and handing-over the Management Information System (MIS) to the client at the end of the project.

Main 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. We propose to develop, set up and implement a Web Based Monitoring Information System (MIS) useful for:

- Monitor 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.

a) 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.

b) 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.

c) 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.

d) The following project information will be accessible at all times:

- 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 at a glance 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.

e) The kind of data that can be represented in the dashboard includes:

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

f) 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.

g) 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.

h) 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.

CHAPTER – 5: CONSULTANTS ACTIVITIES DURING THE REPORTING PERIOD

5.1 ACTIVITIES DURING REPORTING PERIOD

This chapter of 11th MMR covers the progress for the period from 1st November, 2021 to 30th November, 2021.

Following activities completed/in process during the reporting period are discussed briefly:

5.1.1 Coordination Visits/Meetings of ME&IE Consultants

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

5.1.1.1 3rd Meeting of Project Board of Management (PBOM) of ME&IE Consultants under Projects Titled "NPIWC-II and WC-KP"

The subject meeting was held to discuss the circulated agenda items under the National Project Coordinator Engr. Muhammad Tahir Anwar on 9th November, 2021. This was attended by;

i. Mr. Muhammad Tahir Anwar, NPC (In Chair);
ii. Muhammad Naeem Akhtar DPC (WCKP);
iii. Mr. Saiful Islam, DPC, NPIWC-II;
iv. Ch. Saifullah Ijaz BOM ME&IE Consultants;
v. Hafiz Abdul Rauf BOM ME&IE Consultants;
vi. Dr. Usman Mustafa, TL, ME&IE Consultant;
vii. Dr. Mansab Ali, Irrigation Agronomist, ME&IE Consultant;
viii. Mr. Afzal Hayat Khan, Social & Gender Specialist, ME&IE Consultant; and
ix. Mr. Rizwan Saleem, Incharge ICT Specialist, ME&IE Consultants.

It was a very good interaction of client and consultant, and various technical, administrative and financial matters were discussed in detail and decisions were made for smooth functioning of the projects activities.

5.1.1.2 10th Joint Review Meeting (JRM) of Projects under Prime Minister Agriculture Emergency Program

The subject meeting of 26 November, 2021 was postponed due to un-avoidable circumstances. However, an informal discussion of all stakeholders including Director PMU, DG ONFWM, DG S&W Conservation, Director Agricultural Engineering, and Representative from NESPAK, AGES, G3 Engineering Consultants and FPMU-Water Wing NFS&R was held. It was mutually, agreed that precise field data on water and agricultural aspects must be collected and shared with concerned stakeholders.

5.2 MOBILIZATION OF ME&IE CONSULTANT

5.2.1 Joining of Team Leader

Dr. Fazli Hakeem Khattak, joined as Team Leader of WCKP on 16 November 2021 replacing Dr. Usman Mustafa, who joined as Team Leader, NPIWC-II (ME&IE Consultants).

5.2.2 Mobilization of Field Teams

Consultants have organized three field teams for baseline and monitoring survey while each comprises two members. These teams visited four districts of KP and interacted with farmers. These farmers were interviewed and questionnaires were filled in this round of activity. Mr. Ihsan Ullah explained that after the completion of the Protection Bund (SBS), he reclaimed 2.5 acres of land, therefore, he will grow more crops that will increase his income positively **(Fig. 5.1).**

Figure-5.1: Mr. Mumtazullah Field Supervisor is measuring Stream Bank Stabilization at farm of Mr. Ihsanullah at village Qaiserabad, Tehsil Rustam, district Mardan on 12 Nov,.21.

Moreover, Mr. Ijaz through Water Pond intervention increased wheat productivity by 17 % and increase acreage from 2.5 acres to 11 acres. He was happy to grow maize first time on his land due and expecting more yield from orange plants due to availability of water **(Fig. 5.2)**.

Figure-5.2: *Mr. Mumtazullah & Matloob Hussain, member Field Team at farm of Mr. Ijaz Ali at village Barringan, Tehsil Rustam, district Mardan on 12 Nov. 21.*

Farmer Mr. Umar Khayam mentioned that Istiraj SBS (Protection Bund) is very valuable to us. Earlier, we use to grow only wheat having low yield of about 800 kg per acre due to non-availability of water. Now we are planning to grow orange orchard **(Fig.5.3)**.

Figure-5.3: Mr. Mumtazullah & Aftab Ahmed, member Field Team visited Istiraj SBS at village Beki Dara, Tehsil Rustam, district Mardan on 12 November, 2021.

After construction of this SBS Protection Bund farmer is expecting more productivity as it was very low in wheat that was about 300 kg per acre stated by John Muhammad (**(Fig. 5.4)**.

Figure-5.4: Mr. Mumtazullah & Fawad Ali, member Field Team visited John Muhammad SBS at village Tar Khel, Tehsil Jahangira, district Nowshera on 18 Nov. 2021.

