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

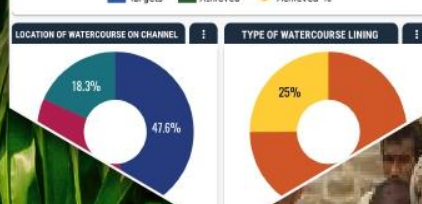
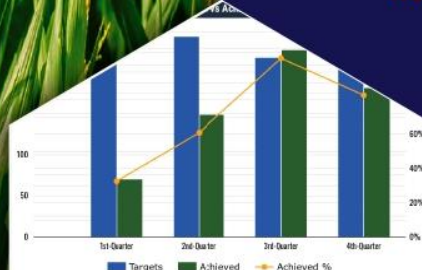
NATIONAL PROGRAM FOR IMPROVEMENT OF WATERCOURSES IN PAKISTAN PHASE-II: (NPIWC-II)

MONITORING, EVALUATION AND IMPACT EVALUATION CONSULTANTS



ANNUAL MONITORING & EVALUATION REPORT

NOV 2020 - JUN 2021



A Joint Venture of
G3 Engineering Lead Firm
Consultants (Pvt.) Ltd.





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)

ANNUAL MONITORING AND EVALUATION REPORT 20 NOVEMBER 2020 TO 30 JUNE 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 first “Annual Monitoring Report” of ME&IE Consultants for the NPIWC Phase-II project, to serve the period from November 2020 to June 30, 2021. Although the project has passed its 2 years (2019-20 & 2020-21), but the ME&IEC was selected and appointed during the month of October 2020 and therefore, ME&IEC start executing its services from the months of November 2020. To report all the monitoring and evaluation activities carried out by ME&IEC, the compiled report consists of six chapters, as following:

Section-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 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.

Section-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 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.

Section-3 covers the details about the Annual Monitoring Report. This Annual Monitoring Report (AMR) covers the period from November 20, 2020 – June 30, 2021.

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

- Mobilization of ME&IE Consultants Teams
- Establishment/Renovation of ME&IE Consultants Offices
- Preparation/Review / Finalization of Monitoring Tools
- Training of Field Staff
- Pre-Testing Survey of Monitoring Tools
- Methodology and Sampling Framework for Sample Size Determination ME&IE Consultants (NPIWC-II)
- Training Sessions of Field Teams and Key Staff on Monitoring Tools & Android Application
- Training on Measurement of Water Flow (Pygmy Current Meter)
- Baseline Survey
- Data entry, cleaning, processing & Analysis
- Regular Monitoring
- Project Component’s Implementation Status

The comparison of cumulative targets as given in PC-1 of financial years 2019-20 and 2020-21 versus revised targets by the OFWM, which shows a significant reduction in the intervention’s targets.

- **Punjab Zone:** reduction of 22% in targets of Watercourses, similarly 50% in Water Storage Tanks and 31% in Laser Land Leveler’s respectively given in the PC-1.
- **Khyber Pakhtunkhwa Zone:** reduction of 65% in targets of Watercourses and similarly 73% in Water Storage Tanks, while no target was assigned for Laser Land Leveler’s.
- **Balochistan Zone:** reduction of 66% in targets of Watercourses and similarly 28% in Water Storage Tanks, while no target was assigned for Laser Land Leveler’s.
- **Gilgit Baltistan, AJK & ICT Units:** no revision found in targets of Watercourses and Water Storage Tanks for GB & AJK, while no target was assigned for Laser Land Leveler’s. On the other hand, in ICT Unit reduction of 35% found in revised targets of Watercourses.

Moreover, the achievements during reported years indicate that.

- **C2 (Watercourse Improvements):** achieved around 77% overall while 100% in Punjab.
- **C3 (Construction of Water Storage Tanks):** achieved 72% overall while 100% in Punjab.
- **C4 (Provision of Laser Land Leveling Units):** achieved 100% in Punjab while no target was assigned in other remaining Provinces/Units according to the issued revised targets so that no progress reported.

As the NPIWC-II is a time bound project, so that reduction in revised targets will greatly effect on the progress.

- Development of Android Based Application
- Testing of Monitoring tools on Android based system
- Website Development of NPIWC-II
- Designing of Dashboard of Project Interventions

Section-5 of this report covers the detail of deliverables submitted to Client from ME&IE Consultants during the reporting period are summarized below:

- Draft Inception Report
- Final Inception Report
- Monthly Monitoring Reports
- Quarterly Monitoring Reports
- Baseline Survey Report - Phase-1

Section-6 describes the main challenges and constraints. Few of main Challenges and Constraints are as follows:

- It was observed during the Baseline & Monitoring Surveys, that execution of improvement works and release of payments against WCs and WSTs without the issuance of Technical Sanction (TS) were found, particularly in Balochistan & up to some extent in KP. This practice does not comply the project documents (PC-I).
- It was noticed that the allocated project funds according to the approved PC-1 of all Provinces/Units were not released in time, which effected the progress of the project.

Table: ES-1: Compliance Status as per 1st Year's Quarterly Tentative Work Plans

No.	Activities Planned for the Reporting Year	Status
1	Pre-field Activities:	
1.1	Establishment, Renovation and Operational of National office Islamabad and Zonal offices.	Complied
1.2	Preparation of Draft and Final Inception Report	Complied
1.3	Meetings With stakeholders (DGs OFWM, NPC & PC).	Complied
1.4	Procurement of office Furniture, Equipment, Computer, Tabs/Smart Phone, Pygmy Current Meter and Vehicles, etc.	Complied
1.5	Establishment, Renovation and Operational of Field Offices in Punjab, KP & Balochistan Zones	Complied
1.6	Preparation of 3-months plans	Complied
2	Field Activities:	
2.1	Mobilization of field teams.	Complied
2.2	Data collection from OFWM Department/NWMC for Baseline survey/regular monitoring	Complied/continued for current year
2.3	Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System	Complied
2.4	Training of Measurement of water flow-Pygmy current meter	Complied
2.5	Determinants of Sample size at District/Tehsil levels with the assistance from ADA/DDA (OFWM)	Complied/continued for current year
2.6	Baseline survey field visit	Phase-I Complied
2.7	Data entry, Data cleaning, Data processing & data Analysis	Under completion
	Regular Monitoring	Complied
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

No.	Activities Planned for the Reporting Year	Status
4	Coordination	
4.1	Meeting of DTLs with respective DTL of NWMC	Meetings conducted on regular basis
5	Deliverables:	
5.1	Submission of Draft & Final Inception Reports	Submitted
5.2	Monthly Monitoring Reports (MMRs)	6 MMRs – December 2020 to 30 th June 2021 - Submitted
5.3	Quarterly Monitoring & Evaluation Reports (QM&ERs)	1 st QM&ER (JAN-MAR 2021): Submitted 2 nd QM&ER (APR-JUN 2021): Submitted.
5.4	Baseline Survey Report	Under completion

1. INTRODUCTION TO NPIWC-II

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. DGA OFWM KP 4. DGA OFWM Balochistan 5. Director Irrigation and Small Dams, AJ&K 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 years
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 BACKGROUND

The Government of Pakistan is implementing a five-year National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II), funded by the Ministry of National Food Security and Research (MNFSR), Islamabad. The executing agencies (EAs) are Federal Water Management Cell (FWMC), all Provincial Directorates of OFWM and respective departments of AJK, GB and ICT, District Governments and Farmers' Organizations (FOs) / Water Users Associations (WUAs). The coordination rests with FPMU-FWMC Islamabad.

There was a requirement of the project implementation to hire expert services of consultants for Monitoring, Evaluation and Impact Evaluation. For this purpose, a Joint Venture of G3 Engineering Consultants Pvt. Ltd., Ease-Pak Engineering Services (Pvt.) Ltd., Center for Social Research and Development (CSR) and ADA Inc., Canada has been selected through a competitive bidding process as ME&IE Consultants. An Agreement was signed by the Joint Venture and the National Project Coordinator (NPC) on behalf of the Client dated 26th October 2020. The ME&IE Consultants team was mobilized on 20th November 2020.

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.

1.3 BRIEF DESCRIPTION OF THE PROJECT

1.3.1 Project Development Objectives

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

1.3.2 Project Objectives - General

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/litigations,
- Motivation/participation of farmers,
- Poverty reduction through employment generation,
- Increase in crops yield/sufficiency in food.

