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FEDERAL WATER MANAGEMENT CELL
MINISTRY OF NATIONAL
FOOD SECURITY & RESEARCH
ISLAMABAD - PAKISTAN

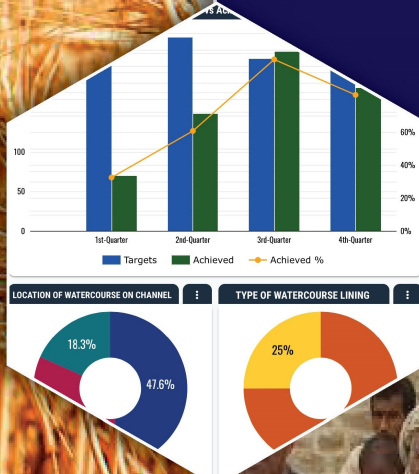
NATIONAL PROGRAM FOR IMPROVEMENT OF WATERCOURSES IN PAKISTAN PHASE-II: (NPIWC-II)

MONITORING, EVALUATION AND IMPACT EVALUATION CONSULTANTS



MONTHLY MONITORING REPORT

SEPTEMBER 2021



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
For
National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II)

MONTHLY MONITORING REPORT
SEPTEMBER 2021

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ACRONYMS

ADA	Assistant Director Agriculture
AES	Agriculture Extension Services
AF	Acre-Feet
AJK	Azad Jammu & Kashmir
AWPB	Annual Work Plan and Budget
AWPs	Annual Work Plans
BCR	Benefit Cost Ratio
CFT	Cubic Feet
CMS	Content Management System
CSRD	Center for Social Research and Development
DAES	Director Agriculture Extension Services
DDA	Deputy Director Agriculture
DGA	Director General Agriculture
DTL	Deputy Team Leader
EAs	Executing Agencies
EIRR	Economic Internal Rate of Return
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
G3EC	G3 Engineering Consultants
GIS	Geographic Information System
HEIS	High Efficiency Irrigation System
IAs	Implementing Agencies
ICR	Interim Completion Report
ICT	Islamabad Capital Territory
IRR	Internal Rate of Return
ICT	Information & Communication Technology
JV	Joint Venture
KP	Khyber Pakhtunkhwa
LLL	Laser Land Leveler
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
MMR	Monthly Monitoring Report
MT	Monitoring Template
MTE	Mid-Term Evaluation

NESPAK	National Engineering Services Pakistan
NPC	National Project Coordinator
NPIWC	National Program for Improvement of Watercourses
NPV	Net Present Value
NWMC	National Water Management Consultants
OFWM	On Farm Water Management
PC-1	Planning Commission-(Form-One)
PDO	Project Development Objectives
PIC	Project Implementation Committee
PIES	Project Impact Evaluation Study
PQC	Pre-Qualification Committee
QM&ER	Quarterly Monitoring and Evaluation Report
RBM	Results-Based Management
RFT	Running Feet
RWD	Responsive Web Design
SFT	Square Feet
SOPs	Standardized Operating Procedures
SPSS	Statistical Package for Social Sciences (Software)
SSCs	Supply and Service Companies
TABs	Tablets
TL	Team Leader
TOR	Terms of Reference
TPV	Third Party Validation
TWRD	Tail-Water Recovery Ditch
WG	Women Group
WST	Water Storage Tank
WUAs	Water Users Associations

EXECUTIVE SUMMARY

The report in hand, “Monthly Monitoring Report for the month of September 2021” is comprising of six chapters.

Chapter-1 describes the project introduction in detail. The Government of Pakistan is implementing a project entitled “National Program for Improvement of Watercourses in Pakistan Phase-II” (NPIWC-II) at a total cost of PKR 154,542.355 million (Umbrella PC-I including Sindh) over a period of 05 years. This project will cover Punjab, KP, Balochistan and Gilgit Baltistan, Azad Jammu & Kashmir as well as Islamabad Capital Territory (ICT). The proposed project Phase-II will be beneficial for the country.

The NPIWC-II comprises of four components to be implemented in Punjab, KP, Balochistan, GB, AJK, and ICT:

- i) C1: Organization of Water Users Associations
- ii) C2: Watercourse Improvements: 47,278 Nos.
- iii) C3: Construction of Water Storage Tanks: 14,932 Nos.
- iv) C4: Provision of Laser Land Leveling Units: 11,610 Nos.

Chapter-2 describes Scope of Work of the ME&IE Consultants for the project. Since the ME&IE Consultants are going to monitor implementation of all criteria set, procedures defined and timeline agreed for implementation of various components, all these are reproduced in this report as ready reference to devise / design M&E strategy, methodology, procedures for monitoring and impact assessments of the project interventions.

The monitoring strategy planned to be followed by ME&IE Consultants is briefly described in Table-2.1. The strategy aims to be finalized and implemented in close coordination with the client and active participation of the beneficiaries as well as the project stakeholders.

Chapter-3 covers the details about the Monthly Monitoring Report. This Ninth (9th) Monthly Monitoring Report (MMR) covers the period from July 01, 2021 to September 30, 2021.

Chapter-4 of this report covers the activities completed during the reporting period are summarized below:

- Data collection from OFWM Department/NWMC for Baseline survey/regular monitoring
- Regular Monitoring of Interventions in The Field
- Data Collection of the Interventions in The Field
- Online Data Entry in Android Based Application.
- Baseline survey field visits
- Data entry, Data cleaning, Data processing & data Analysis
- Meetings of ME&IE Consultants with Stakeholders Regarding Project Progress / Issues
- Monitoring / Data Collection on Social and Gender Component
- Refinement of NPIWC-II web site
- Data collection of interventions in MIS/GIS database
- Refinement of dashboard of Project Interventions
- Data collection of interventions in MIS/GIS database
- Implementation of MIS Dashboard in AJK
- Case Study on the Intervention

Chapter-5 of this report covers the details of ME&IE Consultants’ activities initiated during the Third Quarter (July 1, 2021 to September 30, 2021) are listed below.

- Field Activities
- ICT Assignment
- Coordination
- Deliverables

Time span detail is mentioned in the Tentative Work Plan. **Annex-A.**

Chapter-6: of this MMR describes issues / problems faced by the consultants during the reporting period of the assignment.

Table-ES-1: Compliance Status of Tentative Work Plan (1st July to 30th September 2021)

No.	Activities Planned for the Reporting Quarter		Status	
1	Pre-field Activities:			
	1.1	Functional Field Offices in Punjab, KP & Balochistan Zones	Complied	
2	Field Activities:			
	2.1	Data collection from OFWM Department/NWMC for Baseline survey/regular monitoring	Complied/continued for current year	
	2.2	Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System	Complied	
	2.3	Training of Measurement of water flow-Pygmy current meter	Complied	
	2.4	Determinants of Sample size at District/Tehsil levels with the assistance from ADA/DDA (OFWM)	Complied/continued for current year	
	2.5	Baseline survey field visit	Phase-I Complied	
	2.6	Data entry, Data cleaning, Data processing & data Analysis	Complied for BLS Phase-I	
	2.7	Regular Monitoring	Complied//continued for current quarter	
3	ICT Assignment:			
	3.1	Development of web site of NPIWC-II	Complied/Refinement under process	
	3.2	Development of Android based Mobile Application	Complied	
	3.3	Testing of Monitoring tools on Android based system	Complied	
	3.4	Data collection of interventions in MIS/GIS database	Complied	
	3.5	Designing of Dashboard of Project Interventions	Complied	
	3.6	Implementation of Dashboard	Implementation of GIS Integrated MIS Dashboard is Under Progress	
4	Coordination			
	4.1	Meeting of DTLs with respective DTL of NWMC	Meetings conducted on regular basis	
5	Deliverables:			
	5.1	Monthly Monitoring Report (MMR)	6 th MMR (JUL 2021)	Submitted
7 th MMR (JUL 2021)			Submitted	
8 th MMR (AUG 2021)			Submitted	
9 th MMR (SEPT 2021)			To be submitted on Stipulated time	
	5.2	Quarterly Monitoring & Evaluation Report (QM&ER)	2 nd QM &ER (APR-JUN 2021)	Submitted
3 rd QM&ER (JUL-SEPT 2021)			To be submitted on Stipulated time	
	5.3	Annual Monitoring and Evaluation Report	Submitted	
	5.4	Baseline Survey Report Ph-1 (Draft)	Submitted	
	5.5	Special Reports: Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard	Submitted	

CHAPTER-1: INTRODUCTION

1.1 PROJECT PROFILE

Project Name	National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II)
Project Areas	Punjab, KP, Balochistan, Gilgit Baltistan, Azad Jammu & Kashmir, and Islamabad Capital Territory (ICT)
Sponsoring Agency	Ministry of National Food Security & Research
Executing Agencies (EAs)	1. Federal Project Management Unit (FPMU), 2. DGA OFWM Punjab 3. DG OFWM KP 4. DGA OFWM Balochistan 5. Director Irrigation and Small Dams, AJK 6. Director WM, GB 7. Director Agriculture Extension Services (AES) ICT
Project Period	5 Year (2019-2024)
Total Project Cost	154,542.355 million (Umbrella PC-1, including Sindh)
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 (CSR) and ADA Consultants Inc. Canada
ME&IE Consultant Mobilized	November 20, 2020

1.2 PROJECT DESCRIPTION

1.2.1 Project Development Objectives

The Project Development Objectives (PDOs) are to improve irrigation water management at tertiary and field levels in Pakistan.

1.2.2 Project Objectives – General & Quantitative

1) General Objectives:

The Project aims to replicate the success achieved

during the NPIWC Phase-I and further improve the findings of the Project Impact Evaluation Study (PIES). The broad objectives of the project are as under:

- Social mobilization through capacity building of WUAs/ FOs,
- Minimization of conveyance and field application losses,
- Reduction in Water Logging and salinity,
- Equity in water distribution,
- Reduction in water disputes/thefts/litigation,
- Motivation/participation of farmers,
- Poverty reduction through employment generation,
- Increase in crops yield/sufficiency in food.

2) Quantitative Objectives:

The quantitative objectives of the Project are as under:

Project outputs

- Mobilization through capacity building of Water Users Associations/Farmers Organizations in improved water management techniques and their registration under On-Farm Water Management and Water User Associations Ordinance [Act] 1981 and organization of 47,278 WUAs.
- Reconstruction/renovation and remodeling of 47,278 watercourses, involving complete earthen renovation, partial lining of critical reaches (50% of the total watercourse length as decided in the high-level meeting), and installation of water control structures. It is expected to save around 5.82 MAF per annum (approx. saving of 123 acre-feet (AF) per watercourse per annum).
- Construction of 14,932 water storage tanks with 60% subsidy.
- Provision of 11,610 Laser Land Levelers at 50% cost sharing, with the expectation to save about 50% irrigation water for wheat and about 68% of irrigation water for paddy.

Project impacts

- Reduction in Water Logging and salinity in project areas to the extent of 10%.
- Cropping intensity is expected to increase by 5-20%.
- Crop's yield is estimated to increase by 10-15%.
- Equity in water distribution increased by about 30%.
- Reduction in water disputes/thefts and litigation amongst the Farmers over water distribution by about 80%.
- Help poverty reduction through generation of employment.

- xi) Self-sufficiency in food through utilization of water saved for edible oil seed production.

Project indirect benefits to industry/economic activities

- xii) Cement industry, bricks Killen, Precast Structures Industry and other related industries' production will pick up.

Awareness support to farmers

- xiii) Motivating farmers through an awareness campaign for watercourse improvement.
xiv) Providing technical material to farmers for optimal utilization of water resources in the shape of technical manual and operational guidelines.

1.2.3 Project Beneficiaries

Majority of the direct project beneficiaries constitute the number of farmers (owners as well as tenants) growing crops and orchards on the watercourses improved under NPIWC-II. Assuming 35 farmers on each watercourse, the total number of the farmers benefiting from the activity comes to 1.655 million. The same number will benefit due to Water Users' Associations (WUAs) in terms of cooperative management of irrigation water. Moreover, 14,932 will directly benefit from Water Storage Tanks and 11,620 as recipients of Laser Land Leveling Units. Thus, total gross direct beneficiaries are expected to be around 3.336 million households. However, net beneficiaries are expected to be 1.668 million.

Taking family size at five, total net population benefitting is expected to be 8.34 million people.

1.2.4 Project Components

The NPIWC-II comprises four components.

C1: ORGANIZATION OF WATER USERS ASSOCIATIONS:

Establishment/ reactivation of Water Users Associations (WUAs) through community driven implementation approach.

- Provide right of way for constructing watercourse,
- Arrange skilled and unskilled labour required for reconstruction / maintenance of earthen water channel, installation of water control structures, and lining of critical reaches,
- Procure construction materials for carrying out civil works,

- Settle matters of disputes amongst the water users in respect of channel alignment, fixation of Naccas, distribution of work, etc.
- Make alternate arrangements for conveyance of water during execution of improvement works,
- Carry out civil works in accordance with standards and specifications under the supervision of OFWM field staff,
- Regularly undertake O&M of improved watercourses after its construction.

C2: WATERCOURSE IMPROVEMENTS:

47,278 Watercourses are planned to be improved /reconstructed and lined.

- New watercourses that are not yet improved under earlier programs / projects,
- Reconstruction of more than 20 years old watercourses that outlived their economic / useful life,
- Additional lining up to 50% of already improved watercourses.