Gulistan Check Dam is expected to save more than 2 acres of land and through available irrigation crop productivity will increase as compared to present yield level that is about 320 kg per acre in wheat as mentioned by farmer Mr. Sher Zada **(Fig.5.5).**

Figure-5.5: *Mr. Mumtazullah & Fawad Ali, member Field Team visited Gulistan Check Dam at village Tar Khel, Tehsil Jahangira, district Nowshera on 18 Nov. 2021.*

According to the farmer Amir Nawab, the completion of Check Dam has solved the main problem of soil erosion and depletion of fertile agriculture land. Earlier, soil erosion and seasonal flood water use to destroy our homes and this flood water will be used for irrigation purpose **(Fig.5.6).**

Figure-5.6: Mr. Mumtazullah & Fawad Ali, member Field Team visited Amir Nawab Check Dam at village Kahi, Tehsil Jahangira, district Nowshera on 18 Nov. 2021.

ME&IE Consultants' field team visited three ponds/reservoirs to harvest rain water for irrigation purposes of farmers namely; Abdullah Jan, Wahid Gul and Zahoor Khan in the remote areas of Karak on 24 November 2021. Ponds/reservoirs can have magical effects on the most deserving Saline Zone and the vulnerable and deprived farmers in the area of Karak. Salt water is distilled to clean fresh water by filtration from ponds and reservoirs in the "salt zone" **(Fig. 5.7).**

Figure-5.7: Field Team visited ponds/reservoirs use to distilled salt water for agricultural purposes at district Karak on 24 November, 2021.

Mr. Afzal Hayat Khan, Social & Gender Specialist, WCKP along with Engr. Sajjad visited Bannu district on going solarization of Tube Well interventions in the remote areas. These two farmers; Mr. Amjad Fahim and Shukat Khan are happy shifting from subsistence farming to valuable crops. This project may be selected for the case study/ In-depth analysis in the near future **(Fig. 5.8)**

Figure-5.8: View of the Solarization of Tube Well paradigm shift from subsistence farming to valuable crops at district Bannu on 26 November, 2021.

During the reporting period, the M&E field teams of ME&IE Consultants conducted monitoring and baseline survey visits for **14 interventions/schemes** across **4 districts** of Khyber Pakhtunkhwa (KPK). A summary provided in the table below.

Table: A summary of schemes visited for collection of field data during reporting period

Date	Team	Survey.#	Zone	District	Activity	Name of Respondent
16-Nov-21	Team-2	Mon & BLS-I	Zone-3	Peshawar	Water Pond	Haji wazir
17-Nov-21	Team-2	Mon & BLS-I	Zone-3	Mardan	Gated Field Inlet Outlet/Spillway	Haroon Naseer
18-Nov-21	Team-2	Mon & BLS-I	Zone-3	Mardan	Water Reservior	Muhammad Ali
22-Nov-21	Team-2	Mon & BLS-I	Zone-3	Mardan	Check Dam	Ahmad Saeed
22-Nov-21	Team-1	Mon & BLS-I	Zone-3	Swabi	Check Dam	Asad Zaman
23-Nov-21	Team-2	Mon & BLS-I	Zone-3	Mardan	Check Dam	Muhammad Qasim
24-Nov-21	Team-2	Mon & BLS-I	Zone-3	Mardan	Check Dam	Said Malook Shah
24-Nov-21	Team-1	Mon & BLS-I	Zone-3	Swabi	Stream Bank Stabilization	Bakht Zamin
25-Nov-21	Team-2	Mon & BLS-I	Zone-3	Charsadda	Stream Bank Stabilization	Abdullah Said
26-Nov-21	Team-2	Mon & BLS-I	Zone-3	Charsadda	Stream Bank Stabilization	Aqil Khan
26-Nov-21	Team-1	Mon & BLS-I	Zone-3	Swabi	Stream Bank Stabilization	Isteraj khan

Date	Team	Survey.#	Zone	District	Activity	Name of Respondent
29-Nov-21	Team-2	Mon & BLS-I	Zone-3	Charsadda	Check Dam	Jan Badshah
29-Nov-21	Team-1	Mon & BLS-I	Zone-3	Swabi	Installation of Tube Well	Muhammad Kamal
30-Nov-21	Team-2	Mon & BLS-I	Zone-3	Charsadda	Stream Bank Stabilization	Noor Ahmad Said

Table: District wise/Intervention wise detail of activity units performed during Reporting Period

Districts & Interventions	Count of Activity Units
Charsadda	**4**
Check Dam	1
Stream Bank Stabilization	3
Mardan	**5**
Check Dam	3
Gated Field Inlet Outlet/Spillway	1
Water Reservior	1
Peshawar	**1**
Water Pond	1
Swabi	**4**
Check Dam	1
Installation of Tube Well	1
Stream Bank Stabilization	2
Grand Total	**14**

5.1.3 Development of Android Based Application for Field Survey

Development of Android application was started in the second week of Feb 2021 and has been completed at the end of April 2021. Later it was finalized in May 2021.