1.3.3 Project Objectives – Quantitative

The quantitative objectives of the Project are as under:

Project outputs

- i) 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,
- ii) 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),
- iii) Construction of 14,932 water storage tanks with 60% subsidy,
- iv) 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

- i) Reduction in Water Logging and salinity in project areas to the extent of 10%,
- ii) Cropping intensity is expected to increase by 5-20%,
- iii) Crops yield is estimated to increase by 10-15%.
- iv) Equity in water distribution increased by about 30%,
- v) Reduction in water disputes/thefts and litigation amongst the Farmers over water distribution by about 80%,
- vi) Help poverty reduction through generation of employment,
- vii) Self-sufficiency in food through utilization of water saved for edible oil seed production.

Project indirect benefits to industry/economic activities

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

Awareness support to farmers

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

1.4 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. On average 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.

1.5 PROJECT COMPONENTS

The project comprises four components, detailed as under:

1.5.1 Component C1: Organization of Water Users' Associations

The effective involvement and participation of the shareholders act as a catalyst for successful implementation of any development undertaking. The key to success of OFWM program in Pakistan is farmers' participation in execution of envisaged interventions through a community driven implementation approach. The proposed works will also be carried out through the WUAs to be registered under "On Farm Water Management & Water Users Associations Ordinance [Act]-1981 (Amended 2001)" with following key responsibilities.

- i) Provide right of way for constructing watercourse,
- ii) Arrange skilled and unskilled labour required for reconstruction / maintenance of earthen water channel, installation of water control structures, and lining of critical reaches,
- iii) Procure construction materials for carrying out civil works,
- iv) Settle matters of disputes amongst the water users in respect of channel alignment, fixation of Naccas, distribution of work, etc.,
- v) Make alternate arrangements for conveyance of water during execution of improvement works,
- vi) Carry out civil works in accordance with standards and specifications under the supervision of

- OFWM field staff,
vii) Regularly undertake O&M of improved watercourses after its construction.

1.5.2 Component C2: Watercourse Improvements

Total 47,278 watercourses are planned to be improved under NPIWC-II. The share of various provinces / units is Punjab 10,000, KP 13,000, Balochistan 20,389, Gilgit Baltistan 2,500, AJ&K 1,165 and ICT 224. The project will consider three categories of the watercourses to be taken for improvement:

- 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.

1.5.3 Component C3: Construction of Water Storage Tanks

An on-farm water storage tank is a structural best management practice that enables to capture and store canal water, surface water runoff during the rainy season, tailwater from furrow irrigation etc., so that it may be used subsequently at required time of irrigation. These systems may be constructed with a water storage tank and an enlarged Tail Water Recovery Ditch (TWRD).

The purpose of providing water storage tanks includes the followings:

- 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.

It is planned that 14,932 On Farm Water Storage Tanks will be constructed during the Project period

to supply supplemental water for irrigation.

1.5.4 Component C4: Provision of Laser Land Leveling Units

Enhancement of water productivity at farm level is the most appropriate solution to redress water scarcity. Laser land leveling is the best option for improving water productivity through minimizing water application losses. Precision land leveling has been promoted in the country since the inception of OFWM program. Use of Laser technology for the purpose is the latest development, which was introduced in the country during 1985. On average Laser Land Leveler has the capacity of doing precision land leveling of about 300 acres per annum.

Laser Land leveling technology is highly popular amongst farming communities in the country especially in the Punjab because of its quick returns. Keeping in view huge demand for the technology and massive economic returns, it has been planned to provide 11,610 Laser Land Leveling Units to the farmers/service providers under NPIWC-II. 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 (one-time financial assistance of Rs. 250,000/-, while the beneficiary farmer would contribute the entire remaining cost of the equipment).

1.6 PROJECT COVERAGE AND LOCATION

The work will be undertaken in the Province of Punjab, Khyber Pakhtunkhwa (KP), Balochistan, Gilgit Baltistan excluding Sindh. It also covers Gilgit Baltistan (GB), Azad Jammu & Kashmir (AJK) and Islamabad Capital Territory (ICT). The location maps with total targets are shown in Figure-1.1.

Project Targets:

PAKISTAN



Watercourses Improvements	47,278
Construction of Water Storage Tanks	14,932
Provision of Laser Land Leveling Units	11,610

Figure 1.1: Location Map & Pakistan Targets

2. INTRODUCTION OF ME&IE CONSULTANTS

2.1 INTRODUCTION

The ME&IE Consultants are providing services 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 consultants have to 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 effective monitoring process. The MIS will help decision makers to make informed decisions.

2.2 OBJECTIVES

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

2.3 SCOPE OF THE SERVICES

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

- i) Undertake baseline, midline, and end line 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.*

2.4 MONITORING STRATEGY

The monitoring strategy planned 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 are 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 respective province/unit.	<ul style="list-style-type: none"> Baseline and impact surveys will be carried out on a 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. Based on water savings on sample watercourses, total water savings will be estimated for all project watercourses. The savings

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
			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 levelled: <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 Expert	<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 • 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.

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
7	Impact evaluation-on the stakeholders	Team Leader, Agricultural Economist & 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.

2.5 FRAMEWORK AND RESULTS-BASED MONITORING (RBM) INDICATORS

The indicators were 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.

The log-frame of the project inputs, outputs, outcomes and impacts with ME&IE methodologies is placed at **Annex-C**.

3. ANNUAL MONITORING AND EVALUATION REPORT

3.1 INTRODUCTION

Annual Monitoring & Evaluation Report (AM&ER) explains the understanding towards all activities carried out as per TORs of ME&IE assignment and their completion within stipulated time frame.

3.2 OBJECTIVE OF AM&E REPORT

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

3.3 REPORTING YEAR

This First Annual Monitoring & Evaluation Report (AM&ER) covers the period from November 20, 2020 – June 30, 2021.

The First Annual Monitoring & Evaluation Report (AM&ER) is prepared under the guidance and supervision of Mr. Saifullah Ejaz Chaudhry, Director G3 Engineering Consultants Authorized Representative of ME&IE Consultants. The following core team of NPIWC-II participated in the preparation of this Report:

National Office Core Team:

1. Dr. Muhammad Abdul Quddus, Team leader
2. Dr. Sarwar Zahid, DTL (Islamabad) ICT&AJK
3. Mr. Rizwan Saleem, ICT/Technology Specialist
4. Dr. Fateh Muhammad Chaudhry, Irrigation Agronomist
5. Mrs. Munaza Bashir Tarar, Social & Gender Specialist
6. Mr. Waseem Ahmad Masood, FM Specialist

Deputy Team Leaders:

1. Mr. Muhammad Yousaf Bhatti, DTL (Lahore) Punjab
2. Dr. Humayun Khan DTL (Peshawar) KP&GB
3. Mr. Rizwan Ahmad, DTL (Quetta) Balochistan

The Report In-hand provides the progress made in various activities relating to the accomplishment of Monitoring activities of project interventions e.g., project components implementation status, development of monitoring tools for field activities, Pre-Testing Survey of Monitoring Tools, Preparation

of Methodology of Sample Size Determination ME&IE Consultants (NPIWC-II), Training Sessions of Field Teams and Key Staff on Monitoring Tools & Android Based Application, Training on Measurement of Water Flow (Pygmy Current Meter), Baseline Survey, Development of Android Based Application, Website Development Of NPIWC-II, Designing of Dashboard of Project Interventions etc.

This report also describes all activities to be carried out as per tentative first and second quarterly work plans.

4. ENDEAVOUR /ACHIEVEMENTS DURING FY 2020-21

The achievement status of targets sets out in first and second quarterly work plan (attached as Annex-A) is as below:

4.1 MOBILIZATION OF ME&IE CONSULTANTS TEAMS

After signing the Contract Agreement with the Client, the ME&IE Consultants mobilized on November 20, 2020, to establish the project offices and start the project activities. The ME&IE Consultants mobilized team is given as Annex-E.

4.2 ESTABLISHMENT/RENOVATION OF ME&IE CONSULTANTS OFFICES

The hiring and renovation of National office Islamabad and all zonal offices was completed during the 1st Quarter, and all the offices are functional now.

4.2.1 Project National Office Islamabad

The hiring and renovation of ME&IE Consultants National office has completed, and the office is functional.

Address: House No. 6-A, F-6/4, Embassy Road, Islamabad.

4.2.2 Zonal Office - Punjab

The hiring and renovation of ME&IE Consultants Punjab Zonal office has been completed and the office is functional.

Address: First Floor, Orchard Heights, Arena Commercial, Bahria Orchard, Raiwind Road, Lahore.