C3: CONSTRUCTION OF WATER STORAGE TANKS:

Construction of 14,932 Water Storage Tanks (WSTs)

- Store water during the rainy season and times of no use in the commands of perennial / non-perennial canals for subsequent irrigations at the critical crop growth stages,
- Provide flexibility for storage of plentiful canal and rainfall runoff water for its more expedient use subsequently,
- Collect, store and filter water from:
 - Small Dams, Springs, Streams, Nallas etc.
 - Rainfall runoff over agricultural catchment during rainy season
 - Tube-wells and dug wells of low flows
 - Tail-waters from agricultural fields
- Regulate the flows so that it can be used efficiently when needed at large flow rates.

C4: PROVISION OF LASER LAND LEVELING UNITS:

Provision of 11,610 Laser Land Leveling units to the farmers. The component will strengthen LASER land leveling services in the country through provision of Laser Land Leveling Units to farmers/service providers on 50% subsidized rates.

1.2.5 Project Targets

Project aims at achieving the targets (Figure-1.1) for 5 years starting from year 2019-20 to 2023-24. The targets for each province/Zone (excluding Sindh) are given below Figure-1.2.

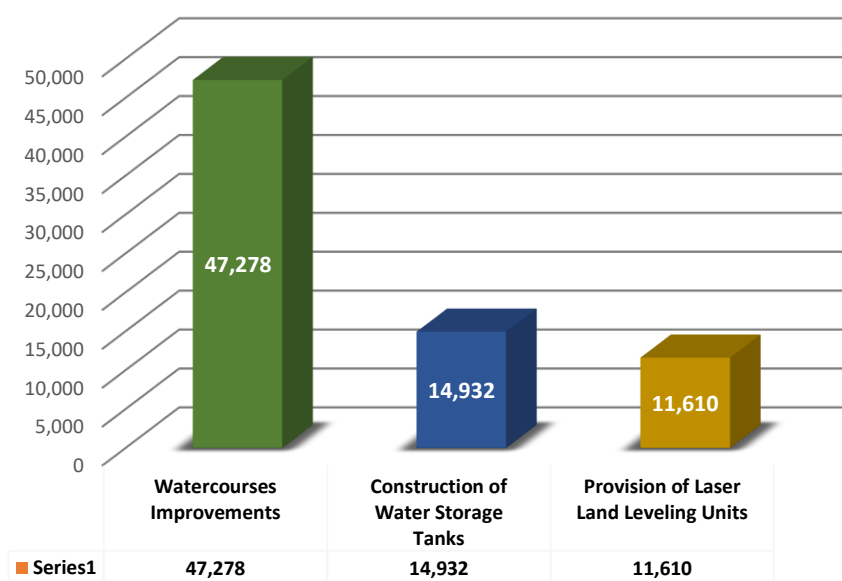


Figure 1.1: Pakistan Targets

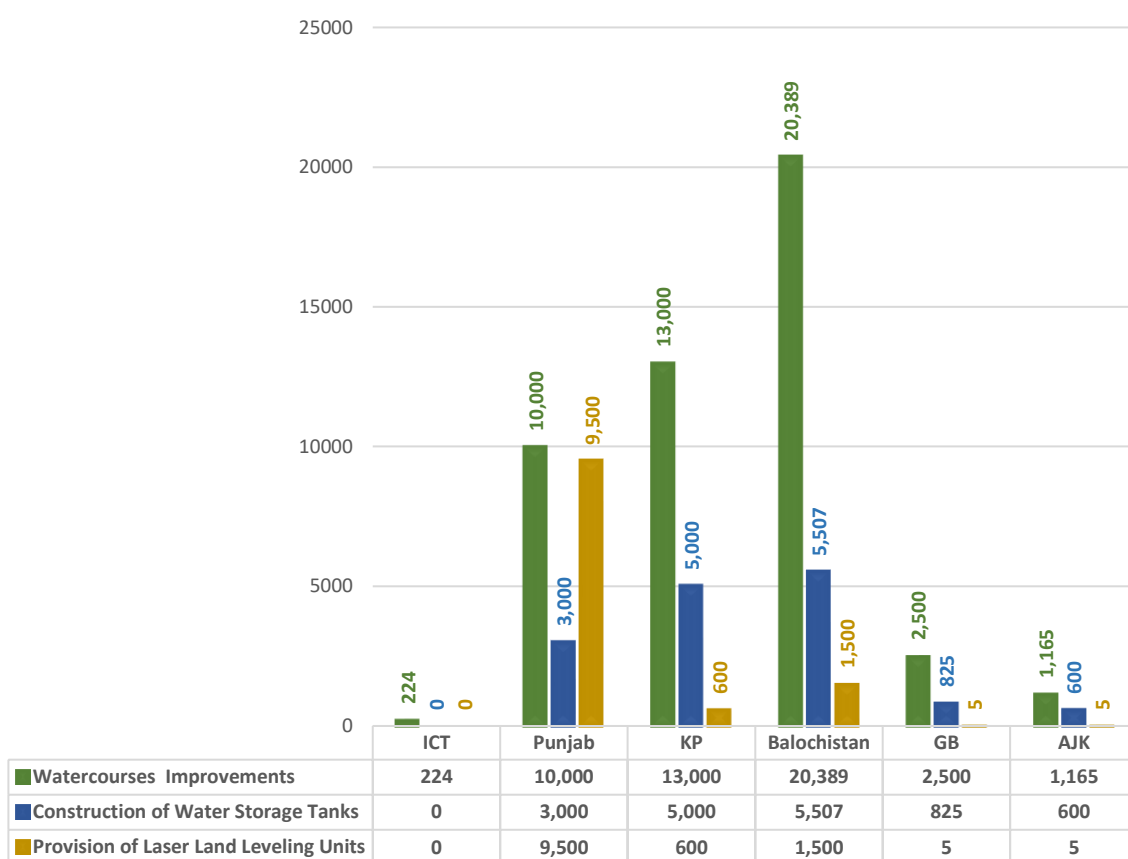


Figure 1.2: Zonal Target

CHAPTER 2: SCOPE AND SERVICES OF ME&IE CONSULTANTS

The ME&IE Consultants services are planned to be provided through a multi-disciplinary team of qualified professionals. All firms in the joint venture have rich experience in the field of monitoring and evaluations. The team deputed for this task in the project comprises highly qualified professionals having long practical experience of such projects earlier launched in Pakistan. The consultant will develop a State-of-the-Art Management Information System (MIS) with GIS focuses for NPIWC-II to monitor progress on project interventions and to carry out an effective monitoring process. The MIS will help decision makers to make informed the decisions.

2.1 OBJECTIVES

The objective of ME&IE Consultant's services is to carry out monitoring and evaluation of project impacts to ensure achievement of project development objectives.

2.2 SCOPE OF THE SERVICES

The ME&IE Consultants will be responsible for monitoring, evaluation and impact evaluation, and in this context will carry out the following activities:

- i) Undertake baseline, midline and endline surveys for 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, evaluation and validation reports of the project activities,
- iv) Assessing the water saving per annum on watercourses, water storage tanks and field levels as well as aggregate due to the project interventions,
- v) Assessing the improvement in water availability due to the provision of conveyance system,
- vi) Assessing the economic benefits to the agriculture in terms of changes in yields, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks,
- vii) Assessing the extent of community mobilization, financial and administrative sustainability of water users' associations and

ensuring the maintenance of watercourses, water storage tanks and laser land Levelers,

- viii) Economic impact of project interventions,
- ix) Carry out the impact evaluation of the project intervention on the economy and stakeholders,
- x) Develop a website containing information on facilities and services, applications, procedures, watercourses, water storage tanks and laser Levelers database, etc. (while the project staff will maintain the website),
- xi) Provide technical support for the development of a custom-designed mobile application (Android Based) to capture on-site project progress and geo-tagged photos. It should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management. The said requirement is based on the following functional features:

- Development of a GIS database with all spatial layers related to activities being undertaken under the project
- Give technical assistance for up-dation/up-gradation of water management GIS database.
- Development of web-based GIS application as a dashboard interface for comprehensive representation of all spatial and tabular information: custom designed web GIS application be developed for large LED screens, should be self-operative and represent project data on multiple layouts of application interface.
- Development of a MIS application as an integral part of web GIS to maintain information on facilities and services, applications, procedures, watercourses database, etc.
- Development of a custom designed mobile application (Android) to capture on-site project progress, geo-tagged photos; should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management.
- Application should generate custom designed reports and analysis as per user-defined requirements.
- Application should generate alerts (SMS, email, web-notifications) to the user on the non-conformance of project's key indicators; the application should have the provision to custom define alerts levels and desired notifications.

2.3 MONITORING STRATEGY

The monitoring strategy planned to be followed by ME&IE Consultants is briefly described in the following Table-2.1. However, detailed methodology and procedures to carry out the Monitoring,

Evaluations and Impact Evaluations of the project interventions were explained in Chapter 6 of Inception Report. The strategy aims to be finalized and implemented in close coordination with the client and active participation of the beneficiaries as well as the project stakeholders.

Table 2.1: Monitoring Strategy for ME&IE Activities

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
1	Baseline, midline and endline surveys	Team Leader, Socio-Economic Expert, Agricultural Economist and Deputy Team Leader of the respective province/unit.	<ul style="list-style-type: none"> Baseline and impact surveys will be carried out on sample basis. Data will be collected by field teams on pre-designed data collection tools through an android application on TABs. Baseline and impact surveys will be carried out in phases as target watercourses are not preselected. Baseline will be carried out before the intervention and the impact one year (two crop seasons) after the completion of the intervention. The midterm study will review the project progress at middle of the project implementation The endline study will assess the impact of the project interventions.
2	Reporting	All core team members	<p>Following periodic reports will be prepared and submitted:</p> <ul style="list-style-type: none"> Draft Inception Report 45 days after the agreement, Final Inception Report one week after the issuance of comments by the client on the draft, Monthly Monitoring Report on 10th of following month, Quarterly Monitoring Report on 10th of the first month of the following quarter, Annual Monitoring and Evaluation Report during first month of the following year, Baseline Survey Reports (in three phases), First Phase Baseline Survey report will be submitted within the four months after the start of the assignment i.e., Submission of final inception report/Beginning of field activities. Impact Survey Reports (in phases) – two months after the data collection completion for the impact phase, Midline report in the middle of the assignment, Endline Report at the end of endline Survey, Draft Assignment completion Report at completion of the physical works, Final Assignment Completion Report at completion of works and financial transactions. It will also include the full economic benefit of the project (NPIWC-II) on agriculture sector as well as on the GDP of Pakistan, Special Reports, as and when asked by the client.
3	Water saving assessment	Irrigation Agronomist, Field Team/ Engineers	<p>Water Saving on Watercourses:</p> <ul style="list-style-type: none"> Water flow will be measured on sample watercourses selected for the baseline and impact surveys The flow will be measured at four points of the selected watercourses: close to water outlet, head reach, middle reach and tail reach. The measurements will be done through current meters.

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
			<ul style="list-style-type: none"> Based on water savings on sample watercourses, total water savings will be estimated for all project watercourses. The savings will be reported per watercourse, per annum and aggregate for the project in LPS and Acre feet.
			<p>Water Savings on WSTs</p> <ul style="list-style-type: none"> Since WSTs will be filled and emptied on a continuous basis, the water savings will be assessed on the basis of water pumped from the tank to irrigate the fields. The assessment will be done either by readings on the pump gauge or periodically interviewing the farmer. Based on water savings on sample WSTs, total water savings will be estimated for all project WSTs. The savings will be reported per WST, per annum and aggregate for the project in LPS and in Acre feet. <p>Water savings due to Laser Land Leveling</p> <ul style="list-style-type: none"> Water savings at field level will be assessed through farmers' interviews. The impact survey form will include questions to be asked from the farmers who got their land leveled: <ul style="list-style-type: none"> ➤ In how much time an acre was irrigated before watercourse improvement and land leveling ➤ In how much time an acre is irrigated after watercourse improvement with land leveling <p>The difference will be water saving due to laser land leveling</p>
			Based on water savings on sample LLL units, total water savings will be estimated for all project LLL units. The savings will be reported per LLL unit, per annum and aggregate for the project in LPS and in Acre feet.
4	Community mobilization	Social and Gender Specialist and Socio-Economic Expert	<p>The extent of community mobilization will be assessed by investigating whether:</p> <ul style="list-style-type: none"> WUAs is functional Holds regular meetings and keep record of them Makes decisions democratically The participation in the organization is voluntary It is financially and administratively sustainable Takes steps and ensures maintenance of watercourses, WSTs and laser land leveler
5	Economic benefits assessment for agriculture	Team Leader, Socio- Economist and Agricultural Economist	<ul style="list-style-type: none"> As indicated at serial No. 1, Agriculture data will be collected before (baseline) and after (impact) the watercourse improvement and WSTs construction. In both the surveys same forms will be used and same sampled farmers will be interviewed Data on variables such as crop yields, irrigated area, cropping pattern, cropping intensity, farm income and employment will be collected and analyzed The difference between before and after situations minus natural growth will be assumed as economic benefits to the agriculture
6	Impact evaluation-on the economy	Team Leader, Agricultural Economist and Socio-Economic	<ul style="list-style-type: none"> The results of the baseline and impact surveys will be used to quantify impact on the economy Additional food produced due to the project will be estimated. It is benefit towards food security

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
		Expert	<ul style="list-style-type: none"> Project costs and benefits will be compared in economic and financial terms to carry out economic and financial analysis. Parameters like IRR, NPV and BCR will be estimated.
7	Impact evaluation-on the stakeholders	Team Leader, Agricultural Economist and Socio-Economic Expert	<ul style="list-style-type: none"> Analysis as in serial 6 will be carried out with reference to various stakeholders, like community, government, farmers, etc.
8	Spot checking	Team Leader, Deputy Team Leaders & Field teams/Engineers.	During the field visits for WUAs baselines impacts of Watercourses, WSTs and laser units, the interventions will be spot checked for quality of construction, material, functioning and beneficiaries' satisfaction etc.
9	Process monitoring	Field Teams of Agriculture Deptt., Project Consultants, ME&IE Consultants & ICT/Technology Specialist	<ul style="list-style-type: none"> The process data for all the interventions will be fed to the MIS/GIS database. Client's field staff and field teams of consultants will furnish data of their activities. The ME&IE will assist in developing mobile application for this purpose From this data reports will be generated for process monitoring All interventions will be fully (100%) covered.
10	Project website and MIS/GIS dashboard development	ICT / Technology Specialist (Including all other core team staff will also coordinate in completing data for the MIS/GIS	<ul style="list-style-type: none"> The State-of-the-art MIS / Progress Monitoring Model will be developed for NPIWC-II. Customized forms will be developed to collect data from the implementing teams on-site for progress monitoring These forms will be made available to the teams on smart phones through an android application The teams will be adequately trained to use the application Data on physical and financial stages with dates will be fed to the system for process monitoring GIS coordinates for watercourses, WSTs, laser units (if available) and WUAs offices will be uploaded to the system and could be viewed / reached by the management online The system will be maintained on GOOGLE server so that it is accessible by the management from anywhere in Pakistan and abroad Custom reports will be possible as the user demands / desires The results could be displayed on small as well as large screens.
11	Development of Android based application	ICT / Technology Specialist	All the data collection forms / tools will be executed through customized developed Android based applications accessible with smart phones / TABs.