Training, Testing of Monitoring tools on Android were conducted at ME&IE office during the month of 27-28 August and 8-10 September 2021.

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:

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

5.1.4 Baseline Survey Training

Final report on Training / workshop held in August and September has been printed and submitted to NPC and client. Final Training Report is attached as **Annex-C**. Training is vital because it represents a good opportunity for employees to grow their knowledge base and improve their job skills to become more effective in the workplace. In this connection five days training was arranged for field enumerators at WCBA- KP, Peshawar office. The objectives were to equip enumerators with basic monitoring and evaluation tools and baseline questionnaires.

5.1.5 Success Story / Case Study in Mingora Swat Area

Final Leaflet / brochure on the "Successful Story" has been designed and presented to NPC and client and same is attached as **Annex-D** to this report**.** This story of intervention under WCBA KP is related to a farmer located at village Barrawal, Tehsil Matta, District Swat while visit for this story

was organized by the Directorate of Soil & Water Conservation, Swat-KP on 23 September 2021. A very good interaction among major stakeholders i.e. S&WC, farmers and ME&IE Consultants were noticed where beneficiary farmers explained to other fellow farmers with merits and demerits of this project. The difference between with and without interventions were very clearly observed with these farmers.

5.2 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:

i) Homepage (Landing page)
ii) Project Introduction
iii) Project Components
iv) Project activities
v) Progress Reports
vi) Monitoring Reports
vii) Impact Reports
viii) Project Progress
ix) Procurement
x) Procurement of Goods, Services & works
xi) Evaluations and Results
xii) Career
xiii) Media Gallery
xiv) Contact
xv) FAQs (Frequently Asked Questions)

5.3 DEVELOPMENT OF MIS/GIS SYSTEM

Designing of Dashboard of Project Interventions / Web-based GIS integrated MIS (PMIS System) 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*

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 has to 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 has to 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 need the 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&EI 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, Endline data and Progress Monitoring and Impact Reports.

5.4 WORK SCHEDULE AND PLANNING FOR DELIVERABLE

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

5.5 WORK SCHEDULE / ACTIVITIES FOR THIRD & FOURTH QUARTER (JULY TO DECEMBER 2021)

Work Plan / Activities planned for the 3rd & 4th Quarters July 2021 to December 2021 are attached as **Annex-F** to this report.

ANNEXES A TO F

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.

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
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 received subsidy at 80% on issuance of FCR*	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 provided with short term employment during the construction period of the 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 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 carried out here as in WSPs (1)
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	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 up. Fish farming, livestock and forestry will be improved. Over all 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	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 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		
		FCR				be benefited from the scheme.	
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)
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	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)

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
		FCR*					
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 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. 7,000 acres of the area will be converted into agriculture/ forest land which will improve the aesthetic value of the area.	02 micro watershed developed	Culturable wasteland will be converted into an agricultural productive land. Farmer's income will be increased through agriculture, livestock, fisheries and forestry etc.	Developing micro-watersheds will improve climatic condition of the area; floods chances will be minimize by harvesting 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	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 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).

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
						agriculture sector permanently. Approximately 14,000 labors will be directly benefited during the process of micro-watersheds development.	
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 interventions (ALCI)	a) In each ALCI village small farmers mobilized to ALCI b) They agree to contribute 20% of the cost c) Agree to first	Approx. 2000 acres of land will be protected from erosion by these interventions.	2000 various low cost small interventions	More area will bring under cultivation; economic condition of the local community will be	Land will be protected from erosion; infiltration will be improved during rainfall; livestock will be benefited. Approximately 2400 farmers will permanently engage in agriculture. These will also	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 ALCI s c) The forms used for baseline and

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
		construct the tank with his/her own funds and then received subsidy at 80% on issuance of FCR*			improved.	provide short term employment to about 2400 labors.	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

Project Sub-component	Target	Activities	Outputs	Outcome		Goal/ impact	Methodology for Measuring Results
				Baseline indicator	Target after completion of Project		
13	700 on-site training of farmers in adaptation of new techniques for pumping sub-surface water.	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*	Irrigation water Pumping cost will be reduced by adopting solar technology.	> 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 to increase crop yield and Farm income.	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 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: TRAINING / WORKSHOP REPORT

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

TRAINING / WORKSHOP REPORT

27-28 Aug & 8-10 Sep 2021

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)
Ministry of National Food Security & Research, Islamabad
Monitoring, Evaluation and Impact Evaluation (ME&IE) Consultants

TRAINING / WORKSHOP REPORT ON

Training of Field Staff - Monitoring, Evaluation and Impact Evaluation of Water Conservation in Barani Areas of KP

Conducted by:

- Dr. Usman Mustafa - Team Leader ME&IE Consultants WCBA KP
- Dr. Mansab Ali - Irrigation Agronomist ME&IE Consultants WCBA KP
- Mr. Afzal Hayat Khan - Social & Gender Specialist Team Leader ME&IE Consultants WCBA KP