4.2.3 Zonal Office -Khyber Pakhtunkhwa & Gilgit Baltistan

The renovation of ME&IE Consultants Khyber Pakhtunkhwa & Gilgit Baltistan Zonal office has been completed and the office is functional.

Address: House # 253, Hadi Lane, Backside Prime Town Apartments, Old Bara Road, University Road, Peshawar.

4.2.4 Zonal Office -Balochistan

The renovation of ME&IE Consultants Balochistan Zonal office has been completed and the office is functional.

Address: Bungalow # 543/03 Chiltan Road Quetta Cantt, Quetta.

4.2.5 Field Teams Offices - Punjab Zone

There are three field teams working in Punjab for data collection and field monitoring activities. Two teams are stationed at Lahore and the third field team is stationed at Field Office Multan to cover southern Punjab. The second team stationed at Lahore is camped at Sargodha during field operations. However, team's deployment remained largely flexible during the field activities. District wise allocation of field teams are shown in **Table-4.1**.

Table 4.1: District wise allocation of Field Teams in Punjab

Team-1	Team-2	Team-3
Chiniot	Bhakkar	Bahawalnagar
Faisalabad	Gujranwala	Bahawalpur
Jhang	Gujrat	Dera Ghazi Khan
Kasur	Hafizabad	Khanewal
Lahore	Khushab	Layyah
Nankana Sahib	Mandi Bahauddin	Lodhran
Okara	Mianwali	Multan
Pakpattan	Narowal	Muzaffargarh
Sahiwal	Sargodha	Rahim Yar Khan
Sheikhupura	Sialkot	Rajanpur
Toba Tek Singh		Vehari

4.2.6 Field Teams Offices - Khyber Pakhtunkhwa & Gilgit Baltistan Zone

There are three field teams working in Khyber Pakhtunkhwa & Gilgit Baltistan for data collection and field monitoring activities. Two teams are residing at Peshawar Zonal Office and third at Mansehra Field Office to cover Mansehra District and the entire area of Gilgit Baltistan. The second team stationed at Peshawar will be camped at Dera Ismail Khan during field operations. Team's deployment during the field activities remained flexible. District wise allocation of KP field teams is shown in **Table-4.2**.

Table 4.2: District wise allocation of Field Teams in Khyber Pakhtunkhwa & Gilgit Baltistan

Team-1 (KPK)	Team-2 (KPK)	Team-3 (KPK&GB)
Bajaur	Bannu	Abbottabad
Battagram	Dera Ismail Khan	Haripur
Buner	Hangu	Mansehra
Charsadda	Karak	Astore
Chitral	Kohat	Darel
Khyber	Kurram	Diamer
Lower Dir	Lakki Marwat	Ghanche
Lower Kohistan	North Waziristan	Ghizer
Malakand	Orakzai	Gupis-Yasin
Mardan	South Waziristan	Hunza
Mohmand	Tank	Kharmang
Nowshera		Mansehra

Team-1 (KPK)	Team-2 (KPK)	Team-3 (KPK&GB)
Peshawar		Nagar
Shangla		Roundu
Swabi		Shigar
Swat		Skardu
Torghar		Tangir
Upper Dir		
Upper Kohistan		

4.2.7 Field Teams Offices – Balochistan Zone

Three teams are deployed in Balochistan for data collection and field monitoring activities. Two teams are stationed at Quetta in the Zonal Office for covering outreach of northern areas of the province and Third field team is stationed at Naseerabad Field Office. The second team stationed at Quetta is camped at Khuzdar during field operations. Team's deployment will be remained flexible as per schedule of field visits. District wise allocation of field teams is shown in **Table-4.3**. This is an indicative arrangement.

Table 4.3: District wise allocation of Field Teams in Balochistan Zone

Team-1	Team-2	Team-3
Barkhan	Dera Bugti	Awaran
Duki	Harnai	Chagai

Team-1	Team-2	Team-3
Killa Abdullah	Jaffarabad	Gwadar
Killa Saifullah	Jhal Magsi	Kalat
Loralai	Kachi	Kech
Mastung	Kohlu	Kharan
Musakhail	Lehiri	Khuzdar
Noshki	Naseerabad	Lasbella
Pishin	Sibi	Panjgor
Quetta	Sohbat Pur	Shaheed Sikandarabad
Sherani		Washuk
Zhob		
Ziarat		

4.2.8 Field Teams Outreach Office Islamabad Capital Territory (ICT) & AJK Zone

The tenth field team is located at National Office Islamabad. This team is covering all the areas of ICT & AJK. Moreover, districts of Rawalpindi, Attock, Chakwal and Jhelum will also be covered by this team. However, team's deployment will be remained flexible as per the need of field visits.

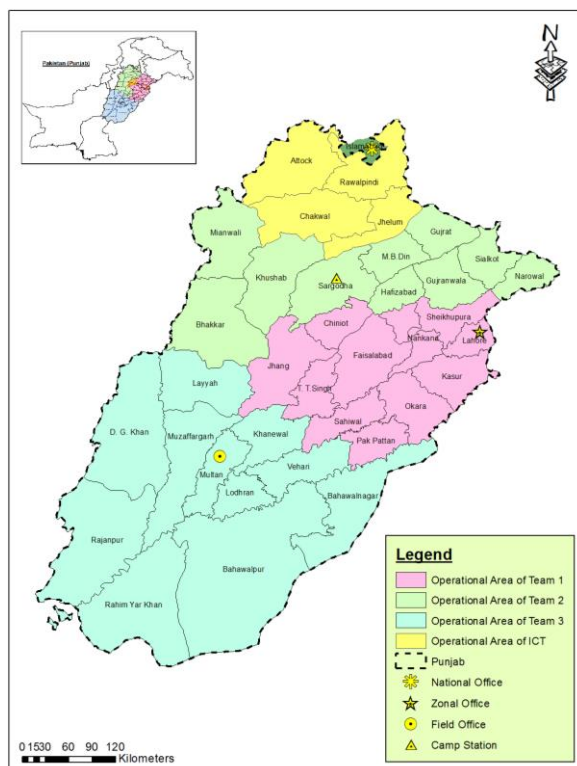


Figure 4.1: Field Teams placement and their operational areas in Punjab

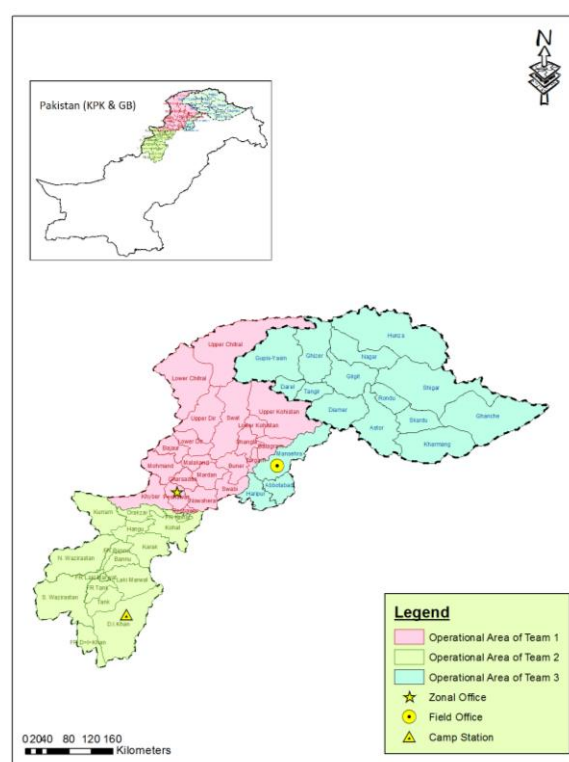


Figure 4.2 Field Teams placement and their operational areas in KP & GB



Figure 4.3: Field Teams placement and their operational areas in Balochistan



Figure 4.4: Field Teams placement and their operational areas in ICT, AJK and RWP Division

4.3 PROJECT COMPONENTS IMPLEMENTATION STATUS

4.3.1 Revised Project Targets

The following Table 4.4 shows the comparison between Cumulative targets as per PC-1 of financial years 2019-20 and 2020-21 versus revised targets by the OFWM, which shows large numbers of interventions were reduced during these years. To achieve the targeted numbers of interventions during the five years period as defined in the PC-I, the reduced numbers have to adjust in remaining three years. To achieve these extra target number during remaining years the concerning OFWM DGs have to prepare a plan which should reflect in their AWP&B (Annual Work Plan & Budget). The zone/units wise details are as following.

Punjab Zone: reduction of 22% in targets of Watercourses, similarly 50% in Water Storage Tanks and 31% in Laser Land Leveler's respectively given in the PC-1.