2.4 FRAMEWORK AND RESULTS-BASED MONITORING (RBM) INDICATORS

The framework and Results-Based Monitoring (RBM) Indicators are identified in Table-2.2 of Inception Report. The indicators will be further enhanced and refined in consultation with the client as well as stakeholders.

They will also get improved as the project implementation progresses as in the light of real and on the ground situations.

CHAPTER 3: MONTHLY MONITORING REPORT

3.1 INTRODUCTION

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

3.2 OBJECTIVE OF MONTHLY MONITORING REPORT

The Main objective of the Monthly Monitoring Report is to update the Client about the activities carried out by the ME&IE Consultants during the reporting period. Reporting is an integral part of monitoring and evaluation framework.

3.3 REPORTING PERIOD

This Ninth Monthly Monitoring Report (MMR) covers the period from September 01, 2021 to September 30, 2021.

The Ninth Monthly Monitoring Report (MMR) has been prepared under the guidance and supervision of Mr. Saif Ullah Ejaz Chaudhry; Director G3 Engineering Consultants authorized representative of ME&IE Consultants. The core team of NPIWC-II participated in the preparation of this Report in hand.

The Report In-hand provides the progress made in various activities relating to the accomplishment of Monitoring activities of project interventions e.g., field monitoring activities, ICT assignments etc. This report also describes all activities to be carried out as per quarterly work plan.

CHAPTER 4: ACTIVITIES DURING THE REPORTING PERIOD

4.1 REGULAR MONITORING OF INTERVENTIONS IN THE FIELD

Monitoring / Survey of interventions in field by the field survey teams remained in progress during the reporting period. Teams continued monitoring and data collection as per TORs of the assignment and gathering all the required data / information through Monitoring Tools. The data collected from field is uploaded to the android-based software and compiled in the MIS system developed for the project by the ICT Specialist.

The regular monitoring assignments are comprised of input-output and process as defined in the Annual Work Plan / Budget and tracking of the outcomes indicators. Regular routine monitoring will look at the extent to which the proposed project activities are being implemented as planned.

4.1.1 Regular Monitoring of Interventions in the Field - ICT Zone

In the ICT region, only watercourses are being installed under NPIWC-II and currently 20 watercourses have been constructed. In AJK, watercourses as well as water storage tanks are being constructed under NPIWC-II. ICT Zone Field Team visited project sites of AJK to monitor and interventions in the field. The visit was conducted in company with NPC and his team.

NPC scheduled his 3 days' visit to AJK project areas from 6 September 2021 to 8 September 2021. NPC asked ME&IE Consultants ICT Zone to join NPC and his team for this visit. ME&IE Consultant ICT Zone accompanied NPC for this visit as per schedule given below.

S#	Watercourse Name	Date of Visit
1	Mera Dupatta	6 th September
2	Nowshera WC	
3	Nalla Palla Karshen Patika	7 th September
4	Nalla Jura –Charhi	
5	Lawat Khuwaja seri – Tarha	8 th September
6	Nalla Kanoor – Khuwaja Seri Lawat	

Following were the participants of visit from NPC office.

- Mr. Tahir Anwar NPC
- Dr. Tehmina Iqbal Dy. Director Coordination and
- Mr. Saiful-Islam Deputy NPC

Following ME&IE consultants including field team participated in the visit to facilitate NPC.

- Prof. Dr. Muhammad Abdul Quddus – Team Leader,
- Mr. Rizwan Saleem – ICT Specialist,
- Mr. Muhammad Bilal – Field Team Incharge
- Mr. Ebadat Rahman – Data Supervisor

Project consultants NESPAK staff also joined this visit. Following staff of NESPAK joined this visit.

- Mr. Muhammad Bilal FTI ME&IE Consultants
- Mr. Ebadat-ur-Rehman Data Supervisor ME&IE Consultants
- Mr. Iftikhar Arain DTL NESPAK
- Mr. Murtaza Chattha FTI NESPAK
- Mr. Nasir Abbas Field Engineer NESPAK

4.1.2 Regular Monitoring of Interventions in the Field Punjab Zone

The regular monitoring of the various interventions of the project is one of the important segments of the consultant's responsibilities. The task of monitoring of activities of improvement of watercourses and construction of water storage remained continued during the reporting period, although on Limited scale.

Consultants also reviewed overall strategy of field activities in the light of:

- Experience gained during Baseline Survey Phase-I.
- Review of Monitoring tools by TL, DTL and other members of core team.
- Field Visits of DTL to Directorate of Agriculture OFWM

As a result of this review, strategy for the baseline survey phase-II is being improved.

4.1.3 Regular Monitoring of Interventions in the Field KP Zone

Monitoring activities KP Zone remained at low pace however ME&IE team remained engaged in different activities in compliance with the National office Islamabad. ME&IE Team KP zone conducted internal meetings and trainings during reporting month to improve the monitoring and data collection strategy for Baseline Survey Phase-II.

4.1.4 Regular Monitoring of Interventions in the Field Balochistan Zone

The ME&IE Consultants, Balochistan conducted several activities during the reporting month i.e. September 2021. The activities carried out by the Balochistan team are listed below:

- Updated Field Progress of Regular Monitoring / Spot Check accomplished by ME&IEC, Balochistan
- Training/Workshop on Baseline Survey (Phase-II) and overall Project.
- Meetings with OFWM officials and other stakeholders at Provincial Level.
- Meetings with Deputy Directors / other Staff of OFWM at district level.

4.1.4.1 Regular Monitoring / Spot Check, F.Y. 2020-21

The ME&IEC Balochistan started the field activities of Regular Monitoring / Spot Checking in the month of June 2021. In first phase, Field Teams monitored the schemes of F.Y. 2020-21. The ME&IEC visited 09 districts of Balochistan to monitor the sites of F.Y. 2020-21. The total targets of Watercourses were 141. As per sample size (5%), ME&IEC had to monitor 7 sites, however, sample size was increased and monitored 11 sites instead of 7 to cover maximum watercourses and to get more authentic monitoring findings. The target of Water Storage Tanks was 603 and as per sampling size (5%) ME&IEC had to monitor to 30 sites, while ME&IEC has monitored total 21 sites yet, the rest of sites will be monitored in upcoming months.

The updated detail of monitored Watercourses and Water Storage Tanks under F.Y. 2020-21 is as under:

Sr. #	Districts	WC	WST	Total
1	Killa Abdullah	1	1	2
2	Loralai	1	2	3
3	Killa Saifullah	2	1	3
4	Pishin	0	4	4
5	Quetta	0	4	4
6	Naseerabad	2	4	6
7	Sohbatpur	3	0	3
8	Mastung	1	2	3
9	Kalat	1	3	4
Total Monitored Sites		11	21	32
Total Targets		141	603	744
Sampling (5%)		7	30	37
Difference		4	-9	-5

4.2 Regular Monitoring / Spot Check, F.Y. 2019-20

In second phase Balochistan team monitored the sites of F.Y. 2019-20. The total target of Watercourses and Water Storage Tanks were 1891 and 411 respectively. As per sample size (5%), ME&IEC had to monitor to 95 Watercourses and 21 Water Storage Tanks. The ME&IEC monitored 32 Watercourses 18 Water Storage Tanks till to date. The remaining 63 Watercourses and 03 Water Storage Tanks will be monitored in upcoming months.

The detail of monitored sites of F.Y. 2019-20 is mentioned below:

Sr. #	Districts	WC	WST	Total
1	Jaffarabad	3	0	3
2	Naseerabad	3	0	3
3	Zhob	2	1	3
4	Sherani	2	2	4
5	Musa Khail	1	1	2
6	Duki	2	1	3
7	Noshki	2	1	3
8	Ziarat	3	0	3
9	Mastung	2	1	3
10	Kalat	2	1	3
11	Khuzdar	2	1	3
12	Pishin	2	1	3
13	Killa Abdullah	2	1	3
14	Quetta	3	1	4
15	Kachi	1	2	3
16	Sibi	0	4	4
Total Monitored Sites		32	18	50
Total Targets		1891	411	2302
Sampling (5%)		95	21	115
Difference		-63	-3	-65

The Balochistan is the largest province covering 44% of total area of Pakistan.

The province of Balochistan, the least populated province of Pakistan and the largest province by area, is divided into 35 districts and 07 divisions. The ME&IEC-Balochistan visited 18 districts out of 35 districts (51%) till to date to monitor the Regular Monitoring / Spot Check.

The list of visited districts is as under:

Sr. #	Name of Districts Visited
1	Duki
2	Jaffarabad
3	Kachi
4	Kalat
5	Khuzdar
6	Killa Abdullah
7	Killa Saifullah
8	Loralai
9	Mastung
10	Musa Khail
11	Naseerabad
12	Noshki
13	Pishin
14	Quetta
15	Sherani
16	Sohbatpur
17	Zhob
18	Ziarat

4.3 DATA COLLECTION OF THE INTERVENTIONS IN THE FIELD

As per plan ME&IE Zonal Teams started regular monitoring of activities on project interventions. All the zonal offices conducted trainings of Field Teams for monitoring and data collection in the field. Teams were already designed and deputed as per baseline survey. Detail of monitoring activities of all the zonal offices is given below.

4.2.1 Regular Monitoring of Interventions in the Field - ICT Zone

Details of field visits / monitoring activities carried out by ICT Zonal Team are given below.

4.2.1.1 ICT Zone ME&IE Team Visit to AJK Project areas with NPC & his Team

NPC scheduled his 3 days visit to AJK project areas from 6 September 2021 to 8 September 2021. NPC

asked ME&IE Consultants ICT Zone to join NPC and his team for this visit. ME&IE Consultant ICT Zone accompanied NPC for this visit as per schedule given below.

S#	Watercourse Name	Date of Visit
1	Mera Dupatta	6 th September
2	Nowshera WC	
3	Nalla Palla Karshen Patika	7 th September
4	Nalla Jura –Charhi	
5	Lawat Khuwaja seri – Tarha	8 th September
6	Nalla Kanoor – Khuwaja Seri Lawat	

Detail of Field Visit with NPC

Following were the participants of visit from NPC office

- Mr. Tahir Anwar NPC
- Dr. Tehmina Iqbal Dy. Director Coordination and
- Mr. Saiful-Islam Deputy NPC

ME&IE Consultants ICT Zone team accompanied NPC and his team for this 3 days field visit to AJK project areas. Following ME&IE consultants including field team participated in the visit to facilitate NPC.

- Prof. Dr. Muhammad Abdul Quddus – Team Leader,
- Mr. Rizwan Saleem – ICT Specialist,
- Mr. Muhammad Bilal – Field Team Incharge and
- Mr. Ebadat Rahman – Data Supervisor participated in the facilitation visit of NPC.

Project consultants NESPAK staff at AJK also joined this visit. Following staff of NESPAK joined NPC and ME&IE Consultants for this visit.

- Mr. Iftikhar Arain DTL NESPAK
- Mr. Murtaza Chattan FTI NESPAK
- Mr. Nasir Abbas Field Engineer NESPAK

Detail of visits is as under.

1) Field Visit Date: 6th September 2021

Sr. No	Village	WC Name	Chairman WUA
1.	Garhi Dupatta	Mera Dupatta	Raja Nazeer Khan
2.	Nowshera	Nowshera WC	Saud Illyas

Visit of Nowshera Watercourse

The team along with NPC visited Nowshera watercourse in Village Garhi Dopatta and met the farmers of this watercourse. Representatives of farmers including Raja Abbas Khan, Raja Mukhtiar and others received the delegation and welcomed. During introduction, farmers requested that they wish to get additional support from the line department in rehabilitation of the katcha work, which was deteriorated during the 2005 earthquake. They told that middle katcha portion of the watercourse was sunken into depression, thus irrigation water does not reach to end users. They further told that currently they are able to irrigate only 20% area with this watercourse. However, they can make it 100% if Line Department helps in rehabilitation of sunken watercourse.

According to official documents, total length of Nowshera watercourse is 2.7 km and the lining length was 3280 feet with 59 beneficiaries holding 1268 Kanal area. It was told by officials that almost 37% lining was completed while 13% lining was under process.