Training Held on:
27 to 28 August 2021 & 8 to 10 September 2021

A Joint Venture of G3 Engineering Lead Firm Consultants (Pvt.) Ltd. | SD | EASE-PAK | ADA Consultants Inc. | In Association with S&S Associates

1. Introduction of Project:

The common features of rainfed (Barani areas) and arid lands are; low precipitation, high temperature, high evaporation, low humidity, poor rain water 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 Government 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.*

2. Background & Objectives of the Project

The main objective of agriculture sector is to make the country self-sufficient in food grains and make raw' material available for agro based industries. The project "Water Conservation in Barani Areas of KP (WCBA)" has encouraged 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 resource farmers*
- *To improve socio-economic stability*

The project objectives in quantifiable terms are as follows:

- *To induce aquifer/ground water recharge by pounding water in> 300 water storage reservoirs.*
- *To convert 15,032 acres of culturable wastelands into productive agriculture lands through development of 70 micro-watersheds.*
- *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.*
- *Minimize the adverse effects of drought by maximizing the irrigation water supplies through exploitation of sub-surface water from tube wells.*
- *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.

- *To enhance the capacity of the stakeholders in water harvesting and for sustainable use of land and soil resources for increased agriculture production.*
- *To improve the socio-economic status of the farmer community.*

3. Objectives of the Training / Workshop

Training is vital because it represents a good opportunity for employees to grow their knowledge base and improve their job skills to become more effective in the workplace. In this connection five days training was arranged for field enumerators at WCBA-KP, Peshawar office. The objectives of the training / workshop were to familiarize the field staff with project objectives & its various interventions, & enhance capacity building of field staff. Few of the specific objectives of the training / workshop are given below:

- Enable field staff to undertake monitoring of interventions independently
- To undertake various field surveys e.g. Base line surveys
- Familiarize/Refresh participants' knowledge about the basic concepts, principles, components and approaches.

4. Structure of the Workshop

The training was divided into two parts; the first two days training (27 - 28 August 2021) which was mainly consisting of theoretical part i.e. introduction, basic terminology, sampling and its procedure and followed by three days' session (8-10 September 2021). Major events were mock sessions, presentations, field visits & post training assessments session to evaluate the training /workshop theme.

5. Participants

Participants of the workshop were field teams of ME&IE Consultants WCBA – KP; while training was given by ME&IE Consultants;

- Dr. Usman Mustafa, Team Leader;
- Dr. Mansab Ali, Irrigation Agronomist &
- Mr. Afzal Hayat Khan Social & Gender Specialist,

Trainees were field staff including Field team Incharge & Enumerators.

6. Organization of the Workshop

The training workshop was organized on the basis of three main conspectuses; as under:

- Presentations and interactive discussion among the workshop participants especially dealing with the field surveys, regular monitoring
- Mock sessions, Field visit of nearby intervention to evaluate monitoring tools associated with it and based on the findings; suggest a way forward to incorporate in the survey questionnaire
- Share the findings of field experience with all participants.

7. Proceedings of the Workshop

First part of five days training planned on (27-28 august), proceeding started with introduction to objective of trainings, & mock session regarding field activities. Followed by this, second part was planned on

(8-10 September) which include presentations, filed visits, validation of baseline & monitoring questionnaires & post trainings assessment session.

7.1 Day One; Opening of the Workshop

The workshop was opened by Dr. Usman Mustafa, Team Leader (WCBA – KP) with the name of Allah. Brief round of introduction of the workshop participants followed his opening and welcome address. To make training useful, productive and interactive a pre-training assessment session was held to evaluate the knowledge of the participants on the subject matter. This will help trainers in delivering lectures according to the level of participants and will enable trainers in assessing the effectiveness of the training course. Further 40 minutes' session was planned for introduction of WCBA- KP project, Baseline Survey. Just after the tea break Dr. Mansab Ali, Irrigation Agronomist did a long lecture on land utilization and agriculture terminologies including project zones, cultivable command area, cultivable area, uncultivated area, net area sown, cropping intensity, land use intensity etc.

Figure 1 Opening day of workshop

7.2 Day Two; Brainstorming & Mock Sessions

Mr. Afzal Hayat khan, Social & Gender Specialist took start of second day with brief introduction of role in project & importance of women participation and empowerment in agricultural based activities.

Figure 2 Mock Session second day of workshop

Thereafter, mock session was organized for field teams for in-house exercise for filling of monitoring tools, how this team can use MT's in the field effectively. Dr. Usman Mustafa gave briefing to the participants about this exercise; three groups were formed, having 3 members in each group. The ultimate purpose of this exercise was to familiarize field enumerators with these questionnaires. All Field Enumerators did exercise for effective & prompt use of MT's keeping in mind all field experiences. Further he briefed that work on overall field survey questionnaire on macro and micro activities has been finalized. Most of the suggestions received from various stake holders have been incorporated. These baseline and monitoring tools were shared with different stakeholders for comments to make the questionnaire more workable & took 100 percent input from beneficiaries.