Khyber Pakhtunkhwa Zone: reduction of 65% in targets of Watercourses and similarly 73% in Water Storage Tanks, while no target was assigned for Laser Land Leveler's.

Balochistan Zone: reduction of 66% in targets of Watercourses and similarly 28% in Water Storage Tanks, while no target was assigned for Laser Land Leveler's.

Gilgit Baltistan, AJK & ICT Units: no revision found in targets of Watercourses and Water Storage Tanks for GB & AJK, while no target was assigned for Laser Land Leveler's. On the other hand, in ICT Unit reduction of 35% found in revised targets of Watercourses.

Table 4.4: Revised Targets and Physical Progress / Completion of the OFWM Department -Province wise / Unit wise

Province/Units	Water courses			Water storage Tanks			Laser Land Levelers		
	Cumulative Target as per PC-1 (2019-21)	Revised Targets (2019-21)	Percentage (PC-1 vs Revised)	Cumulative Target as per PC-1 (2019-21)	Revised Targets (2019-21)	Percentage (PC-1 vs Revised)	Cumulative Target as per PC-1 (2019-21)	Revised Targets (2019-21)	Percentage (PC-1 vs Revised)
Punjab	2100	1648	78%	800	401	50%	3900	2700	69%
KP	4800	1658	35%	1850	507	27%	200	-	
Balochistan	7270	2505	34%	1360	986	72%	550	-	
GB	992	993	100%	327	327	100%	2	-	
AJK	417	417	100%	240	240	100%	2		
ICT	69	45	65%	-	-				

4.3.2 Project Progress

The following table 4.5 describe the progress achievements during reported years.

- **C2 (Watercourse Improvements):** achieved around 77% overall while 100% in Punjab, 93.6% in KP, 76% in Balochistan, 28.3% in GB, 44.6% in AJK and 44.4% in ICT.
- **C3 (Construction of Water Storage Tanks):** achieved 72% overall while 100% in Punjab, 91% in KP, 48% in Balochistan, 80% in GB and 71.6% in AJK.
- **C4 (Provision of Laser Land Leveling Units):** achieved 100% in Punjab while no target was

assigned in other remaining Provinces/Units according to the issued revised targets so that no progress reported.

The described progress is alarming for the overall achievement of the targets, as the NPIWC-II is a time bound project. Even though the 100% progress of Punjab is not satisfactory because it is based on 22% reduced revised targets. While other Zones/Units even not achieved the reduced revised figures of targets, then how they will achieve the 100% during the project period.

Table 4.5: PC-1 Targets Vs Revised Targets by OFWM Department

Province/Units	Water courses		Water storage Tanks		Laser Land Levelers	
	Revised Targets (2019-21)	Targets Completed by Department (2019-21)	Revised Targets (2019-21)	Targets Completed by Department (2019-21)	Revised Targets (2019-21)	Targets Completed by Department (2019-21)
Punjab	1648	1648	401	401	2700	2700
KP	1658	1553	507	462	-	-
Balochistan	2505	1903	986	475	-	-
GB	993	281	327	263	-	-
AJK	417	186	240	172	-	-
ICT	45	20	-	-	-	-

4.3.3 Project Consultants' Progress

The following table 4.5 describe the progress achievements during reported years.

Table 4.6: Revised Targets Vs Verification by NWMCs of Provinces / Units

Province/Units	Water courses		Water storage Tanks		Laser Land Levelers	
	Revised Targets (2019-21)	Targets Verified by Project Consultants (2019-21)	Revised Targets (2019-21)	Targets Verified by Project Consultants (2019-21)	Revised Targets (2019-21)	Targets Verified by Project Consultants (2019-21)
Punjab	1648	1459	401	400	2700	794
KP	1658	492	507	209	-	-
Balochistan	2505	837	986	363	-	-
GB	993	261	327	112	-	-
AJK	417	186	240	133	-	-
ICT	45	20	-	-	-	-

Cumulative Summary of Civil Works Progress of NPIWC-II Project is given as Annex-F. Progress of Civil Works F.Y. 2019-20 & 2020-21 of Project is given as Annex-G. The financial status in the light of allocation and expenditures on project components till reporting is given as Annex-H.

4.4 MEETINGS AND VISITS OF ME&IE CONSULTANTS - PUNJAB ZONE

The Following meetings have been carried out by ME&IE Teams

Date	Venue/Participants
December 22, 2020	DG Agricultural Office, Devis Road i. Malik Muhammad Akram, DGA (OFWM) Punjab ii. Hafiz Qaiser Yaseen, DDA Head Quarter (OFWM) iii. Mr. Tahir Mahmood, ADA iv. Dr. Muhammad Abdul Quddus Team Leader v. Mr. Muhammad Yousaf Bhatti, DTL vi. Mr. Rizwan Saleem, ICT Specialist
Agenda/Outcome	
Introduction of ME&IE activities. DG suggested that a team be deployed in Sargodha just like PC (NESPAC) for better coordination and saving time in collection of relevant data from the field, which was complied.	
Date	Venue/Participants
January 5, 2021 at 4:00PM	DG Agricultural Office, Devis Road. i. Malik Muhammad Akram, DGA (OFWM) Punjab

- ii. Hafiz Qaiser Yaseen, DDA Head Quarter (OFWM)
- iii. Mr. Tahir Mahmood, ADA
- iv. Dr. Muhammad Abdul Quddus Team Leader
- v. Mr. Muhammad Yousaf Bhatti, DTL
- vi. Mr. Waseem Ahmad Masood, FMS

Agenda/Outcome

Liaison, Coordination and Data Collection.
Liaison mechanism and focal person for coordination were nominated and data of OFWM was shared with ME&IE.

Date	Venue/Participants
January 21, 2021, at 11.00 AM	NESPAC House i. Dr. Ali Raza, Team Leader NWMC (NESPAC) ii. Mr. Shahzad, Design Engineer NWMC (NESPAC) iii. Mr. Khurram Ahmad, GIS Specialist (NESPAC) iv. Mr. Haseeb, Senior Engineer NWMC (NESPAC) v. Dr. Muhammad Abdul Quddus Team Leader vi. Mr. Muhammad Yousaf Bhatti, DTL vii. Mr. Rizwan Saleem, ICT Specialist viii. Mr. Waseem Ahmad Masood, FMS
Agenda/Outcome	
General technical issues and procedure for close coordination for the achievement of project milestones successfully.	

	<p>The NWMC (NESPAK) agreed to provide required project data to the ME&IE Consultants regarding; Design and cost estimates, Interim Completion Report (ICR-I) and (ICR-II) of Watercourses, Completion Reports of Watercourses and Water Storage Tanks, Copies of the inspection reports on Laser Land Leveler, Provision Monthly and other progress reports.</p> <p>i. Before transmitting data on the dashboard for the public, PC desired that at least one week validation period be allowed.</p> <p>ii. Nomination of focal persons for coordination proposed from both sides</p>
Date	Venue/Participants
January 11, 2021	<p>Office of Deputy Director Agriculture Kasur City.</p> <p>i. Rana Tajammal Hussain, DDA (OFWM), Kasur</p> <p>ii. Mr. Atiq-Ur-Rehman, Asstt. Agronomist, Kasur</p> <p>iii. Mr. Mohsin Bashir, Asstt Agri Engineer, Kasur</p> <p>iv. Mr. Niaz Ahmad, Supervisor, Tehsil Kasur</p> <p>v. Dr. Muhammad Abdul Quddus Team Leader</p> <p>vi. Mr. Muhammad Yousaf Bhatti, DTL</p>
	Agenda/Outcome
	<p>Activities of OFWM field staff at district and tehsil level, Sharing of data/information.</p> <p>General discussion on the activities of OFWM field staff carried out and Data/information about project interventions with ME&IE Consultants was shared</p>
Date	Venue/Participants
February 12, 2020, at 4:00PM	<p>DG Agricultural Office, Devis Road</p> <p>i. Mr. Hafiz Qaisar Yasin Deputy Director (Headquarters) OFWM, Lahore</p> <p>ii. Mr. Tahir Mehmood, Assistant Director (Technical) OFWM, Lahore</p> <p>iii. Dr. Muhammad Abdul Quddus, Team Leader ME&IE Consultants (NPIWC-II)</p>