On query, farmers told to NPC that they keep watercourse clean, however due to rice irrigation, they are not doing it for the last 2 – 3 months. They further told that they have carried out cleaning activity on lined section and some of the earthen portion of watercourse for improved delivery of water.

NPC advised the ME&IE consultants to visit the lined area and check the status. ME&IE consultants visited the lined area and found that there was no grass and shrubs on the lined section. However, there were some maintenance issues. Farmers told that due to land sliding, stones drop on the lining structure and damages the lined portion especially free board. Earthen area adjacent to lined area was cleaned at bottom but still there was grass on inspection path of the earthen watercourse.

NPC advised the monitoring consultants to collect the information regarding the financial inputs from farmers (collection of amount is in bank or with President of WUA) for cleaning of watercourses. He asked that this information may be collected in each visit, so it could be accessed that how much a WUA is active in operation and maintenance activities of the watercourse.



Loose rocky material sliding in Nowshera Watercourse



Nowshera W/C Inspection path covered with Shrubs

After the inspection of Nowshera watercourse team moved to Mera Dupatta the next watercourse under schedule

On watercourse Mera Dupatta, Raja Nazeer Khan Chairman water user association received the delegation and showed his watercourse. He told that he is very much satisfied with lining of this watercourse and he is getting good yield after the lining as sufficient water becomes available due to lining of watercourse.

NPC personally visited this watercourse and the area being irrigated through this watercourse. He was satisfied with the motivation level of Raja Nazeer Khan who had actively maintained his watercourse.

It was told by the department that the total length of this water course is 10000 feet, where 2000 feet was lined previously and 2300 feet was lined during NPIW-II program. A total of area of 423 Kanal was irrigated by this watercourse. Cropping pattern of this watercourse was also same i.e. Rice, Wheat and Maize.



Meeting with Farmers at Mera Dupatta



View of Mera Dupatta Watercourse

2) Field Visit Date: 7th September 2021

Sr. No	Village	WC Name	Chairman Name
1.	Patika	Nalla Palla Karshan	M. Naseer
2.	Charhi	Nalla Jurah	Shehzad Ahmad

During second day visit on 7 September 2021 NPC along with consultants and line department visited watercourse Nalla Palla Karshan at Patika village of Muzaffarabad district. Secretary WUA Mr. Azhar Iqbal welcomed the visiting team due to the absence of Chairman WUA. He took the team to the watercourse for visit. He told that all the crops being seen in the area was due to availability of sufficient water after lining of watercourse. He told that this watercourse was damaged 14 years back during

earth quake and due to non-supply of adequate water farmers were not able to grow vegetable and other crops due to insufficient available water irrigation. He told that previously they used to grow rice, wheat and maize in the area, however, now they are growing other crops and vegetables also. He further added other farmers are also satisfied with this intervention and now they can get full potential crops due to improved availability of water as during last 14 years they were not able to grow rice with full potential, rather they only used to grow it for seedlings.

It was told by the line department that the total culturable command area of this watercourse is 300 Kanal with 38 beneficiaries and total length of the watercourse is 1.8 km while lining length is 2200 feet only.

Team was moved for visit to another watercourse Karshan Rahman Abad from uphill area. Farmers told that all the vegetation being seen at downhill are due to the improvement of Karshan Rahman Abad watercourse. As this watercourse was not in the in the visit schedule so line department did not bring its data with them at site. Upon return from Neelum Valley, this data was demanded by the relevant AD, who told that he will share it in WhatsApp which is still awaited.



View of Nalla Palla watercourse



NPC in Discussion with Farmers about Crops

Visit to Nalla Jura Charhi

This watercourse is situated in village Charhi and its total length is 3600 feet while length of lined portion is 1600 feet only. The total command area of this watercourse is 201 kanals with 17 farming beneficiaries.

Upon reaching to this watercourse, President WUA Shahzad Ahmad requested NPC to inaugurate the water channel. NPC along with DG Irrigation and other officials inaugurated the watercourse with a "Dua-e-Khair". After that NPC visited the watercourse and advised the President to fill the sides of the watercourse with suitable filling material so the free board of the watercourse may not damage due to runoff rain water. It was noticed that the Maize and Wheat are the major crops of the area. DG Irrigation suggested farmers to go for variation in cropping pattern with the help of Agricultural Department.



NPC Inaugurating Nalla Jura Watercourse

4.2.2 Regular Monitoring of Interventions in the Field –Punjab Zone

Monitoring activities in Punjab Zone were generally related to watercourses and water storage tank interventions. During reporting period

During the month of September 2021 field activities included regular monitoring of watercourses, water storage tank remained slow comparatively. However, learning from the filed experience ME&IE Consultants worked on improving the strategy of field working and reviewing the monitoring tools for upcoming field activities. DTL visited Directorate of Agriculture OFWM Punjab Lahore and as a result of this working ME&IE consultants improved strategy for the baseline survey phase-II.

4.2.3 Regular Monitoring of Interventions in the Field –KP Zone

Monitoring and data collection in the field remained slow. ME&IE consultants conducted meetings and workshops to discuss the experience and results during Baseline survey Phase-I. In the light of these workshops and meeting consultants will improve the strategy for monitoring and data collection during the Baseline Survey Phase-II.

4.2.4 Regular Monitoring /Field Visits Details - Balochistan Zone

The ME&IE Consultants, Balochistan conducted several activities during the month of September 2021. The activities done by the Balochistan team are listed below:

- Updated Field Progress of Regular Monitoring / Spot Check accomplished by ME&IEC, Balochistan
- Case Study.
- Training/Workshop on Baseline Survey (Phase-II) and overall Project.
- Meetings with OFWM officials and other stakeholders at Provincial Level.
- Meetings with Deputy Directors / other Staff of OFWM at district level.

Regular Monitoring / Spot Check, F.Y. 2020-21

The updated detail of monitored Watercourses and Water Storage Tanks under F.Y. 2020-21 is as under:

Sr. #	Districts	WC	WST	Total
1	Killa Abdullah	1	1	2
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4	Pishin	0	4	4
5	Quetta	0	4	4
6	Naseerabad	2	4	6
7	Sohbatpur	3	0	3
8	Mastung	1	2	3
9	Kalat	1	3	4
Total Monitored Sites		11	21	32
Total Targets		141	603	744
Sampling (5%)		7	30	37
Difference		4	-9	-5

Regular Monitoring / Spot Check, F.Y. 2019-20

In second phase we monitored the sites of F.Y. 2019-20. The total target of Watercourses and Water Storage Tanks were 1891 and 411 respectively. As per sample size (5%), ME&IEC had to monitor to 95 Watercourses and 21 Water Storage Tanks. The ME&IEC monitored 32 Watercourses 18 Water Storage Tanks till to date. The remaining 63 Watercourses and 03 Water Storage Tanks will be monitored in upcoming months.

The detail of monitored sites of F.Y. 2019-20 is mentioned below:

Sr. #	Districts	WC	WST	Total
1	Jaffarabad	3	0	3
2	Naseerabad	3	0	3
3	Zhob	2	1	3
4	Sherani	2	2	4
5	Musa Khail	1	1	2
6	Duki	2	1	3
7	Noshki	2	1	3
8	Ziarat	3	0	3
9	Mastung	2	1	3
10	Kalat	2	1	3
11	Khuzdar	2	1	3
12	Pishin	2	1	3
13	Killa Abdullah	2	1	3
14	Quetta	3	1	4
15	Kachi	1	2	3
16	Sibi	0	4	4
Total Monitored Sites		32	18	50
Total Targets		1891	411	2302
Sampling (5%)		95	21	115
Difference		-63	-3	-65

The Balochistan is the largest province covering 44% of total area of Pakistan.

The province of Balochistan, the least populated province of Pakistan and the largest province by area, is divided into 35 districts and 07 divisions.

The ME&IEC-Balochistan visited 18 districts out of 35 districts (51%) till to date to monitor the Regular Monitoring / Spot Check.

The list of visited districts is as under:

Sr. #	Name of Districts Visited
1	Duki
2	Jaffarabad
3	Kachi
4	Kalat
5	Khuzdar
6	Killa Abdullah
7	Killa Saifullah
8	Loralai
9	Mastung
10	Musa Khail
11	Naseerabad
12	Noshki
13	Pishin
14	Quetta
15	Sherani
16	Sohbatpur
17	Zhob
18	Ziarat

4.4 ONLINE DATA ENTRY IN ANDROID BASED APPLICATION

Data collection is being carried out through Android1 Based Application developed by ICT Specialist of ME&IE Consultants NPIWC-II.

Data entry is directly by the field monitoring teams of all the zonal offices and is uploaded in the MIS system. The data is being observed and monitored by the ICT Expert of ME&IE Consultants.

4.5 MEETINGS OF ME&IE CONSULTANTS WITH STAKEHOLDERS REGARDING PROJECT PROGRESS / ISSUES

4.5.1 Meetings of ME&IE Consultants – ICT Zone

Date	7 September 2021
Venue	Office of Project Director AJK, Mr. Bashrat Hussain Durrani
Participants	
i. Mr. Basharat Hussain Durrani - Project Director	
ii. Mr. Tahir Anwar - NPC	
iii. Dr. Tehmina Iqbal Dy. Director Coordination	
iv. Mr. Saiful-Islam Deputy NPC	
v. Prof. Dr. Muhammad Abdul Quddus – Team Leader ME&IE Consultants,	
vi. Mr. Rizwan Saleem – ICT Specialist ME&IE Consultant	
Meeting Agenda:	
NPC conducted 3 days visit AJK project areas from 6 September 2021 to 8 September 2021. ME&IE Consultants ICT Zone accompanied NPC during his visit to AJK. Discuss visit of AJK Project Sites.	

Date	7 September 2021
Venue	Office of D.G. Irrigation AJK, Engr. Shafiq-ur-Rehman Dar
Participants	
1. Engr. Shafiq-ur-Rehman Dar – DG Irrigation AJK	
2. Mr. Basharat Hussain Durrani - Project Director	
3. Mr. Tahir Anwar - NPC	
4. Dr. Tehmina Iqbal Dy. Director Coordination	
5. Mr. Saiful-Islam Deputy NPC	
6. Prof. Dr. Muhammad Abdul Quddus – Team Leader ME&IE Consultants,	
7. Mr. Rizwan Saleem – ICT Specialist ME&IE Consultant	
Meeting Agenda:	
Discussions held with DG Irrigation on field visit of NPC, his Team and ME&IE Consultants.	

Date	7 September 2021
Venue	Office of Secretary Food and Agriculture AJK, Dr. Muhammad Bashir Butt
Participants	
1. Dr. Muhammad Bashir Butt, Secretary Food and Agriculture	
2. Mr. Basharat Hussain Durrani - Project Director	
3. Mr. Tahir Anwar - NPC	
4. Dr. Tehmina Iqbal Dy. Director Coordination	
5. Mr. Saiful-Islam Deputy NPC	
6. Prof. Dr. Muhammad Abdul Quddus – Team Leader ME&IE Consultants,	

7. Mr. Rizwan Saleem – ICT Specialist ME&IE Consultant
8. Mr. Muhammad Bilal FTI ME&IE Consultants
9. Mr. Ebadat-ur-Rehman Data Supervisor ME&IE Consultants
10. Mr. Iftikhar Arain DTL NESPAK
11. Mr. Murtaza Chatten FTI NESPAK
12. Mr. Nasir Abbas Field Engineer NESPAK

Meeting Agenda:

After formal introduction of the participants to Secretary Food and Agriculture following points were discussed by NPC with Secretary.

1. NPC requested Secretary to help out NPC in the compliance so that activities may continue smoothly.
2. Secretary Food & Agriculture extend his support to NPC for smooth continuity of the interventions. Further discussed points were as follows:
 - Data being shared from line departments is not consistent and it is desired that data may be shared timely.
 - The data format should be fixed in such a way that wrong entry should not be allowed.
 - Unspent amount should be utilized accordingly.



NPC, TL and DNPC in meeting with Secretary Food & Irrigation AJK



NESPAK Staff in meeting with Secretary Food & Irrigation AJK

Meeting of ME&IE Team ICT Zone with Farmers of Nowshera Watercourse

NPC met the farming community of Nowshera Watercourse and discussed their problems. The community requested NPC that they must aid the community in fixing the depressed watercourse through any structure, so water can reach the end users. According to community, they were not able to fix this issue. NPC asked DG Irrigation to look into the matter.

DG Irrigation and Team Leader ME&IE discussed with the farmers about their land holdings and cropping pattern. It was found that most of the farmers used to cultivate rice, maize and wheat crops in their area. They told that maize does not require irrigation water because it receives sufficient water from rain fall which for its growth. DG Irrigation further suggested to farmers to reach to Agricultural research office and ask for new crops, vegetables and fruits varieties to plant in the area for better earning. During discussion with beneficiaries the NPC suggested the farmers to collect some funds in their accounts with specific interval of time so they can utilize this amount for the maintenance of watercourse.



OTeam Leader ME&IE in discussion with Farmers

Meeting of ME&IE Team ICT Zone with Farmers of Nalla Palla and Karshan Rahman Abad

After visit and meetings monitoring team held a group discussion farmers, where local farmers invited Mr. Aziz Ali a Tehsil level progressive farmer, to discuss the about of the area. The following discussions were held with farmers' group. Discussion started with the Recitation of Holy Quran by Mr. Aziz Ali.

- Mr. Aziz Ali thanked the Line Department and NPC for all the development works being completed in the area. He also thanked Govt. of

Pakistan and AJK for the projects executed for the benefit of the local population.