7.3 Day Three; Presentations

Third day was planned for presentations from Trainers; brief detail of each presentation is also summarized below:

Presentation 1.

"Overview to importance of Project, history, Components of Project, Baseline Survey by Dr. Usman Mustafa"

Dr. Usman Mustafa Team Leader briefed the participants about need & importance of this project, as Pakistan is ranked 3rd in the world among countries facing acute water shortage. He explains how without

being properly utilized, water runoff adversely affects human and animal life in rain fed areas.

Figure 3 Dr. Usman Mustafa presenting his Presentation

This project is under umbrella of Prime Minister Emergency program under various other water management projects have been launched to conserve and increase productivity of water. Further he gave outline on history of the project, its administrative approvals, total cost, its implementation period e.g. July 2019 – June 2024 & project objective. Further he briefed the participants about 13 project interventions one by one e.g. Water ponds, Check dams, Water reservoir, Stream bank stabilization, Gated field Inlet Outlet/Spillway, Development of land terracing, Development of micro-watershed areas, Development of water Seepage harvesting Galleries, Agronomic low-cost interventions, Sand dunes stabilization, Capacity Building of farmers, Construction of Solar pumping system / Tube Wells & training of farmers in adaptation of new techniques for pumping sub-surface water.

Moreover, he briefed participants about baseline survey concept "how it will be acted as foundation for evaluation and impact studies" & its needs "how we evaluate the project with and without the project involvements". Lastly Dr. Usman Mustafa gave outline on set of qualities to be an efficient field enumerator.

Presentation 2;

"Overview of the Project Zone Wise Distribution & basic Agriculture related terminologies" by Dr. Mansab Ali

Dr. Mansab Ali, Irrigation Agronomist summarized the zone wise distribution of project area that whole project area is divided into five zones. Thereafter, he gives understanding to team regarding assessment of land area utilization terminologies e.g. geographical area, total area reported, forest area, area not cultivated for cultivation, culturable waste, cultivated area, current fallow, net area sown, area sown more than once, total cropped area, cultivable command area, copping intensity & crop rotation.

Figure 4 Dr. Mansab Ali presenting his presentation

Further he gave understanding of irrigation sources in project area which feds the crops, information about seasonal crops in project area & detailed understanding about measuring units used in field.

Presentation 3;

by Mr. Afzal Hayat Khan "Overview of Gender its approaches & Gender Socialization"

Mr. Afzal Hayat Khan, Social & Gender Specialist gave introductory note about concept of gender, approaches of gender development & difference between socialization & gender socialization. Further he gave understanding about concept of gender stereotyping. Followed by introductory session, he gave comprehensive note on concepts central to gender and development thinking's e.g. culture gender relations,

gender discrimination, gender division of labour, gender awareness, gender equality / Equity & Women's Empowerment.

7.4 Day Four; Field Visit

In the first half of fourth day of Training/workshop a field visit was planned in nearby interventions. Therefore, two field visits were arranged, one field Team visited Imran and Noor Zaman Water Ponds, and second team visited Haji Wazir Muhammad s/o Niaz Muhammad Mohallah, Shamshato Peshawar. Field teams took interviews from beneficiaries by using baseline & monitoring questionnaires.

Figure 5 visited Imran and Noor Zaman Water Ponds, Shamshato Peshawar

Second half of fourth day was planned for assessment of filled baseline & monitoring questionnaires by field teams. The ultimate goal of this exercise was to check their ability to undertake interviews in field and improve capability of field enumerators. Further Dr. Usman Mustafa discussed any shortcoming, recommendation with field enumerators & deliver detailed session on do's & don'ts in field.

7.5 Day Five; Post Training/Workshop Evaluation

Feedback of the participants is valuable in helping us to assess the degree of success of the training and make it more beneficial and effective in the future. In last day of training/workshop a **"Training Evaluation Performa"** was also shared with the trainees consisting of conduct, place, logistic, food, venue, major learning, future direction, etc. questions were asked. Overall participants were very much satisfied from the training and developed a lot of learning and field confidence.

Figure 6: A group photo of training of the enumerators

The average pre-assessment score was 4.5 while post training assessment score was 8.5. Therefore, the gain in overall knowledge due to training was 4 out of 10 or 40 percent. After the successful completion of the training, Dr. Usman Mustafa, TL, Dr. Mansab Ali, IA, and Mr. Afzal Hayat distributed certificates & field carry-on bags among the participants in ending ceremony.

Figure 7: Team Leader, Irrigation Agronomist and Social & Gender Specialist distributing Field Carry-on Bags to Trainnes

8. Quantitative Analysis of Training Session

Feedback of participants was evaluated in shape of quantitative analysis; few are quoted below.

8.1 Evaluation of the Training by Enumerators

Table below shows participants views about different indicators. First indicator was duration of the training, 88 % refer this Good & 22 % refer this too long. Moreover, regarding schedule of training 88 % refer its relaxing & 22 % refer its too tight. Further Quantam of discussions held 100 % refer this as too much. Lastly regarding quality of training 100 % refer as excellent.