	<p>iv. Mr. Muhammad Yousaf Bhatti, Deputy Team, Leader (Punjab Zone) ME&IE Consultants (NPIWC-II)</p> <p>v. Mr. Waseem Ahmad Masood Ch. Financial management Specialist ME&IE Consultants (NPIWC-II)</p>
	Agenda/Outcome
	<p>explore the in-depth mechanism of working on different interventions of this Project.</p> <p>General issues relevant to the working process of project's interventions were discussed in detail and assured cooperation to each other in future.</p>
Date	Venue/Participants
February 23, 2021, at 3.00 pm	<p>DG Agricultural Office, Devis Road</p> <p>i. Malik Muhammad Akram, DGA (OFWM) Punjab</p> <p>ii. Dr. Maqsood Ahmad, Director, Water Management Training Institute, Lahore</p> <p>iii. Hafiz Qaiser Yaseen, DDA Head Quarter (OFWM)</p> <p>iv. Mr. Tahir Mahmood, ADA</p> <p>v. Dr. Muhammad Abdul Quddus Team Leader</p> <p>vi. Mr. Muhammad Yousaf Bhatti, DTL</p> <p>vii. Mr. Waseem Ahmad Masood, FMS</p> <p>viii. Mr. Rizwan Saleem, ICT Specialist</p> <p>ix. Mr. Muhammad Tariq Khan, DTL, NWM Consultants</p>
	Agenda/Outcome
	<p>NWM Consultants presented the current status of the activities of NWM Consultants in the Punjab Zone.</p> <p>Different options of data sharing and reporting systems were discussed. The Director General Agriculture (OFWM) asked DTL (NWMC) to share all the basic data with ME&IE Consultants in order to facilitate them in the field activities. Meeting ended with the assurance to Continue cooperation with all of the stakeholders in future.</p>
Date	Venue/Participants
	Office of Director (Agri) OFWM Training Institute, Lahore

March 04, 2021, at 11:00 AM	<p>i. Dr. Muhammad Maqsood Ahmad, Director, OFWM Training Institute, Lahore.</p> <p>ii. Dr. Muhammad Mujahid, Assistant Horticulturist, Training Institute, Lahore.</p> <p>iii. Dr. Muhammad Abdul Quaddus, Team Leader</p> <p>iv. Muhammad Yousef Bhatti, DTL</p>
	<p>Agenda/Outcome</p> <p>To get in depth exposure of the training mechanism of farmers, particularly the service provider / operator of Laser Land Leveler units, an important intervention of the NPIWC-II.</p> <p>Learnt regarding Various Training programs, being organized by the institute including Laser Land Leveler training. The team checked various designs/modules of Laser Land Leveling units and learned a lot of knowledge about this technology.</p>
Date	Venue/Participants
April 19, 2021	<p>Zoom meeting from National Office Islamabad</p> <p>i. Ch. Saifullah Ejaz, Project Coordinator</p> <p>ii. Dr. Muhammad Abdul Quaddus Team Leader</p> <p>iii. Muhammad Yousaf Bhatti Dy. Team Leader, Lahore</p> <p>iv. Rizwan Ahmad Dy. Team Leader, Quetta</p> <p>v. Other core team members</p>
	<p>Agenda/Outcome</p> <p>Meeting was held by the Team Leader on Zoom to discuss the achievements during the last quarter and the planning / implementation of the Baseline Survey. All DTLs gave suggestions and shared strategies to initiate the Baseline Survey in their respective zones.</p>
Date	Venue/Participants
April 19, 2021	<p>Zoom meeting from National Office Islamabad</p> <p>i. Dr. Muhammad Abdul Quaddus Team Leader</p> <p>ii. Muhammad Yousaf Bhatti Dy. Team Leader, Lahore</p> <p>iii. Rizwan Ahmad Dy. Team Leader, Quetta</p>

	<p>iv. Dr. Zahid Sarwar Dy. Team Leader Islamabad</p>
	<p>Agenda/Outcome</p> <p>Meeting was held by the Team Leader on Zoom to discuss the various strategies and options for starting Baseline Survey-I immediately after training on the Android Based system.</p> <p>The Chair asked all the DTLs to send their logistic and field team members requirements immediately and be ready for field survey in their respective zones at any time.</p>
Date	Venue/Participants
April 27, 2021	<p>Punjab Zonal Office Lahore</p> <p>i. Dr. Muhammad Abdul Quaddus Team Leader</p> <p>ii. Muhammad Yousaf Bhatti Dy. Team Leader, Lahore</p> <p>iii. Rizwan Ahmad Dy. Team Leader, Quetta</p> <p>iv. Dr. Zahid Sarwar Dy. Team Leader Islamabad</p>
	<p>Agenda/Outcome</p> <p>Dr Muhammad Abdul Quaddus team leader Monitoring Evaluation & Impact Evaluation specialist visited office and review the Progress of Punjab zone. He also conducted one on one meetings with entire field team members.</p>
Date	Venue/Participants
June 14, 2021	<p>DG Agricultural Office, Devis Road</p> <p>i. Malik Muhammad Akram, Director General (OFWM) Punjab</p> <p>ii. Dr. Maqsood Ahmad, Director, Water Management Training Institute, Lahore</p> <p>iii. Hafiz Qaiser Yaseen, DDA Head Quarter (OFWM)</p> <p>iv. Mr. Tahir Mahmood, ADA</p> <p>v. Dr. Muhammad Abdul Quaddus Team Leader</p> <p>vi. Mr. Muhammad Yousaf Bhatti, DTL</p> <p>vii. Mr. Muhammad Tariq Khan, DTL, NWM Consultants</p> <p>viii. Mr. Awais Saqi - Field Team In charge, ME&IE Consultants</p> <p>ix. Mr. Shumail Mehmood - PMIS Data Expert, ME&IE Consultants</p> <p>x. Mr. Irfan Aziz - Coordinator ME&IE Consultants</p>

Agenda/Outcome	
	Presentation on Progress of implementation of Project and Deployment of Staff Status by Mr. Muhammad Tariq Khan Deputy Team Leader NWM Consultant Lahore.
	Presentation on Progress of Baseline Survey and Deployment of Staff Status by Mr. Muhammad Yousaf Bhatti Deputy Team Leader ME & IE Consultant Lahore.
	D.G Agriculture asked DTL ME & IE Consultant Punjab Zone Lahore to Submit the details Regarding Baseline Survey and Field Team Mobilization to the Coordinator.
Date	Venue/Participants
11-12 June 2021	Punjab Zonal Office Lahore i. Mr. Muhammad Yousaf Bhatti (DTL Punjab) ii. Field In charges (3 No.) iii. Field Enumerators (6 No.)
Agenda/Outcome	
Progress Review Meeting. Two Days training was organized by the field teams under the supervision of Mr. Muhammad Yousaf Bhatti (DTL Punjab) from 11-06-2021 to 12-06-2021. All field staff were given a mock exercise before going to field for better understanding of field environment. All this was carried out to minimize errors while uploading data through android base application ODK (Open Data Kit) and the interview with farmers. One person was a farmer and the other became an interviewer for questioning. This yielded a very positive result during field visit.	

	Yousaf Bhatti, Deputy Team Leader Lahore Zone
OFWM Staff	Mr. Attiq-Ur-Rehman ADA, Mr. Mohsin Bashir, AAE and Mr. Niaz Ahmad Supervisor
Name of Chairman WUA/farmer	Mr. Fiaz Ahmad
Length	New Watercourse 240Meter
Year	2020-21
Current Status	Uncompleted
Source of water	Canal
Command Area	-
Data of Water Users Association	WUA data was available
Farmer / Beneficiary Feedback:	
Increase in cropped area	Yes
Increase in delivery efficiency	Yes
Reduction in conveyance losses	Yes
Increase in cropping intensity	Yes
Increase in crop yield	Yes
Saving in time and labour	Yes
Reduction in water losses	Yes (about 80%)



Figure 4.5: Visit of New Watercourse at Lumbe Kadhe village, District Kasur

1) Field Visit – District Kasur:

Field Visit	Description
Type of Scheme	New Watercourse
Date of visit	January 11, 2021
Name of Place	Lumbe Kadhe village, District Kasur
ME&IE Consultants Staff	Dr. Muhammad Abdul Quddus, Team Leader and Mr. Muhammad

2) Field Visit – District Kasur:

Field Visit	Description
Type of Scheme	Provision of LLL
Date of visit	January 11, 2021
Name of Place	Nizam Pura village, District Kasur
ME&IE Consultants Staff	Dr. Muhammad Abdul Quddus, Team Leader and