- DG Irrigation during discussion asked the farmers to explain if they have any issue with the behavior of Department or if there is any person who asked any kind of money for this work.
- He asked the farmers to diversify their cropping pattern and change the existing cropping pattern with vegetables, fruits and other beneficial crops. He suggested farmers to contact Agricultural Department for information and guidance to diversify the cropping pattern in the area. He suggested farmers to grow trees on the hill, where agricultural practices are not performed. It will also help to improve the environment and farmers can earn from selling of wood.
- NPC Mr. Tahir Anwar discussed different components of the project for AJK and asked community to remain in touch with Line Departments to get maximum advantages and benefits of the project. He advised farmers to take care of these interventions to get long lasting benefits. He cleared the community that Govt. can give support to community in construction of such intervention only once, while it is the responsibility of community to maintain it in good condition. For this purpose, he suggested community to raise mutual funds on regular basis for operation and maintenance of these interventions.



NPC addressing to farmers at Nalla Palla



DG Irrigation addressing farmers at Nalla Palla

4.5.2 Meetings of ME&IE Consultants – Punjab Zone



Meeting with Deputy Director Agri. OFWM, Lahore District

Date	September 16, 2021
Venue	Office of Deputy Director Agriculture (OFWM) Lahore 13-km Multan Road Thokar Niaz Baig
Participants	
<ol style="list-style-type: none"> 1. Hafiz. Majeed Ur Rehman Deputy Director Agriculture (OFWM) 2. Mr. Muhammad Yousaf Bhatti Deputy Team Leader ME&IE Consultants, Punjab Office Lahore. 3. Mr. Awais Jahangeer Field Team In charge, ME&IE Consultants 	
Meeting Agenda:	
<ol style="list-style-type: none"> 1. Briefing on ME&IE Consultants activities given by Deputy Team leader and discussed with participants. 2. Review of the OFWM activities given by Deputy Director (Agri) OFWM, Lahore and discussed future activities of department. 3. The Deputy Director Agriculture (OFWM) further informed that agriculture sector in Lahore District, is moving towards urbanization commercialization and agriculture itself is diminishing. The generally exist area of NPIWC is on border areas whereas reverse minor system prevails. 4. The Deputy Director and ME&IE Consultants assured and extended each other full cooperation in future for smooth working of the field operations. 	

Date	September 16, 2021
Venue	Office of Assistant Director (Agriculture) OFWM Lahore Cantt Judicial Colony Multan Road Lahore
Participants	
<ol style="list-style-type: none"> 1. Aurangzeb Badar Assistant Director Agriculture OFWM, Lahore Cantt. 2. Mr. Muhammad Yousaf Bhatti Deputy Team Leader ME&IE Consultant, Punjab Office Lahore (NPIWC-II) 3. Awais Jahangeer Field Team In charge, ME&IE Consultants. 	
Meeting Agenda:	
<ol style="list-style-type: none"> 1. Briefing on ME&IE Consultants given by Deputy team leader and discussed the field operations of ME&IE Consultants. 2. The Assistant Director (Agriculture) OFWM, explained that practically no distinction was made between Lahore Cantt and Lahore Sadar Tehsils. 3. He further shared the data of interventions particularly Watercourse's for improvements in Lahore Cantt (Tehsil) area, with Mr. Awais Jahangeer, respective subzone – 1 Field Team In-charge. 4. They assured to extend full cooperation in future, in Field operation of the project. 	



Meeting with AD Agri. OFWM, Lahore Cantt, and sharing

over the ME&IE consultants' activities and asked so many questions.

4. Mr. Yousaf Bhatti and his fellow participant Mr. Awais, fully shared the information on the field activities. They further explained the field activities to be carried out during 2021-22, in Faisalabad Division. Mr. Awais committed to inform the field program well in advance.
5. The meeting was very productive and successful in achieving its main objective.
6. The participants assured each other to have close coordination and cooperation in future.

Date	September,21.2021
Venue	Directorate of Agriculture (OFWM) Faisalabad
Participants	
1- Dr. Muhammad Asif	Director Agriculture (OFWM) Faisalabad.
2- Muhammad Yousaf Bhatti	Deputy Team Leader NPIWC-II Punjab Zone, Lahore.
3- Mr. Awais Jahangeer	Field Team In-charge Subzone-1, Lahore.
4- Mr. Asim Rafiq DDA (OFWM) Faisalabad	
5- Mr. Hamid Ullah Sharif DDA (OFWM) Chiniot.	
6- Mam. Farhana Jamil DDA (OFWM) T.T. Singh.	
7- Mr. Zia UI Haq ADA (OFWM) Faisalabad.	
8- Mr. Rafique Baber ADA (OFWM) Samundari	
9- Mr. Maqsood Alam ADA (OFWM) Jaranwala.	
10- Mr. Zafar Iqbal ADA (OFWM) Chak Jhumra.	
11- Mr. Imran ADA (OFWM) Tandlianwala.	
12- Khurshid Ahmed Mufti ADA (OFWM) Chiniot.	
13- Mr. Muhammad Usman ADA (OFWM) Bhowana.	
14- Mr. Tariq Mehmood ADA (OFWM) Jhang.	
15- Mr. Sadiq Anjum A.P. Sial. ADA (OFWM)	
16- Mr. Ahmad Raza ADA (OFWM) Kamalia.	
17- Mr. Muhammad Shoaib ADA (OFWM) Gojra.	
Mr. Irfan Ahmad Regional Manager PMU, Faisalabad/ Lahore was also present in the meeting	
Meeting Agenda:	
1.	Dr. Asif Director (Agriculture) OFWM gave a brief introduction of everybody present in the meeting.
2.	Mr. Muhammad Yousaf Bhatti Introduced himself. Then his field team member. He further briefed on ME&IE consultant activities.
3.	The participant showed their great concerns



Meeting with DD Agri. (OFWM) Faisalabad Division

Date	September,22.2021
Venue	Office of the Chairman of irrigation & Drainage Department University of Agriculture, Faisalabad
Participants	
1.	Dr. Adnan Shahid Chairman Irrigation & Drainage Department
2.	Muhammad Yousaf Bhatti Dy. Team Leader, Lahore
3.	Mr. Awais Jahangeer Field Team In-charge.
4.	Mr. Hussain Qaisar Lecturer
Meeting Agenda:	
1.	The purpose of meeting was to exchange the views on measurement of flow of water in watercourses with different tools/equipment.
2.	The Chairman and his colleague, fully corporative and made our visit to various equipment's.
3.	They also shared the data/material on such issues.
4.	They further assured to corporative without field team, whenever they visit to their department in that connection.



Meeting with Chairman Irrigation & Drainage Department

4.5.3 Meetings of ME&IE Consultants – KP Zone

Date	September 17, 2021
Venue	KP Zonal Office, Peshawar
Participants	
<ol style="list-style-type: none"> 1. Sahibzada Alamgir Khan Ex-Director OFWM, Peshawar 2. Dr. Humayun Khan DTL KP Zone 3. Mehrab Jan Khan, Provincial Project Coordinator PMU KP 	
Meeting Agenda/Points discussed:	
<p>Meeting with Ex-Director OFWM and Provincial Project coordinator PMU, KP</p> <p>The DTL welcomed the honorable guests for accepting the invitation and visiting the ME&IE Consultants Zonal office Peshawar. The meeting was held in a cordial manner and general discussions were held regarding the ME&IE Consultants activities taking place and the training for the team member were discussed and agreed to offer their services whenever required by the KP Zonal office.</p>	



DTL KP Zone in meeting with Ex-Director OFWM, Peshawar

4.5.4 Meetings of ME&IE Consultants – Balochistan Zone

Date	9 th September 2021
Venue	Office of Deputy Director, OFWM at Jaffarabad.
Participants	
<ol style="list-style-type: none"> I. Mr. Barkat Ali Buledi, Deputy Director, OFWM, Jaffarabad. II. Mr. Muhammad Tariq, M&E Expert, ME&IE Consultants. 	
Meeting Agenda/Points discussed:	
<ol style="list-style-type: none"> I. The issue of incomplete files of 2019-20 and 2020-21 were discussed. II. The upcoming/new sites for the F.Y. 2021-22 were discussed. III. The M&E Expert, ME&IEC briefed to DDA about baseline survey (phase-2). 	



M&E Expert in meeting with DDOFWM District Jaffarabad.

Date	13 th September, 2021
Venue	Office of Deputy Director, OFWM, Naseerabad at D M Jamali.
Participants	
<ol style="list-style-type: none"> i. Mr. Ayoub Umrani, Site Engineer, OFWM, Naseerabad at D.M.Jamali. ii. Mr. Muhammad Tariq, M&E Expert, ME&IE Consultants. 	
Meeting Agenda/Points discussed:	
<ul style="list-style-type: none"> • The M&E Expert, ME&IEC shared the issues regarding incomplete files of 2019-20 and 2020-21. • The new sites for the F.Y. 2021-22 were also discussed. • The M&E Expert, ME&IEC briefed to Site Engineer regarding baseline survey (phase-2) expected in Oct. 2021. 	



M&E Expert in meeting with Site Engineer, OFWM, Naseerabad

Date	13 th September, 2021
Venue	Office of Deputy Director, OFWM, Zhob.
Participants	
i. Mr. Muhammad Umar, WMO, OFWM, District Zhob.	
ii. Mr. Naseeb Jan, M&E Expert, ME&IE Consultants.	
Meeting Agenda/Points discussed:	
i. The M&E Expert shared the problems which faced during the regular/spot check field monitoring of F.Y. 2019-20 and 2020-21 due to non-availability of files.	
ii. The upcoming/new sites for the F.Y. 2021-22 were discussed.	
iii. The M&E Expert, ME&IEC discussed the field visits about baseline survey (phase-2), expected in Oct. 2021.	



M&E Expert in meeting with WMO, OFWM, District Zhob

4.6 INTERNAL MEETINGS OF ME&IE CONSULTANTS

4.6.1 Joint Meeting / Workshop in National Office Islamabad

Date	30 August 2021 to 1 September 2021
Venue	National Office Islamabad
Participants	
1. Dr. Abdul Quddus Team Leader, National Office Islamabad	
2. Dr. Usman Mustafa, Team leader, Water conservation Project KP	
3. Dr. Humayun Khan DTL KP Zone Peshawar	
4. Mr. Muhammad Yousaf Bhatti DTL Punjab Zone	
5. Mr. Rizwan Ahmad DTL Baluchistan Zone	
6. Mr. Rizwan Saleem Team Leader IT, Islamabad.	
7. Mr. Imran Zafer	
8. Mr. Shumail, IT Manager, Lahore Office.	
Meeting Agenda/Points discussed	
Discussion on Field Survey / Data Collection by the Survey Teams	
A meeting / workshop was called by the Team Leader ME&IE Consultants in the National Office Islamabad from August 30 to September 1, 2021. Detail discussion was held on the field survey activities being carried out by field teams and further recommendations were also discussed for further improvement of the activities.	

4.6.2 Internal Meetings of Zonal Office Punjab

Date	27 September 2021
Venue	Punjab Office Lahore
Participants	
Team Leader and all the field teams of Lahore Zonal Officer	
Meeting Agenda/Points discussed:	
An internal meeting of ME&IE Consultants with DTL with field In-charge and members are held off and on as per need for better understanding of the field activities. Under the experience gained during Baseline Survey Phase-I. Unfortunately it could not be organized. However on 27 September 2021 Dr. Muhammad Abdul Qaddus Team Leader, managed this meeting and advised the field team to work hard on learning and understanding of the monitoring tools.	



Team Leader Chairing the Meeting in Zonal Office Lahore

4.6.3 Internal Meetings of Zonal Office KP

Date	September 17, 2021
Venue	KP Zonal Office, Peshawar
Participants	
<ol style="list-style-type: none"> 1. Dr. Humayun Khan DTL KP Zone 2. Sahibzada Alamgir Khan Ex-Director OFWM, Peshawar 3. Mehrab Jan Khan, Provincial Project Coordinator PMU KP 	
Meeting Agenda/Points discussed:	
<p>Meeting with Ex-Director OFWM and Provincial Project coordinator PMU, KP</p> <p>The DTL welcomed the honorable guests for accepting the invitation and visiting the ME&IE Consultants Zonal office Peshawar. The meeting was held in a cordial manner and general discussions were held regarding the ME&IE Consultants activities taking place and the training for the team member were discussed and agreed to offer their services whenever required by the KP Zonal office.</p>	



DTL KP Zone in meeting with Ex-Director OFWM, Peshawar

Date	20 September 2021
Venue	Zoom Meeting
Participants	
<ol style="list-style-type: none"> 1. Dr. Abdul Quddus, TL, National Office Islamabad 2. Dr. Humayun Khan DTL KP Zone 3. Mr. Muhammad Yousaf Bhatti DTL Punjab Zone 4. Mr. Rizwan Ahmad DTL Baluchistan Zone 	
Meeting Agenda/Points discussed:	
<p>Conducting Workshop at Zonal Offices</p> <p>Agenda of the meeting was to address the issues raised by the IT Team of the ME&IE consultants.</p> <p>The National team leader directed all the DTLs to arrange a workshop for the field team members to provide them extensive training before launching the Baseline Survey Phase-II.</p> <p>Action Taken</p> <p>Workshop was arranged in the zonal office Peshawar on September 24-25, 2021.</p>	

Date	24 & 25 September 2021
Venue	Zonal Office Peshawar
Participants	
Resource Persons:	
<ol style="list-style-type: none"> 1. Dr. Abdul Quddus Team Leader ME&IE Consultants 2. Dr. Humayun Khan Dy. Team Leader KP Zone, Peshawar 	
Participants of the workshop	
<ol style="list-style-type: none"> 1. Mr. Inamullah FTI 2. Mr. Mumtaz Ullah FTI 3. Hussain Mr. Mehmood Ul Hasen FTI 4. Mr. Arsalan FTE 5. Mr. Fawad FTE 6. Mr. Matloob FTE 7. Mr. Abdul Rauf Saad FTE 8. Mr. Farhan FTE 9. Mr. Aftab Ahmad FTE 	
Meeting Agenda/Points discussed:	
<p>In compliance with the workshop in the National office Islamabad, a two days' workshop/meeting was arranged in the KP Zonal office Peshawar on September 24-25, 2021 for training of the field teams.</p>	

Proceedings of the workshop

1st day, September 24, 2021:

The Workshop started with the recitation from the Holy Quran by Matloob Hussain, Field Team Engineer.