Indicator	Too short	Fair	Good	Too long
Duration of the training	-	-	7	2
Indicator	**Too tight**		**To relax**	
Schedule of the training	2		7	
Indicator	**Too Much**		**Too Little**	
Quantam of discussions held	9		-	
Indicator	**Poor**	**Fair**	**Good**	**Excellent**
Quality of training	-	-	-	9

8.2 Physical Resources and Facilities

The below data shows participants views on physical resources provided by management during training/workshop. Participants gave rating from very poor to very good to different facilities provided during workshop.

Sr. No	Indicator	*Very Poor*	*Poor*	*Fair*	*Good*	*Very Good*
1	Training venue	-	-	-	7	2
2	Setting of the training room	-	-	-	2	7
3	Light arrangements	-	-	-	8	1
4	Suitability of training room	-	-	-	7	2
5	Teaching aid facilities	-	-	-	1	8
6	Computer lab. facilities	-	-	-	1	8
7	Air conditioning	-	-	-	1	8
8	Quality of meals	-	-	-	2	7
10	Others (please specify)	-	-	-	-	-

Participants Involvement in Training session

Regarding participants opinion about imortance of training ,100 % refer this is very important, & regarding indication about what they have achieved in training , 88 % refer to mostly achieved & 12 % refers to fully achieved the objective of training.

Indicator	1=	2=	3=	4 =	5=

	Not important	Least important	Somewhat important	Important	Very important
To indicate your opinion about importance	-	-	-	-	9

Indicator	1 = Not achieved	2 = Achieved a little	3 = Somewhat achieved	4 = Mostly achieved	5 = Fully achieved
To indicate your opinion about achievement	-	-	-	8	1

8.3 Trainers evaluation by Enumerators

Below table shows participants views about resource persons in this training program. Participants gave rating from excellent to average to trainers as per their level of understanding.

Name	Excellent	Good	Average	Poor	Very Poor
Dr. Usman Mustafa	7	2	-	-	-
Dr. Mansab Ali	5	4	-	-	-
Mr. Afzal Hayat Khan	1	4	4	-	-

9. Pictorial View

ANNEX - D: CASE STUDY – SUCCESS STORY OF PROJECT INTERVENTION

Through horticultural activities, female members will become small entrepreneur by making homemade jam, jellies, vinegar, juices, sauces, pickle and ketchup through surplus production in the days to come. These are healthy activities along with fresh, cheap and nutritious intake for all family members. Female members are helping their family in a way and have positive impact on socioeconomic status, therefore, increased access to better health and education for their children.

Line Departments Collaboration for Development:

At this cluster of activities, On Farm Water Management (ONFWM) has started lining of water pipes from storage facility to the field to save water. Farmers are interested in fish and dairy farming. Therefore, like OFWM, other departments i.e. livestock, forest and wildlife are encouraged to become part of this collaborative effort to increase family income through different farm activities. This is very encouraging sign that Line Departments are joining hands to serve the community in more beneficial ways.

These farmers' latest foray is into establishing orchards for pomegranate & plum and increase in number of peach plants. Moreover, production of off-season vegetables and supplied to the nearby big cities' market where good price can be fetched. New technologies/interventions have changed their families' lives and have become inspiration to the many neighbouring farmers of village Barrawal and the area.

Client:

- Mr. Yasin Wazir, Director General, Directorate of Soil & Water Conservation KP
- Engr. Zaman Shah, Deputy Director (Swat)

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SUCCESS STORY OF INTERVENTION UNDER THE PROJECT

Water Conservation in Barani Areas of Khyber Pakhtunkhwa

Paradigm Shift from Cereal to Cash Crops at Barrawal, Matta-SWAT, KP

Under the direction of Prime Minister of Pakistan, the said project on "Water Conservation in Barani Areas of KP" to increase low irrigation efficiency was started in December, 2020. 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 farmers*
- *To improve socio-economic stability.*

Swat lies in the temperate zone. The summer in lower Swat valley is short and moderate, while it is cool and refreshing in the upper Northern part. Generally, cereal crops like maize, wheat, rice are grown in the area. Some area is also under rapeseed & mustard, along with fruits and vegetables under natural and off-season environment. This is strong plant nursery production area that ranks third in the country.

Water is life and getting scarced day by day in Pakistan. Therefore, the performance of the agriculture sector in terms of water use and capacity is inefficient. Area is beyond canal irrigation systems, if rain does not fall on time, the crops fail and cropping options remains limited to staple food crops.

More importantly, the crop water productivity has been the lowest than its potential. There is a serious need to conserve this vital water resource to ensure more productivity per drop of water.