	Mr. Muhammad Yousaf Bhatti, Deputy Team Leader Lahore Zone
OFWM Staff	Mr. Attiq-Ur-Rehman ADA, Mr. Mohsin Bashir, AAE and Mr. Niaz Ahmad Supervisor
Name of farmer	Mr. Ali Asghar
Length	New Watercourse 240Meter
Date of LLL received	November 2020
Current Status	Uncompleted
Source of water	Barani Area
Owner of Land	8 Acre
Total Cost of LLL	PKR. 520,000
Subsidy by OFWM	PKR.250,000
Per Hour rate of LLL	PKR. 1500
Total Cost of LLL	PKR. 520,000
Total Cost of LLL	PKR. 520,000
Farmer / Beneficiary Feedback:	
Increase in cropped area	Yes
Increase in delivery efficiency	Yes
Increase in cropping intensity	Yes
Increase in crop yield	Yes
Saving in time and labour	Yes
Reduction in water losses	Yes (about 50%)



Figure 4.6: Checking of Laser Land Leveler at Nizam Pura village, District Kasur

4.5 MEETINGS AND VISITS OF ME&IE CONSULTANTS – KP & GB ZONE

The Following meetings have been carried out by ME&IE Teams

Date	Venue/Participants
January 1, 2021	Office of NPC NPIWC-II. i) Mr. Tahir Anwar, NPC NPIWC-II

	ii) Mr. Hafiz Abdul Rauf, CEO of JV firm EASEPAK iii) Dr. Humayun Khan, DTL KP & GB Zone
Agenda/Outcome	
The 1st Informal Introductory meeting was held with Mr. Tahir Anwar, NPC NPIWC-II along with CEO of JV firm EASEPAK	
Date	Venue/Participants
January 7, 2021	Office of District Director OFWM Mardan i) Mr. Bakhtawar Shah, District Director OFWM Mardan ii) Dr. Humayun Khan, DTL KP & GB Zone
Agenda/Outcome	
Meeting was held with Mr. Bakhtawar Shah Sahib, District Director OFWM Mardan in his good office on January 7, 2021. The DTL briefed about ME&IE activities initiating in KP and GB and requested for the provision of NPIWC-II data of the respective district.	
Date	Venue/Participants
January 18, 2021	Office of DDA OFWM Mardan i) Mr. Bakhtawar Shah, District Director OFWM Mardan ii) Dr. Humayun Khan, DTL KP & GB Zone
Agenda/Outcome	
Follow-up meeting was held with Mr. Bakhtawar Shah Sahib, District Director OFWM Mardan in his good office on January 18, 2021 regarding collection of requested data of NPIWC-II schemes, completed in District Mardan.	
Date	Venue/Participants
January 25, 2021	Office of DG OFWM KP i) Mr. Javid Iqbal Khattak, DG OFWM KP ii) Dr. Humayun Khan, DTL KP & GB Zone
Agenda/Outcome	
DTL KP & GB Zone, Dr. Humayun Khan visited the office of Mr. Javid Iqbal Khattak, DG OFWM KP on January 25, 2021 for introductory meeting. DGA suggested to write a letter through the Ministry of National Food, Security and Research to the DG OFWM KP requesting him to direct all the District Directors/officers to co-operate/facilitate ME&IE consultant	

	teams in the study districts in their field activities.
Date	Venue/Participants
February 1, 2021	Office of DD OFWM Swabi i) District Director OFWM Swabi ii) Dr. Humayun Khan, DTL KP & GB Zone Agenda/Outcome The 1st Introductory meeting was held with District Director OFWM Swabi. Due to load shedding could not receive any data.
Date	Venue/Participants
February 2, 2021	Office of DD OFWM Swabi i) District Director OFWM Swabi ii) Mr. Qayash Ahmad, WM District Swabi iii) Dr. Humayun Khan, DTL KP & GB Zone Agenda/Outcome Acquired the basic data of Watercourse Improvement executed under NPIWC – II, from Qayash Ahmad, WMO, District Swabi.
Date	Venue/Participants
February 16, 2021	Office of DD OFWM Swabi i) Mr. Munir Iqbal Site Engineer OFWM Swabi ii) Dr. Humayun Khan, DTL KP & GB Zone Agenda/Outcome Visit to office of the OFWM Swabi and meeting with Munir Iqbal, Site Engineer.
Date	Venue/Participants
February 25, 2021	Office of DG OFWM Peshawar i) Staff DG OFWM office Peshawar ii) Dr. Humayun Khan, DTL KP & GB Zone Agenda/Outcome Involvement of female in farming activities. Due to cultural constraint most of the female involvement in farm activities are restricted to the house boundaries. However, in southern districts of the KP some of the farm households allow their female for crop cutting, cleaning, livestock grazing etc.
Date	Venue/Participants
March 15, 2021	Office of the DG OFWM Peshawar i) Mr. Tahir Anwar, National Project Coordinator (NPC) ii) Mr. Javid Iqbal DG OFWM Peshawar

	iii) Dr. Muhammad Quddus NTL ME&IE Consultants iv) Prof. Dr. Humayun Khan, DTL ME&IE Consultants v) Dr. Rab Nawaz Khan DD OFWM Peshawar vi) Mr. Wajid Khan WMO OFWM Peshawar vii) ME&IE Consultant Team (Two Persons) viii) 3 other officials of DG OFWM office Peshawar ix) Saiful Islam Project Coordinator ISB Agenda/Outcome Represented the KP zone as DTL ME&IE consultant NPIWC- II in a meeting scheduled by the Client Ministry of Food and National Security, Islamabad (Federal OFWM cell,) in the office in the office DG OFWM KP Peshawar. The following attended the meeting.
Date	Venue/Participants
March 25, 2021	Office of the DG OFWM Peshawar i) Mr. Javid Iqbal DG OFWM Peshawar ii) Prof. Dr. Humayun Khan, DTL ME&IE Consultants iii) Dr. Rab Nawaz Khan DD OFWM Peshawar iv) Mr. Wajid Khan WMO OFWM Peshawar v) ME&IE Consultant Team members Agenda/Outcome Visited office of the DG OFWM Peshawar in connection with our field activities and requested for the required data for our pretesting of the Monitoring Tools and deputing the relevant staff for the pretesting survey. Dr. Rab Nawaz, District Director OFWM and Mr. Wajid WMO Peshawar promised to extend all cooperation in this regard.
Date	Venue/Participants
April 19 and 20, 2021	Office of the PD OFWM Peshawar i) Dr. Rab Nawaz Khan DD OFWM Peshawar ii) Muhammad Bilal ME&IE Consultants iii) Fawad Ahmad ME&IE Consultants

Agenda/Outcome	
<p>Introductory meeting for ICT KP, Data for baseline finalization.</p> <p>The Project Director extended his support; however, he asked the ME&IE consultants to elaborate their activities and working mechanism with him through a presentation.</p> <p>He also introduced the team with Mr. Jamil (GIS and data in charge) for further coordination with him for any data collection and queries.</p> <p>The data was later shared by Mr. Jamil with ME&IE consultants, which was forwarded to ICT specialists at Islamabad Office.</p>	
Date	Venue/Participants
4 th May 2021	<p>DG OFWM Office KP</p> <p>i) DG OFWM KP</p> <p>ii) DTL ME&IE Consultants</p>
Agenda/Outcome	
<p>Support to conduct a baseline survey in Peshawar.</p> <p>He told that his team may not be available on the requested dates, thus this survey cannot be held from 07 May 2021 due to Ramzan month.</p> <p>He asked that his department is ready to support the ME&IE Consultants however, they must inform the office well in time.</p>	
Date	Venue/Participants
31 May 2021	<p>Office of Dr. Rab Nawaz, Project Director NPIWC-II, OFWM.</p> <p>i) Dr. Rab Nawaz, Project Director NPIWC-II OFWM</p> <p>ii) DTL ME&IE Consultants</p>
Agenda/Outcome	
<p>Provision of "Technical Sanction" data</p> <p>He clearly said that the DG office is unable to support the ME & IE team in this regard because field teams are busy in multiple tasks.</p> <p>PD allowed ME&IE Consultants to collect the required data directly from field offices</p> <p>He also advised to send requests through official letter.</p>	
Date	Venue/Participants
8 th June 2021	<p>On farm Water Management</p> <p>i) Dr. Rab Nawaz, Project Director NPIWC-II</p> <p>ii) Dr. Muhammad Abdul Quddus, Team Leader</p>