The DTL KP Zone gave opening remarks with the brief objective of the project and the purpose of the workshop. The need of arranging of the workshop was explained in the light of the workshop held on August 30-31 and September 1, 2021.

DR. Abdul Quddus, Team Leader (Resource Person) delivered detailed lecture on different aspects of the NPIWC – II, ME&IE consultants, and expectations of the clients from the consulting firm. He explained all the concept mentioned in MTs; including per acre cost of production, per acre yield, cropping pattern, crop rotation, inputs required for different cost etc. Method of conducting the survey and monitoring of water courses and water storage tanks were explained in detail. The participants were given opportunity to raise their concern about issues they faced in the field during the survey. Detail deliberations were made during the workshop. The Team Leader responded to all the questions raised during the session.

2nd day, September 25, 2021:

2nd day of the workshop was specifically meant for understanding of the MTs for conducting the field survey. DTL KP Zone distributed the MTs among the team members and explained in detail each and every question given in the MTs. Then all the participants of the workshop were distributed in three groups headed by the FTIs. The FTIs along with their teams interviewed each other and where any confusion found, was noted. This exercise remained for about three hours. All the three teams noted the confusions they found in the MTs. The DTL explained and cleared all the confusion of the participants.

At the end the DTL concluded the session and thanked all the participants for their patience.



Team Leader in meeting with KP Zone Team during Training

4.6.4 Internal Meetings of Zonal Office Quetta

Date	8 th September, 2021
Venue	Zonal Office, Quetta (343/3, Chiltan Road, Quetta Cant)
Participants	
<ol style="list-style-type: none"> 1. Hafiz Abdul Rauf Sahib, Member, PBOM (In chair) 2. Mr. Rizwan Ahmed, DTL, Quetta 3. Mr. Manzoor Kasi, M&E Expert 4. Mr. Hamza, M&E Officer, 5. Mr. Qaisar Khan, M&E Officer, 6. Mr. Saleem Ahmed, M&E Officer, 7. Ms. Mahgul Noor, M&E Officer, 8. Syed Ibrar Hussain, OM 9. Mr. Mubeen, Accountant 10. Mr. Adnan Bashir, Computer Operator 	
Meeting Agenda/Points discussed:	
<ol style="list-style-type: none"> 1. The Member, BPOM briefed by DTL about project progress. 2. First Baseline Field Survey of 09 districts has been done in the first phase, now the report is under preparation at the end of the National Office. 3. The Balochistan field teams have monitored 03 districts i.e., Loralai, Killa Saifullah and Sohbat Pur in June 2021. In July 2021 field teams were monitored in 08 districts i.e., Jaffarabad, Naseerabad, Zhob, Sherani, Musakhail, Duki, Noshki and Ziarat. In the month of August 2021 field team monitored further 08 districts i.e., Mastung, Kalat, Khuzdar, Pishin, Killa Abdullah, Quetta, Kachi and Sibi. Till to date, Balochistan field teams have monitored the project activities of 19 districts, covering 58% districts of Balochistan. 4. Several workshops/trainings were conducted 	

- for field staff regarding baseline survey and regular monitoring at Zonal Office, Quetta.
- The issues regarding incomplete files/data at the end of OFWM & NWMC was also discussed.
 - The Member, BPOM advice to support staff to enhance their project knowledge for productive outputs.
 - The ME&IEC staff shared administrative problems with Member BPOM, The Member BPOM heeded all the individuals and took decisions at the spot.
 - The ME&IEC staff is advised by the Member, BPOM to work as a team and perform unsurpassed for the success of the project.
 - The ME&IEC staff briefed that performance of all provincial staff are being observed at the National Level, therefore, all staff should focus on their TORs and be vigilant in submission of all deliverables timely.
 - The Member, BPOM checked the office operational system and gave some fruitful advice for more improvement.
 - The Member, BPOM advises ME&IEC field staff to make reporting as per objective of the projects.
 - The Member, BPOM also advised DTL and ME&IEC field staff to report impact of the project and analysis the data as per ME&IEC TORs.
 - The DTL advised by Member BPOM plan a refresher on revised MTs before starting the second phase of Baseline.



H. Abdul Rauf MBOM in meeting with ME&IE Team in Zonal Office Quetta

Date	20 th September 2021
Venue	Zoom Meeting (Chaired by Team Leader, ME&IEC)
Participants	
1.	Mr. Shams, Assistant Director, OFWM, Mastung
2.	Mr. Rizwan Ahmed, DTL, Quetta
3.	Dr. Humayun Khan, DTL, Peshawar
4.	Muhammad Yousaf Bhatti, DTL, Punjab
Meeting Agenda/Points discussed:	
1.	The schedule for Training/Workshop regarding Baseline Survey (Phase-2) were discussed.
2.	The TL shared his schedule and advice to DTLs to adjust the dates accordingly.
3.	All DTLs revised the training schedule and shared with TL.
4.	All DTLs given suggestions by TL regarding trainings/workshop.

4.7 ICT ASSIGNMENT

4.7.1 Development of Website of NPIWC-II

The development of Website for NPIWC Phase-II 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.

The Revision/up-dation of the Project website has been presented to NPC office and got approval on all changes. Currently all changes have been incorporated accordingly as per requirements of the Client.

The final Beta version was demonstrated to NPC in his office by August 2021. The minor refinement suggested by the Client is under process.

4.7.2 Data collection of interventions in MIS/GIS database

The activity regarding data collection of Interventions in MIS/GIS database has been completed.

4.7.3 Designing of Dashboard of Project Interventions

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 NPIWC 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 following:*
 - i. *Network topology, diagrams, and specifications of hardware of the proposed solution*
 - ii. *Bandwidth requirement based on the total number of anticipated users with a redundancy plan*

GIS Integrated MIS Development – (Completed & Delivered)

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 (OFWM) -PMU
 - Regional Directors (OFWM)
 - Deputy Directors (OFWM)
 - Field Teams (OFWM)
- 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.

Despite multiple communications between Client and ME&IE Consultants, the nominations/ names from Client for training are pending.

Provincial DGs (OFWM) – PMU __ Provincial DGs and their Project Management Unit's need the

insight of their respective provincial 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.

Regional Directors (OFWM) __ Regional Directors under their Provincial hierarchy requires the insight of their regional level progress and impact reports. This group will submit any primary data through the Android Application.

Deputy Directors (OFWM) __ Deputy Directors under their Provincial hierarchy requires the insight of their District level progress and impact reports. This group will submit any primary data through the Android Application.

Field Teams (OFWM) __ Field Teams are the basic source of primary data collection from the fields against all activities. Major data will be collected and submitted to MIS through this group. This group does not require access to MIS and its training as well.

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

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

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

4.7.4 Implementation of MIS Dashboard

Based on three stages of Implementation Process, GIS & Information System Department of ME&IE Consultant designed the methodology of implementation process

- Stage I - Digitize and Migrate The Data
- Stage II – Meetings with All Stakeholders And Shortlist The Nominations
- Stage III - Training and Capacity Building

These stages are elaborated in section 4.7.3.

During the field visit of AJK from 5th to 8th September 2021 under the leadership of NPC, The Team Leader and ICT/Technology Specialist represented the ME&IE

Consultants in the meetings of NPC with Secretary Agriculture AJK, DG Irrigation and Project Director (NPIWC-II) AJK. In these meetings, along with all improvement of work discussions, Mr. Rizwan Saleem ICT/Technology Specialist with the consultation of the Authorized Representative of JV proposed NPC to start the implementation of Dashboard from AJK as an implementation model, later which can be adopted as a model during the MIS Dashboard implementation to other provinces/units with a Small-to-large Approach. The NPC agreed with this proposal and directed Mr. Basharat Hussain Durrani (PD) to cooperate with the ICT team of ME&IE consultants.

Therefore, on the directions of Authorized Representative of JV, a seven-members ICT team led by ICT/Technology Specialist started their assignment from their visit to Muzaffarabad AJK from 14th September 2021 and completed the major phase till 30th September 2021. The objective of this visit was to digitize the project interventions data like; watercourses and water storage tanks/water harvesting structures. In this regard, all official files were obtained from Irrigation & small dams department for making database of all interventions and scanning of departmental data/files of interventions (i.e., watercourses and water storage tanks / water harvesting structures) of all 10 districts of AJK for implementation of Dashboard in AJK unit.

The team held a number of meetings with Mr. Basharat Hussain Durrani (Project Director I&SD AJK) and NWMC representatives Mr. Murtaza Chattha (FTI NESPAK) for consultation to develop and finalize the template/form for the database of Dashboard. Multiple versions were discussed and ultimately finalized database template/forms for WC and WST/WHS with conscience and took the approval from PD. The database forms/templates of WC and WST/WHS are placed at Annex-E&F respectively. Later, ICT Team of ME&IE started coordination and acquisition of data from all divisions/districts of AJK. Deputy Directors of all 3 divisions along with Assistant Directors of all 10 districts cooperated and started providing official files of all interventions to ICT team in their camp office at Mir Continental hotel Muzaffarabad.

After study/assessment of files the data deficiencies/missing data was conveyed to ADs. To facilitate the department and to fulfil the backlog of the last 2 years, the ICT team of ME&IE Consultants voluntarily took the responsibility of data entry on the approved forms and

scanning of relevant files of all interventions to accommodate the implementation of Dashboard.

The ICT team will further start working on validation of data, they will cross check the database data with compared to scanned data. In the compliance of PC-1, the observations were noted on process deficiencies, gaps, and bottlenecks. A detailed comprehensive field trip report along these observations and gap analysis will be submitted to the NPC office during the running month, which is currently under preparation.

ICT team also visited WC and WST/WHS schemes in Neelum for physical identification and assessment of structures.

The summary of completed schemes under NPIWC-II in AJK and the data collection status of ME& IE Consultants is placed at Annex-G. The activities of MIS database are depicted in below figures.



Surprise visit of Authorized Representative of JV to monitor working of ICT Team in Muzaffarabad Camp Office



Meeting in the office of Mr. Basharat Hussain Durrani (Project Director I&SD AJK)



ICT team in meeting with Mr. G. Murtaza Chattha (FTI NWMC)

4.8 MONITORING / DATA COLLECTION ON SOCIAL AND GENDER COMPONENT

Women empowerment has become vital issue on the development agenda. Importance of irrigational activities in agricultural sector cannot be denied. Keeping in view the objectives of the **NPIWC-II monitoring and evaluation consultants**, it was expected to get a clear and vivid picture from field about women participation and empowerment in agricultural based activities through monitoring and evaluation's. It is predictable that to achieve the increased agricultural productivity and decreasing poverty through National food security goals, women participation is very important as women play important role in building an enable environment for the wellbeing of their family and society.

Water related matters affect gender relations and raises several social, traditional, institutional, and economic queries. Roles of women and girls are linked with tasks relative to water fetching, storage and usage. Yet their role as users is acknowledged, women and youths are still not involved in managing and emerging these assets, because social limitations limit their integration into decision-making organizations.

In this quarter lot of activities were undertaken by field teams, gender specialist visited National office Islamabad and worked under the guidance of project coordinator and team leader. Brain storming session on women participation was held with AJK and Islamabad team, analysis of the data collected was reviewed and way forward was discussed with Authorized Representative of JV Saif ullah Ejaz Ch to undertake case studies of gender (woman and men separately) for impact assessment.

Case studies will be prepared 25 in each province/unit, detailed process steps will be finalized in next quarter after structuring processes. This will enable to measure the impact of program .it will also enable all stake holders that how program activities contribute toward achieving **Sustainable development goals**.

The case studies are intended to offer all stake holders an opportunity to unpack and understand the role of gender differences in driving agriculture and effects of irrigational outcomes, how program impacted, identify the program also promotes

gender equality and women's empowerment. The case studies are not meant to be perfect examples of how gender differences are identified and managed, but are meant as a learning tool intended to:

- Provide insight into specific areas where gender differences exist.
- This will enable to access impact of program socially and economically.
- Examine challenges and emerging lessons about integrating gender across programming and policy.

Data clearly depicts lack of participation of women in program activities, which is alarming as more than 50 percent population cannot be excluded, so measure's should be taken to involve women in program activities, social mobilization process should be looked into, strong Media campaign should be initiated and it is recommended focus group discussion should also be taken into consideration. Analyses of base line also shows that trend is same throughout the country of non-participation. Reasons are cultural barriers, lack of education and knowledge regarding irrigational activities. Furthermore, at community level dispute resolution mechanism should be developed with OFWM staff at community level.

Teams of Zonal office share observation regarding low participation in project activities which are narrated below.