Intervention / Technology:

A team of "Water Conservation in Barani Areas of KP Project" surveyed Barrawal area of Matta (Swat). Team observed that highly fertile land with moderately well drained soil could be much better utilized for commercial fruit & vegetable crops than for the cereals. After consent of farmer's contribution of 20%, the site assessment was made considering water source, soil structure, and suitability for water pond. Ultimately, construction of water ponds completed within 2-3 months and supplied water that enabled subsistence cereal/staple food to farmer's Abdul Hakeem, M. Farman and Ihsan Ullah to grow more profitable commercial crops like vegetables (peas, gourds etc.) and peach, persimmon fruit plants. They were not only able "to grow these commercial crops but got good quality fruits through regular supply of irrigation water".


WATER POND

Yield With and Without Technology:

Prior to this activity, farmers were getting 320 kg per acre in maize while only 360 kg per acre in wheat. After interventions availability of irrigation through water pond and improved production technology farmers are able to get 520 kg per acre of maize and 480 kg per acre of wheat. Similarly, they were obtaining 4050 Kg per acre and now 5400 Kg per acre (33 % increase) from peach orchard due to improvement in quantity and quality with these new interventions.


PERSIMMON PLANT PRIOR TO WATER AVAILIBILITY THROUGH WATER POND


PERSIMMON AFTER WATER AVAILABILITY THROUGH WATER POND

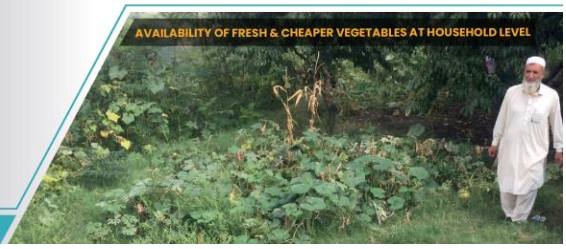
Farmer Farman is planning to "increase number of peach plants and to establish pomegranate and plum orchard on un-cultivated land area" after availability of pond water.

Impact on Livestock Rearing:

These households got water drinking facility for cattle & buffaloes, goats & sheep and poultry birds. Farmers are raising fodder for livestock instead of relying on wild and native 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.

Gender Role and Benefits:

Without water ponds, female family members use to get drinking, washing and rinsing water away (1-2 Km) from home by spending precious time of 2 hours. Now these female members have lot of convenience and time savings in fetching drinking water for family. Female members have the opportunity to do other important tasks for the family like educational activities, cooking, washing, cleaning, dairy farming, poultry farming, fish farming, kitchen gardening and community based activities for trickle down impacts on the social structure. Female members are planning to grow summer and winter vegetables like peas, coriander, mint, green chilies, tomato, ridge gourd, bitter gourds etc.


AVAILABILITY OF FRESH & CHEAPER VEGETABLES AT HOUSEHOLD LEVEL

More importantly, the crop water productivity has been the lowest than its potential. There is a serious need to conserve this vital water resource to ensure more productivity per drop of water.

Intervention / Technology:

A team of "Water Conservation in Barani Areas of KP Project" surveyed Barrawal area of Matta (Swat). Team observed that highly fertile land with moderately well drained soil could be much better utilized for commercial fruit & vegetable crops than for the cereals. After consent of farmer's contribution of 20%, the site assessment was made considering water source, soil structure, and suitability for water pond. Ultimately, construction of water ponds completed within 2-3 months and supplied water that enabled subsistence cereal/staple food to farmer's Abdul Hakeem, M. Farman and Ihsan Ullah to grow more profitable commercial crops like vegetables (peas, gourds etc.) and peach, persimmon fruit plants. They were not only able "to grow these commercial crops but got good quality fruits through regular supply of irrigation water".


WATER POND

Yield With and Without Technology:

Prior to this activity, farmers were getting 320 kg per acre in maize while only 360 kg per acre in wheat. After interventions availability of irrigation through water pond and improved production technology farmers are able to get 520 kg per acre of maize and 480 kg per acre of wheat. Similarly, they were obtaining 4050 Kg per acre and now 5400 Kg per acre (33 % increase) from peach orchard due to improvement in quantity and quality with these new interventions.


PERSIMMON PLANT PRIOR TO WATER AVAILIBILITY THROUGH WATER POND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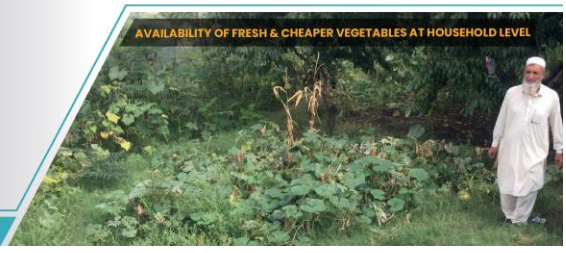