<p>iii) Mr. Rizwan Saleem ICT Specialist</p> <p>iv) Muhammad Bilal ME&IE Consultants</p>	
Agenda/Outcome	
<p>Data Presentation of Dashboard for KP.</p> <p>During the meeting, it was shared with him that what will be the mode of data from ME&IE and how it will be reflected at Dashboard.</p> <p>He advised to load the KP data on dashboard and come with presentation of KP only, so he may further discuss things for improvement. He further advised that ME&IE may coordinate themselves with the District Officers for collection of TS data and other information whenever required.</p>	
Date	Venue/Participants
8 th June 2021	<p>Project Management Unit</p> <p>i) Dr. Muhammad Abdul Quddus, Team Leader</p> <p>i) Mr. Behram Jan, PMU Coordinator</p> <p>ii) Mr. Asad, PMU Dy Coordinator</p> <p>iii) Mr. Saeed Dy Coordinator</p> <p>iv) Mr. Rizwan Saleem ICT Specialist</p> <p>v) Muhammad Bilal ME&IE Consultants</p>
Agenda/Outcome	
<p>Introduction with PMU.</p> <p>At PMU office met with Mr. Bahram Jan (Coordinator), Mr. Asad and Saeed Dy Coordinators.</p> <p>It was told by Mr. Bahram Jan that they are monitoring field activities from Govt. of KP. They were wishing to have meeting with ME&IE so they can have good collaboration in future. They further invited ME&IE team at JRM Meeting.</p>	
Date	Venue/Participants
10 th June 2021	<p>Project Monitoring Unit</p> <p>i) Secretary Agricultural</p> <p>ii) Dr. Muhammad Abdul Quddus, Team Leader (ME&IE-NPIWC-II)</p> <p>iii) Dr. Usman TL (ME&IE-WC-KP)</p> <p>iv) Muhammad Bilal ME&IE Consultants</p> <p>v) PMU Staff</p> <p>vi) OFWM DG</p> <p>vii) Soil Conservation DG</p> <p>viii) NESPAK Representative</p>

	ix) AGES Representative
	Agenda/Outcome
	Joint Review meeting (JRM) The following has been noted accordingly. Third party monitoring should start their activities earliest towards monitoring and impact evaluation. It was expressed by ME&IE that they will cover all the targets with time and as they have to cover 2% data for baseline and 5% for monitoring, so it will not be a problem. He further raised issues at field level by consultants and line departments and their responses were noted accordingly. During different discussion and presentation of ME&IE the following instructions/suggestion were given by Secretary Agriculture: 1. The Government is interested in water saving as well crop productivity and intensity and land utilization. 2. It would be great to provide a training to OFWM staff for their record keeping and making it digital. 3. A provincial dashboard is already in place, and it would be better that ME&IE may put their data in that dashboard also. 6. ME&IE must incorporate Livestock and fisheries relevant questions in their survey. 7. ME&IE should report the quality of Yards in their environment question, where it was told by TL that it is in their mandate, and they will do it.
Date	Venue/Participants
14 June 2021	OFWM office Peshawar i) Dr. Rab Nawaz DG OFWM KP ii) ME&IE Consultants team: Mr. Muhammad Bilal, Mumtaz Ullah, Inam Ullah, Mahmood Ul Hassan
	Agenda/Outcome
	A coordination meeting with DG Of OFWM Dr. Rab Nawaz took place on 14 th June at his office Peshawar, where Field Team In charges of all three KP Zones were introduced to him. A baseline survey plan was shared with him, and support was requested at field level in terms of provision of

	human resource for facilitating the ME&IE at field level survey. Dr. Rab Nawaz told that now a days OFWM staff is busy in their closing and will visit to AG Office for submission of annual expenses during 15 th to 20 th June, however, on request, he said that his team will be available from 16 June.
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1) Field Visit - Palato village, District Mardan:

The Deputy Team Leader visited schemes of Mardan with staff of OFWM as per detail given below:

Field Visit	Description
Type of Scheme	Watercourse
Date of field visit	January 1, 2021
Name Place	Palato village, District Mardan
ME&IE Consultants	Mr. Dr. Humayun Khan DTL KP & GB Zone
OFWM Staff	Mr. Saeed Shah Engineer
Name of Farmer	Dr. Muhammad Israr Farm Manager
Length	-
Year	2019-20
Current Status	Completed
Source of water	Canal
Command Area	20 Acres
Farmer / Beneficiary Feedback:	
Cropped area	Increased
Farming efficiency	Increased
Cropping intensity	Increased
Crop Yield	Increased
Water losses	Reduced about 50%
Saving of Water	Yes about 50%
Time saving	Two to three hours per turn



Figure 4.7 Visit of Scheme-Watercourse at Palato village, District Mardan



Figure 4.8: Visit of Scheme-Watercourse at Palato village, District Mardan

2) Field Visit – Village Ambar, District Swabi

The Deputy Team Leader visited schemes of Swabi with staff of OFWM as per detail given below:

Field Visit	Description
Scheme name	Water Storage Tank
Cost of Construction	Rs. 4,20,000
Village name	Ambar
Date of visit	15-02-2021
ME&IE consultant staff	Dr. Humayun khan DTL
OFWM staff	Mr. Munir Iqbal Site Engineer
Beneficiary	Haider Zaman
Year	2020
Current status	Completed
Source of irrigation	Solar Tube well
Command Area	About 20 acres
Beneficiary Feedback	
Cropped area	Increased
Farming efficiency	Increased
Cropping intensity	Increased
Crop yield	Increased
Water losses	Reduced about 30%
Water saving	About 30 %
Time saving	Two to three hours



Figure 4.9: Visit of Scheme Tube well Water Storage Tank at village Ambar District Swabi

3) Field Visit – village Wazir Abad, district Swabi:

The Deputy Team Leader visited schemes of Swabi with staff of OFWM as per detail given below:

Field Visit	Description
Scheme name	37375/R
Cost of Construction	Rs. 4,80,000
Village name	Wazir Abad
Date of visit	22-02-2021
ME&IE consultant staff	Dr. Humayun khan DTL
OFWM staff	Mr. Munir Iqbal Site Engineer
Beneficiary	Tarif Fazal
Year	2020
Current status	Completed
Source of irrigation	Canal
Command Area	About 33 acres
Beneficiary Feedback	
Cropped area	Increased
Farming efficiency	Increased
Cropping intensity	Increased
Crop yield	Increased
Water losses	Reduced about 50%
Water saving	About 50 %
Time saving	Two to three hours per turn



Figure 4.10: Visit of Scheme-Watercourse at Wazir Abad District Swabi

4.6 MEETINGS AND VISITS OF ME&IE CONSULTANTS – BALOCHISTAN ZONE

The Following meetings have been carried out by ME&IE Teams

Date	Venue/Participants
December 30, 2020	Office of Deputy Director, Technical, OFWM Quetta i. Mr. Wali Tareen, Deputy Director, Technical, OFWM Quetta ii. Mr. Rizwan Ahmed, DTL Balochistan
Agenda/Outcome	
The 1 st meeting was held with Mr. Wali Tareen, Deputy Director, Technical,	

	OFWM in his good office on December 30, 2020. The Deputy Team Leader shared ME&IE progress with him and briefed about ways of working to be conducted during ME&IE activities.
Date	Venue/Participants
December 30, 2020	Office of Director OFWM Quetta i. Mr. Munir, Director, OFWM Quetta ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 2nd meeting was held with Mr. Munir, Director, OFWM on the same date i.e., 30th Dec. 2020. The DTL discussed the field plan. Mr. Munir deputed his staff for joint visit of three schemes i.e., Watercourses, PVC Pipe and Water Storage Tank of Quetta district.
Date	Venue/Participants
January 5, 2021	Office of DDA (Technical) OFWM Quetta i. DDA (Technical) OFWM Quetta ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 3rd meeting was held with DDA (Technical), OFWM Quetta in his office on January 5, 2021, regarding data collection.
Date	Venue/Participants
January 11, 2021	Office of Director General, OFWM Quetta i. Director General, OFWM Quetta ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 4 th meeting was held with Director General, OFWM in his good office on January 11, 2021, regarding data collection and briefed the role of ME&IE Consultants in NPIWC-II Project.
Date	Venue/Participants
January 12, 2021	Zonal Office Quetta of DTL NWMC (NESPAK) Balochistan i. DTL, NWMC (NESPAK) Balochistan ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 5 th meeting was held with DTL, NWMC (NESPAK) Balochistan at their Zonal Office Quetta on January 12,