4.8.1 Balochistan

The women's role in Balochistan's agriculture sector is limited due to Tribal customs. In most of districts they are not allowed to work at farms, The women participation in North Zone (Quetta, Pishin, Killa Saifullah, Zhob, Loralai, Killa Abdullah, Sherani and Dukki) is almost nil at farm's level due to cultural barriers, however they do activities at their home i.e. storage of crops and livestock etc.

The women's participation in Naseerabad and Khuzdar Divisions have been seen on large scale with following activities:

- Seed cleaning
- Threshing
- Grain cleaning
- Livestock
- Crop production

- Drying and storage of crops
- Medicinal plants for treating many ailments in Khuzdar and Kalat districts

General Observations:

- It was observed with great concern that interviewed females doesn't know about WUA.
- The participation of females was very limited.
- The females were not consulted in making decision.
- Lack of educational institutions.
- Females doesn't know about NPIWC-II and Water User Association.
- Women are not consulted in making decisions about household matters, spending income, and in farming.
- Team was not allowed to take a picture due to tribal customs

During the reporting period Team-3 of Balochistan Zone was assigned to collect data regarding Social and Gender from different districts of Balochistan. Team collected data from district Noshki and Ziarat by covering North and South Zones both.

4.8.2 Azad Jammu and Kashmir

Team visited AJK they found a very amicable environment for females in AJK. Team found people very cooperative in responding the questionnaire.

- Education level is much higher which facilitates them in answering the questions.
- Knowledge and participation in agriculture activates was found good.
- Most of the females were housewives indulge in house hold work like cooking meals, washing utensils, washing clothes and looking after their children. Some of the females were actively participating in agricultural practices.
- They had a lot of knowledge regarding agricultural practices but none of them were the owner of the land most of them were working on their husband's land.
- In decision making related to agriculture and crops, according to them sometimes they were asked about their opinions, but final decision is of men.
- While decisions regarding household activities and expenses they were involved fully.
- Most of the females interviewed were not aware of the NPIWC II project they hardly knew about the project and the WUA organization.

- There were no washing bays at any watercourse in AJK so they were not using any washing bays to wash the cloths.

4.8.3 Islamabad (ICT)

- Team visited in capital of Pakistan along with On Farm Water Management staff. Unfortunately they could not meet the female farmers of that area as due to farm houses agriculture pattern and hired labor.
- Women were not actively participating in agriculture or irrigational activities. Female participation in ICT is not seen.
- Land is mostly in the name of their father or husband.

4.8.4 Khyber Pakhtunkhawa

During the month of July, eighteen sites were visited in the monitoring survey by the field teams in different districts of the province. Similarly, during the month of August 2021, twenty-one sites were visited in the 2nd round of survey by the field teams in different districts of the province. The observations are as under.

- Community response was found very encouraging among the owner cultivators who can afford to bear the farmers' share of cost of construction of water course and water storage tanks.
- Not a single woman was contacted because the rural women were never found in the irrigational (OFWM) activities in these sites. Thus, in this regard their participation may be considered as zero.
- The information reported by their male members regarding female participation that, they were involved in other farm activities mostly inside and rarely outside the house boundaries. These activities include grazing of animals, milking of animals, watering of animals, cleaning of animal sheds, drying of animal dung, cleaning of grains, picking of vegetables, fruits, etc. The reason could be cultural constrains in these areas, where it is not considered good to allow the females to work outside the house. Moreover, mechanization could be another factor for this response.
- Even no such data is available at the OFWM department at provincial level. Only three female WMO having degrees in Water Management, are stationed at the Provincial

Directorate Office who are assigned duties at the office.

- No women WUA was found neither at farm level.

4.8.5 Punjab

During the month of July 2021, twenty-four sites were visited by the field teams in different districts of the province. Similarly, during the month of August 2021, seventeen sites were visited by the field teams in different districts of the province. No women were contacted.

During water tanks monitoring visits two women were found in the field and they were the owner of Water Storage Tanks.

4.9 CASE STUDY ON THE INTERVENTION

A case study conducted by Balochistan team was conducted which is given below.

The case study “Grapes processed to “Monakka” in District Pishin.



Monakka

Balochistan is the main pocket for grape production. The area under grape in Balochistan is about 3400 hectares with the production of about **34300 tones**. Most growing areas of grape in Balochistan are Quetta, Kalat, Mastung, Pishin, Zairat, Loralai, Kanak, Khuzdar etc. Raw grapes are 81% water, 18% carbohydrates, 1% protein, and have negligible fat.

During the current month ME&IEC worked on case study that how Agriculture’s Farm Incomes could be increased and utilization of agriculture processed product in Balochistan.

This study was carried out in Pishin district, which is known as the main grapes producing area of Balochistan. Monakka are simply dried grapes produced from grapes mostly produced in Pishin district of northern upland Balochistan. Ripened grapes are either marketed in the fresh form to different markets or transformed to raisins to increase its shelf life. Two types of grapes drying common in the area; when the drying process is done in the sun shine after pre-drying treatment the end product is locally called as Monakka, while when drying process is done in a shady and well-ventilated room without any treatment the end product is locally called as Kishmish, they both are collectively called as raisins.

The ME&IEC field team visited the agriculture farm of Haji Mohammad Sadiq Tareen. He had 250-acre Cultivable Command Area, in which 40 acres were being used for cultivating grapes. Total thirty (30) labors were working in all process. The resources used by them are baskets, water, kiln, Sulfur and a mud coated land for drying raisins.

Process:

- First collect the ripe grapes from branches and remove the grapes from stems.
- The grapes put into small baskets.
- The filled grapes baskets are dipped into kiln for 5 to 10 seconds which are already filled by boiled sulfur.
- After processing through boiled sulfur, these are dipped into cold water for 5 to 10 seconds.
- After above process, all grapes are spread on mud coated land to dry in sunlight which takes 5-7 days to turns grapes into Monakka.
- After drying they collect the Monakka and put into bags to move to market for sale.



Fresh grapes collected from farm for further process



Grapes spread on mud coated land to dry in sunlight



ME&IEC Field Team at grape's farm



Different stages of Monakka during drying



Grapes are being dipped in to kiln for 5 to 10 seconds.



The Monakka are ready to sell in Market

The study results revealed that 3000 kg of fresh grapes are required to produce 1000 kg of Monakka with grape raisins ratio of 3:1. Similarly for making 1000 kg Kishmish, 3500 kg of fresh Kishmishi or Sunderkhani grapes are required with a ratio of 3.5:1. Overall average yields of Munakka and Kishmish produced from one-acre grapes were, 1528 and 1148 kg, respectively in the study area.

The study results showed that drying of grapes is a good source of income generation in the grapes growing area.

The difference in total revenue is showing in below table:

Place	Total Cultivated Area (40 Acre)	Per Acre Production (KGs)	Total Production (KGs)	Rate (Rs.)	Total Revenue (Rs.)
On Farm	Grapes	4584	83,360	75	13,752,000
	Monakka	1528	61,120	550	33,616,000
	Difference				19,864,000
Local Market (Balochistan)	Grapes	4584	183,360	150	27,504,000
	Monakka	1528	61,120	1280	78,233,600
	Difference				50,729,600

The grapes are also used for making jam, grape juice, jelly, grape seed extract, vinegar, and grape seed oil, or dried as raisins. There are many types of grapes including green, red, black, yellow and pink. They grow in clusters and come in seeded and seedless varieties.

Another usage of grapes is to make raisins, which produced commercially by "drying harvested grape berries". For a grape berry to dry, water inside the grape must be removed completely from the interior of the cells onto the surface of the grape where the water droplets can evaporate. When grapes come to raisins, Raisins have essential nutrients like vitamins and minerals. All these help in fighting with free radicals in our system, stabilizing them, and preventing them from causing oxidative damage to our cells including the white blood cells that form the backbone of our immune system.

There are so many crops, fruit and vegetable in Balochistan which produced several types of processed products which need to proper guidance for its use to increase their income. Ultimately this increase in income will impact on GDP of Pakistan. Agriculture has huge contribution toward GDP of

Pakistan economy. Increase in GDP shows the developing progress of the economy. By promoting the processed products in agriculture sector, the GDP can be increased. Employment contributes to GDP; it is as with the increase in employment through processed product industries the per capita income will increase which results to increase in GDP rate of the economy. The 3rd largest sector of contributing to GDP is agriculture.

Bottlenecks:

Water, not land, is usually the main factor limiting agricultural productivity and growth of farm incomes. Low quality inputs, poor marketing practices, and limited access to extension services and market information also constrain agricultural productivity.

Suggestions:

1. Establishment of by-product industry
2. Establishment of small crushing mills of agriculture wastes all over Balochistan
3. Initiate the projects like Farm to Market Road
4. Procurement of training
5. Arrangement of incentives in the form of credit or subsidies
6. Encouragement of market competition
7. Formulation of demand-driven strategies to markets premises

Work done by:

- Mr. Manzoor Kasi, M&E Expert
- Mr. Qaisar Khan, M&E Officer
- Mr. Hamza, M&E Officer
- Ms. Mah Gul Noor, M&E Officer

CHAPTER 5: WORK PLAN-ACTIVITIES OF THIRD QUARTER

The ME&IE Consultants' activities initiating during the Third Quarter 2021 (July 1, 2021 to September 30, 2021) are listed below. A tentative Work Plan for 4th Quarter (October 1, 2021 to December 31 2021) showing time span detail is given as **Annex-A**.

Pre-Field Activities

Training sessions regarding Testing of Monitoring tools and Android based system and their hands on practice were conducted at ME&IE Zonal offices during the course of reporting period.

Field Activities

- Data collection from OFWM Department /NWMC for Baseline survey/regular monitoring
- Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System
- Training of Measurement of water flow-Pygmy current meter
- Determinants of Sample size at District/Tehsil levels with the assistance from ADA/DDA (OFWM)
- Baseline survey field visit
- Data entry, Data cleaning, Data processing & data Analysis
- Regular Monitoring

ICT Assignment

- Development of website of NPIWC-II.
- Development of Android based Mobile Application.
- Testing of Monitoring tools on Android based system.
- Data collection of interventions in MIS/GIS database.
- Designing of dashboard of Project Interventions.

Coordination

- Meeting of DTLs with respective DTL of NWMC
- Meetings of Team Leader and for refinement of Monitoring Tools.

Deliverables

The detail of deliverables of ME&IE Consultants with the timelines are as under:

Document	Status
Draft Inception Report	Submitted
Final Inception Report	Submitted
Monthly Monitoring Report-First (DEC 2020-JAN 2021)	Submitted
Monthly Monitoring Report-Second (FEB 2021)	Submitted
Monthly Monitoring Report-Third (MAR 2021)	Submitted
Quarterly Monitoring & Evaluation Report-First (JAN-MAR 2021)	Submitted
Monthly Monitoring Report-Fourth (APR 2021)	Submitted
Monthly Monitoring Report-Fifth (MAY 2021)	Submitted
Monthly Monitoring Report-Sixth (JUNE 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Second (APR-JUN 2021)	Submitted
Monthly Monitoring Report-Seventh (JULY)	Submitted
Monthly Monitoring Report-Eighth (AUGUST 2021)	Submitted
Baseline Survey Report (Draft)	Submitted
Monthly Monitoring Report-Ninth (SEPTEMBER 2021)	To be submitted within stipulated time
Quarterly Monitoring & Evaluation Report-Third (JULY - SEPTEMBER 2021)	To be submitted within stipulated time
Special Reports: <ul style="list-style-type: none"> Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard 	Submitted

Deliverables/Reporting Requirements is placed at **Annex-D**.

Matrix of Responsibilities

The Matrix of Responsibilities is placed at **Annex-B**.

CHAPTER 6: ISSUES / BOTTLENECKS

The ME&IE Consultants have been facing following constraints for timely initiating the activities:

- Non availability of Technical Sanctions of the watercourses required for baseline survey
- Non-availability of complete up-to-date inventory / data of all interventions from the Client, Provincial Agricultural Departments & NWMC (NESPAK) till to date.
- Due to non-availability of NWMC (NESPAK) deliverables/reports, ME&IE Consultants are facing hurdles to evaluate working of NWMC. In this regard the cooperation of NWMC and respective Directorates is required.