AVAILABILITY OF FRESH & CHEAPER VEGETABLES AT HOUSEHOLD LEVEL

ANNEX - E: WORK SCHEDULE AND PLANNING FOR DELIVERABLES

WORK SCHEDULE AND PLANNING FOR DELIVERABLES

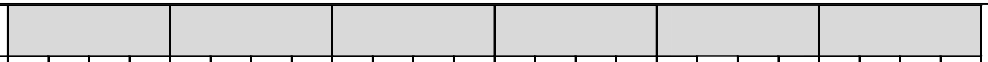
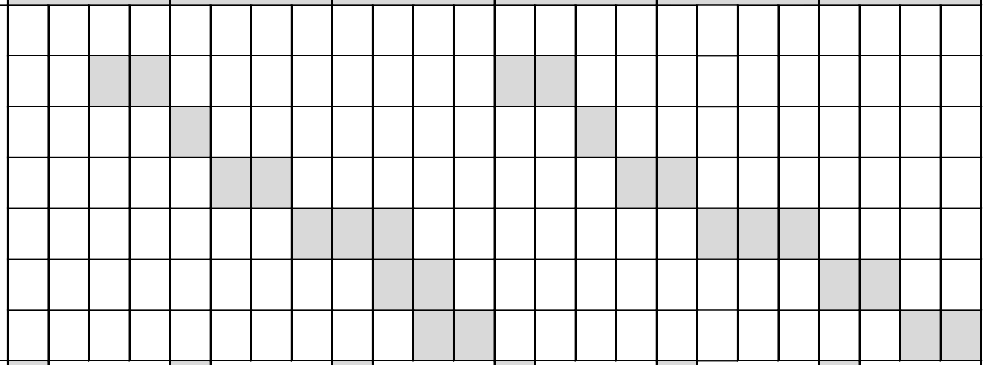
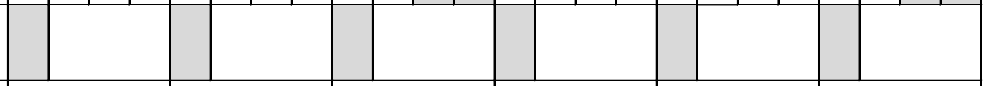
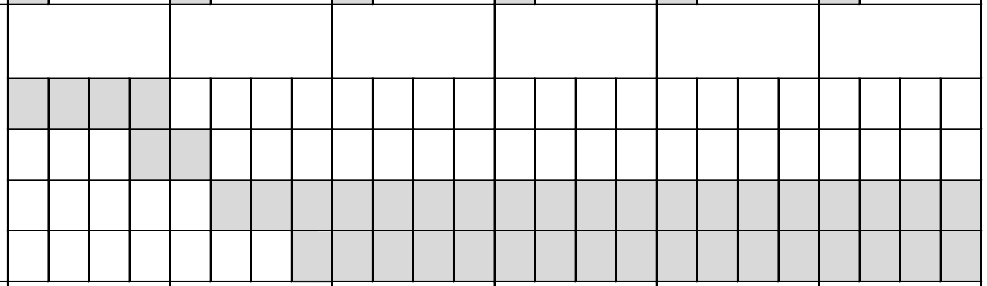
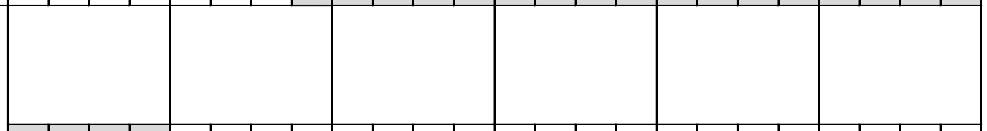
NO.	DELIVERABLE/ ACTIVITY	Years 1												Years 2												Years 3												Years 4											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	DELIVERABLES																																															
1	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 - F: WORK PLAN / ACTIVITIES FOR 3RD & 4TH QUARTER (JULY 2021 TO DECEMBER 2021)

Bi Annually Activity Plan (01 July to 31 December, 2021)-ME&IE Consultants for Soil & Water Conservation in the Barani Areas of KP

S#	Deliverable / Activities	Jul 21				Aug 21				Sep 21				Oct 21				Nov 21				Dec 21			
1	Undertake the baseline/midline surveys of the project activities / interventions in all the project areas.																								
	a. Draft Questionnaire distributed among stake holders for comments																								
	b. Incorporation of comments																								
	c. Questionnaires programming in Android																								
	d. Training of enumerators/field team																								
	e. Field data collection																								
	f. Data cleaning, processing and analysis																								
	g. Draft report preparation																								
	h. Final report																								
2	Develop monitoring strategy, framework and results-based monitoring (RBM) indicators. Monitoring tools for ongoing monitoring of soil and water conservation (S&WC) activities:																								
	a. Draft monitoring tools for each activity distributed among stake holders for comments																								
	b. Incorporation of comments																								
	c. Monitoring tools s programming in Android																								
	d. Training of enumerators/field team																								
	e. Field data collection																								
	f. Data cleaning, processing and analysis																								
	g. Draft report preparation																								
	h. Final report																								

3	Meetings with stake holders & coordination	
4	Economic impact of project interventions. Preparation of success story of one of the S&WC activities*: a. Listing of S&WC activities b. Selection of activity/s c. Data collection/FGD/analysis d. Documentation/script writing e. Draft preparation of booklet and video f. 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 of 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 feedback to the client:	

* 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