ANNEXES A to G

ANNEX-A: TENTATIVE WORK PLAN

ANNEX - A: TENTATIVE WORK PLAN OF 4TH QUARTER

TENTATIVE WORK PLANNED FOR 4th QUARTER (October To December 2021)													Legend				
													Activity starts	↓			
													Activity Ends	↓			
													Activity Span	--			
No.	ACTIVITIES				3 Months-Year 2021 (Weeks)												
					October				November				December				
					WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4	
1	Field Activities																
	1.1	Regular Monitoring of Interventions in the Field				↓	--	--	--	--	--	--	--	--	--	--	↓
	1.2	Data collection of the interventions in the field				↓	--	--	--	--	--	--	--	--	--	--	↓
	1.3	Baseline Survey stage - 2					↓	--	--		↓	--	--	--	--	--	
	1.4	Online data entry in android based applciation				↓	--	--	--	--	--	--	--	--	--	--	↓
2	ICT Assignment																
	2.1	Development of website of NPIWC-II				--	--	--	--	--	--	--	--	--	--	--	--
	2.2	Monitoring online data collection and Data entry				--	--	--	--	--	--	--	--	--	--	--	--
	2.3	Monitoring Android based Mobile Application under implementation by field staff.				--	--	--	--	--	--	--	--	--	--	--	--
	2.4	Data collection of interventions in MIS/GIS database				--	--	--	--	--	--	--	--	↓	--	--	
3	Coordination																
	3.1	Meetings of TL with NPC and OFWM Departments regarding Project Progress / Issues				--	--	--	--	--	--	--	--	--	--	--	--
	3.2	Meeting of DTLs with respective DTL of PC & concerned OFWM Departments				--	--	--	--	--	--	--	--	--	--	--	--
4	Deliverable																
	4.1	Monthly Monitoring Report				↓	--	↓	--	--	↓	--	↓	--	--	--	
	4.2	Quarterly Monitoring Report				↓	--	↓	--	--	--	--	--	--	--	--	
	4.3	Baseline Survey Report stage - 2								↓	--	--	--	↓	--	--	

ANNEX - B: MATRIX OF RESPONSIBILITIES

MATRIX OF RESPONSIBILITIES

LEGEND	
●	Primary Responsibility
○	Secondary Responsibility
○	Assistance

SR. NO.	DELIVERABLE / ACTIVITIES	NPC-FPMU	Agriculture Dept. (LOEWM)	Project Consultants	ME&IE Consultants
1	Provision of Pre-requisite data of project components for starting of Field Activities: <ul style="list-style-type: none"> • Organization of Water Users Associations, • Watercourses Improvement, • Water Storage Tanks, • Laser Land Levelers, 	○	●	-	-
2	Certification of operational documents of the project, <ul style="list-style-type: none"> • Design, cost estimates, completion reports of watercourses, • Design, cost estimates, completion reports of water storage tanks, 	○	○	●	-
3	Undertake baseline, midline and endline surveys of the project activities/interventions in all the project areas.	-	-	-	●
4	Develop monitoring strategy, framework and Result Based Monitoring (RBM) indicators,	-	-	-	●
5	Assessing the water saving per annum on watercourse and water storage tanks as well as aggregate due to the project interventions.	-	-	-	●
6	Assessing the improvement in water availability due to provision of conveyance system.	-	-	-	●
7	Assessing the economic benefits to the agriculture in terms of increase in yield, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks.	-	-	-	●
8	Assessing the extent of community mobilization, financial and administrative sustainability of Water Users' Associations and ensuring the maintenance of watercourses, water storage tanks and laser land levelers.	-	-	-	●
9	Economic Impact of project interventions.	-	-	-	●
10	Carryout impact evaluation of the project investment on the economy and stakeholders.	-	-	-	●
11	Preparation of Monthly, Quarterly and Annual Monitoring, Evaluation and Validation Reports of the project activities.	-	-	-	●
12	Develop a website containing information of facilities and services, applications, procedures, watercourses, water storage tanks, and laser levelers database etc. (Maintaining website should be the responsibility of project staff).	-	-	-	●
13	Provide technical support for the development of a custom-designed mobile application (Android) to capture on-site project progress, geo tagged photos; should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the	-	-	-	●

ANNEX - C: MONITORING LOG-FRAME

Annex-C: Monitoring Log-frame

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
C1: Organization of Water Users' Associations (WUAs)	Reactivation of existing / organization of water users' associations. Ensuring one on each target watercourse. Total WUAs ensured 47,278.	a) Community mobilization at 47,278 watercourses	a) Total 47,278 WUAs reactivated / established/registered	a) Right of way of 47,278 watercourses available b) Skilled and unskilled labour required for watercourse improvement available c) Construction material for civil works of watercourses procured d) Alternate arrangement for water conveyance during construction made e) Watercourse improved	a) Disputes among the water users settled b) Farmers' branched improved c) Water allocation made amicably d) Maintenance of watercourses, WST and laser units done e) Cooperation among farmers increased	a) 47,278 watercourses improved and 15 percentage points conveyance losses reduced b) Litigation among farmers reduced	a) The functioning of the WUAs will be established through sample interview surveys of WUAs members twice during the project period
C2: Watercourses Improvements	Improvement of 47,278 watercourses on	a) Establishment of 47,278 Water users'	a) 47,278 WCAs established; b) 47,278 WCAs	a) Conveyance losses for improved	a) Increase in cropping intensity on	a) Increase in farm income; b) Increase in	a) The water flow measurements will be carried

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
	cost sharing basis: 40% farmers in terms of labour, and 60% funded by project.	associations (WUAs); b) Registration of 47,278 WUAs; c) Improvement and realignment of earthen section of 47,278 watercourses; d) Lining of up to 50% length of 47,278 watercourse either by: • Precast concrete parabolic lining (PCPL) segments, or • Rectangular brick masonry, or any other method as approved by the project	registered; c) 47,278 watercourses improved and lined;	watercourses decreased by about 15 percentage points. b) 1.654 million households benefited from the activity; c) 11.347 million acres served with improved watercourses	improved watercourses by 5-24%; b) Increase in crop yields. c) Increase in irrigated area d) Increase in agriculture output per unit of water by about 37%	employment for farm labour; c) Reduction in poverty; d) Enhanced food security for the country.	out at before and after watercourse improvement on 2-5% sample basis; b) Agriculture survey before and after watercourse improvement on 2-5% sample basis; 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

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
							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.
C3: Construction of Water Storage Tanks (WSTs)	a) Construction of 14,932 water storage tanks	a) 14,932 small farmers mobilized to construct water storage tanks for irrigation b) They agree to contribute 40% of the cost c) Agree to first construct the tank with his/her own	a) 14,932 WSTs constructed b) 14,932 WSTs operated and maintained	a) Water which was otherwise largely going to be wasted is saved b) Irrigation provided at critical stages of the crops c) Flexibility achieved for irrigation	a) More area irrigated b) Increased cropping intensities	a) Increased crop yields b) Increased total crop output quantum c) Increased farm income d) Increased farm employment	a) 2-5% sample of WSTs will be surveyed b) A data collection form will be designed to measure water saving due to WSTs c) The forms used for baseline and impact surveys in case of

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
		funds and then received subsidy at 40% on issuance of FCR					watercourses will also be used for WSTs d) Same data analysis will be carried out here as in case of watercourses.
C4: Provision of Land Leveling Units	a) Provision of 11,610 laser land leveling units to farmers and service providers on a cost sharing basis: 50% by farmer / service provider and 50% by the project.	a) 11,610 laser units provided to farmers / service providers; b) Farmers trained in using the units.	a) 11,610 farmers / service providers received PLL units; b) Farmers / service providers received training in using the units.	a) Land levelled on Farmers' / service providers' farms; b) Land levelled on fellow farmers on rent; c) Total 3.483million acres levelled by 11,610 units.	a) Water application efficiency increased at field level; b) Even germination of seed. c) Field application losses reduced by 10 percentage points d) Water productivity increased by 24%	e) Increased area under irrigated crops; f) Enhanced crop yields g) Increased farm income	a) The land levelling is expected to save irrigation water and result in better and even germination of seeds which can enhance crop yields. The crop yields thus affected will be reflected in agriculture sample surveys. b) 2-4% sample units will be visited by ME&IE Consultants

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
							<p>teams after one years of delivery</p> <p>c) The unit will be verified</p> <p>d) Area treated during the year will be collected</p> <p>e) Farmers' feedback collected on quality of the unit, quality of the after-sale service, etc.</p>

ANNEX - D: DELIVERABLES/REPORTING REQUIREMENTS

Deliverables/Reporting Requirements

Sr. No.	Document	Copies	Due
1	Draft Inception Report	8	45 days after the effectiveness of the Consulting services Agreement.
2	Final Inception Report	15	One week after the issuance of comments by the Client on Draft Inception Report
3	Monthly Monitoring Report	10	10 th of the following month
4	Baseline Survey Report	10	4 months after start of the assignment
5	Midline Survey Report	10	In the middle of the assignment
6	Endline Survey Report	10	At the end of the endline survey
7	Quarterly Monitoring and Evaluation Report	10	10 th of the first month of following quarter
8	Annual Monitoring and Evaluation Report	10	During first month of following year
9	Draft Assignment Completion Report	5	At completion of physical works / activities
10	Final Completion Report	25	At completion of works as well as financial transactions
11	Special Reports	10	As and when required

ANNEX - E: DATABASE TEMPLATE/FORM OF WC FOR DASHBOARD

Zone/ Unit	Division	District	Tehsil	Category of WC Improvement	Previous Improvement Scheme Name	Previous Lining Length (ft.)	Type of Lining	Watercourse Scheme Name	UC	Village	Type of Irrigation Source (Canal Command Area & Non-Canal Command Area)
1	2	3	4	5	6	7	8	9	10	11	12

Type of Canal (Perennial & Non-Perennial Canal)	Canal	Branch	Distributary	Minor	Nallah	River	Tube Well	Other Source	Financial Year	Coordinate - Latitude	Coordinate - Longitude	Picture of Watercourse - Before Lining	Watercourse Location on Canal/Minor
13	14	15	16	17	18	19	20	21	22	23	24	25	26

WUA Registration No.	WUA Registration Date	Name of WUA President	CNIC No. of WUA President	Total Number of Shareholders	Male - Watercourse Association Members	Female - Watercourse Association Members	Total Watercourse Association Members	Gross Command Area (GCA) - (Acres)
27	28	29	30	31	32	33	34	35

Cultural Command Area (CCA) - (Kanal)	Cultural Command Area (CCA) - (Acres)	Total Length of Watercourse - (Feet)	Total Length of Watercourse - (Meter)	Sanctioned Lining Length of Watercourse (Feet)	Sanctioned Lining Length of Watercourse (Meter)	Design Discharge (Cusec)	Design Discharge (LPS)
36	37	38	39	40	41	42	43

Sanctioned Amount of T.S. - (Rs.)	Issuance Date of T.S.	Govt. Share	Community Share	Revised T.S Amount (Rs.)	Revised T.S Date	Amount of ICR-I Released - (Rs.)	Date of ICR-I Released	Amount of ICR-II Released - (Rs.)	Date of ICR-II Released	Amount of Final Released - (Rs.)
44	45	46	47	48	49	50	51	52	53	54

Date of Final Released	Commencement Date	Completion Date	Executed Lining Length (Feet)	Executed Lining Length (Meter)	Verified Amount	Verified Govt Share	Status
55	56	57	58	59	60	61	62

ANNEX - F: DATABASE TEMPLATE/FORM OF WST/WHs FOR DASHBOARD

Zone/ Unit	Division	District	Tehsil	Type of Structure	Type of Lining	WST/WHs Name	UC	Village	Type of Irrigation Source (Canal Command Area & Non- Canal Command Area)	Type of Canal (Perennial & Non- Perennial Canal)	Canal	Branch	Distributary	Minor	Nallah
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

River	Tube Well	Other Source	Financial Year	Coordinate - Latitude	Coordinate - Longitude	WUA Registration No.	WUA Registration Date	Name of WUA President	CNIC No. of WUA President	Total Number of Shareholders	Male - Watercourse Association Members
17	18	19	20	21	22	23	24	25	26	27	28

Female - Watercourse Association Members	Total Watercourse Association Members	Gross Command Area (GCA) - (Acres)	Cultural Command Area (CCA) - (Kanal)	Cultural Command Area (CCA) - (Acres)	WHS Catchment Area	WHS/WST Length-01 (Feet)	WHS/WST Length-02 (Feet)	WHS/WST Width-01 (Feet)	WHS/WST Width-02 (Feet)	WHS/WST Depth (Feet)
29	30	31	32	33	34	35	36	37	38	39

Storage Capacity (cft)	Storage Capacity (Gallon)	Design Discharge (Cusec)	Design Discharge (LPS)	Sanctioned Amount of T.S. (Rs.)	Issuance Date of T.S.	Govt. Share	Community Share	Revised T.S Amount (Rs.)	Revised T.S Date	Amount Released - (Rs.)	Date of Release
40	41	42	43	44	45	46	47	48	49	50	51

Commencement Date	Completion Date	WHS/WST Executed Length-01 (Feet)	WHS/WST Executed Length-02 (Feet)	WHS/WST Executed Width-01 (Feet)	WHS/WST Executed Width-02 (Feet)	WHS/WST Executed Depth (Feet)	Verified Total Amount	Verified Govt Share	Status
52	53	54	55	56	57	58	59	60	61

ANNEX - G: SUMMARY OF COMPLETED SCHEMES IN AJK AND DASHBOARD IMPLEMENTATION PROGRESS OF ME& IE CONSULTANTS

Division	District	Target 2019-20		Completed 2019-20		Target 2020-21		Completed 2020-21		Total	
		WC	WHS/WT	WC	WHS/WT	WC	WHS/WT	WC	WHS/WT	WC	WHS/WT
Muzaffarabad	Mzd	30	25	15	14	45	25	11	46	26	60
	Neelum	25	15	0	0	20	15	2	0	2	0
	Jehlum	10	10	0		10	10	1	3	1	3
Poonch	Poonch/Rawalakot	10	15	5	8	15	15	17	18	22	26
	Bagh	20	10	6	3	20	10	9	14	15	17
	Haveli	10	10	0	0	10	10	2	1	2	1
	Sudhnoti	10	5	4	2	15	5	9	6	13	8
Mirpur	Mirpur	30	10	4	0	32	10	42	3	46	3
	Bhimber	30	10	1	1	40	10	45	1	46	2
	Kotli	15	10	9	2	20	10	13	14	22	16
Total		190	120	44	30	227	120	151	106	195	136
Grand Total										331	

DASHBOARD IMPLEMENTATION PROGRESS					
Data entered		Scan		Total	
WC	WHS/WT	WC	WHS/WT	WC	WHS/WT
76	94	76	94	76	95
42	0	42	0	42	0
23	8	23	8	23	8
25	29	25	29	25	29
23	20	23	20	23	20
7	2	7	2	7	2
20	12	20	12	20	12
51	1	51	1	51	1
68	4	68	4	68	4
33	14	33	14	33	14
368	184	368	184	368	185
Total	552	Total	552	Total	553