	2021 to discuss the project activities and data collection.
Date	Venue/Participants
January 12, 2021	Office of Director General, OFWM Quetta i. Director General, OFWM Quetta ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 6 th meeting was held with Director General, OFWM in his good office on January 12, 2021, regarding data collection and discussion on project activities.
Date	Venue/Participants
January 18, 2021	Zonal Office Quetta of DTL NWMC (NESPAK) Balochistan i. DTL, NWMC (NESPAK) Balochistan ii. Mr. Rizwan Ahmed, DTL Balochistan
	Agenda/Outcome
	The 7 th meeting was held with DTL, NWMC (NESPAK) Balochistan at their Zonal Office Quetta on January 18, 2021, to discuss the monitoring tools required to ME&IE Consultants.
Date	Venue/Participants
February 03, 2021	Office of DG Agriculture, OFWM Balochistan, Directorate General Agriculture Balochistan, Sariat Road, Quetta i. Mr. Behram Malghani, Agriculture Officer, OFWM ii. Mr. Qaseem Agha, Deputy Director, OFWM iii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan
	Agenda/Outcome
	<ul style="list-style-type: none"> Discussed / briefed the role of ME&IE Consultants Discussed / requested for data regarding Social and Gender Component. Discussed and took information regarding women participation in Agriculture Sector. <p>Meeting Outcomes: Data/information received regarding women participation orally.</p>
Date	Venue/Participants
February 09, 2021	Office of Project Consultants, NPIWC-II, Balochistan,

	<p>Arbab Karam Khan Road, Khair Bakhsh Marri Street, Quetta</p> <p>i. Mr. Khalid Mehmood, Dy, Team Leader, Project Consultants, Balochistan</p> <p>ii. Mr. Subhan, Field Engineer, Project Consultants, Loralai Zone, Balochistan</p> <p>iii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan</p>
	<p>Agenda/Outcome</p> <ul style="list-style-type: none"> Discussed the ongoing project activities at both side Dy. TL, Project Consultants shared information regarding hiring of field staff and selected field offices to be established as per plan. Discussed the completed schemes (2019-20) Requested the data of schemes completed in all respect (file work) to make plan for ME&IE visits. <p>Meeting Outcomes: Project Consultants provided the data/information which they had checked and found completed in all respects.</p>
Date	Venue/Participants
February 11, 2021	<p>Office of DG Agriculture, OFWM Balochistan, Directorate General Agriculture Balochistan, Sariat Road, Quetta</p> <p>i. Mr. Behram Malghani, Agriculture Officer, OFWM</p> <p>ii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan</p>
	<p>Agenda/Outcome</p> <p>Discussed / briefed the ongoing project activities of ME&IE Consultants.</p> <p>Meeting Outcomes: The aim of visit was to collect the required official data regarding ME&IE activities, but due to non-availability of Technical Staff data could not be obtained.</p>
Date	Venue/Participants
March 05, 2021	Office of DG Agriculture, OFWM Balochistan, Directorate General

	<p>Agriculture Balochistan, Sariat Road, Quetta</p> <p>i. Director General, OFWM Quetta</p> <p>ii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan</p>
	<p>Agenda/Outcome</p> <p>A meeting held with Director General, OFWM in his good office on 5th March 2021 regarding data collection / inventory and briefed the progress of ME&IE Consultants.</p>
Date	Venue/Participants
March 08, 2021	<p>Office of DG Agriculture, OFWM Balochistan, Directorate General Agriculture Balochistan, Sariat Road, Quetta</p> <p>i. Secretary, Agriculture Department, Govt. of Balochistan</p> <p>ii. All Deputy Directors, OFWM</p> <p>iii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan</p>
	<p>Agenda/Outcome</p> <p>A meeting was attended at the Director General, OFWM office, chaired by Secretary, Agriculture Department, Govt. of Balochistan on 8th March 2021. It was a Progress Review Meeting, all Deputy Directors, OFWM, Dy Team Leader, Project Consultants and Deputy Team Leader, ME&IE Consultants attended this meeting. All DDs and DTLs shared the progress of NPIWC-II. The forum advised the Secretary regarding timelines / policy to expedite the ongoing schemes. The forum discussed the progress of both financial years i.e., 2019-20 and 2020-21.</p>
Date	Venue/Participants
March 15, 2021	<p>Office of DTL, ME&IE Consultants Quetta</p> <p>i. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan</p> <p>ii. Team members ME&IE Consultants of Balochistan zone</p>
	<p>Agenda/Outcome</p>

	A meeting was held with Deputy Team Leader, Project Consultants in his office on 15 th March 2021 to collect data / inventory of 2020-21 schemes. The DTL, Project Consultants told ME&IE Consultants that the survey works of schemes 2020-21 are under progress, as soon as the survey/feasibility works done the same will be shared with ME&IE Consultants.
Date	Venue/Participants
22nd March 2021	OFWM Staff Balochistan, Quetta. i. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan
	Agenda/Outcome
	A meeting held with OFWM staff regarding finalization of field visits for pre-testing of MTs
Date	Venue/Participants
March 25, 2021	Office of Deputy Director, OFWM, Mastung i. Deputy Director, OFWM, Mastung ii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan
	Agenda/Outcome
	A meeting was held with Deputy Director, OFWM, Mastung in his office at district Mastung on 25th June 2021. The ME&IE Consultants shared findings of field visits and discussed the upcoming field visits plan and baseline survey activities. The ME&IE Consultants checked the files of Farmer/Beneficiaries and took the data as per requirement.
Date	Venue/Participants
April 07, 2021	Zoom meeting. i. Ch. Saifullah Ejaz, Project Coordinator ii. Dr. Muhammad Abdul Quddus Team Leader iii. Muhammad Yousaf Bhatti Dy. Team Leader, Lahore iv. Rizwan Ahmad Dy. Team Leader, Quetta
	Agenda/Outcome
	A meeting was held by the Team Leader on Zoom to discuss the planning / implementation of

	Baseline Survey. All DTLs gave suggestions and shared strategies to initiate the Baseline Survey on their zones. The DTLs shared required logistic support for the Baseline Survey at the end of the National Office
Date	Venue/Participants
April 13, 2021	Office of Director General, OFWM, Balochistan, Saria Road, Quetta. i. Mr. Wali Muhammad, Deputy Director, Technical, OFWM, Quetta. ii. Mr. Behram Mulghani, Agriculture Officer, OFWM, Quetta. iii. Mr. Qaisar Tareen, M&E Officer, ME&IE Consultants
	Agenda/Outcome
	A meeting was held with Deputy Director, Tech. and Agriculture Officer of OFWM regarding collection of data / inventory. The DD Technical asked the M & E Office that ME&IE Consultants may contact Deputy Directors at district levels to get such data. The Deputy Director and Agriculture Officer shared the list of all Deputy Directors with their cell numbers for further coordination. However, they assured to M&E Consultants for their support at all levels.
Date	Venue/Participants
April 13, 2021	Office of Deputy Team Leader, NWMC (NESPAC), Marri Street, Arbab Karam Khan Road, Quetta. i. Mr. Khalid Mehmood, Dy Team Leader, NWMC, NESPAC ii. Mr. Rehmat Ullah, Senior Field Engineer, Project Consultants, NESPAC iii. Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan
	Agenda/Outcome
	A meeting was attended at the office of Deputy Team Leader, NWMC NESPAC. The DTL, NESPAC requested to provide beneficiary / Farmer data of 2020-21 as the ME&IE Consultants are going to start the Baseline Survey. The DTL, NESPAC provided the data

	of 08 districts i.e., Quetta, Killa Abdullah, Pishin, Chagai, Loralai, Naseerabad, Washuk and Kharan partially. The DTL, NESPAK told DTL, ME&IE Consultants that rest of districts are under progress as soon as the feasibility of these sites is done the same will be provided to ME&IE Consultants.
Date	Venue/Participants
April 14, 2021	Telephonic discussion / meeting <ol style="list-style-type: none"> Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants Mr. Sikandar Shah, Deputy Director, OFWM, Kalat Mr. Barkat Buledi, Deputy Director, OFWM, Jaffarabad Mr. Muhammad Yousaf, Deputy Director, Khuzdar Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Consultants, Balochistan
	Agenda/Outcome
	A telephonic discussion / meeting was held by Deputy Team Leader, Balochistan regarding collection of data / inventory of 2020-21 works. The DDs shared the data with ME&IE Consultants and extended their full support and cooperation at all levels.
Date	Venue/Participants
April 29, 2021	Zoom meeting from National Office Islamabad. <ol style="list-style-type: none"> Dr. Muhammad Abdul Quddus Team Leader Muhammad Yousaf Bhatti Dy. Team Leader, Lahore Rizwan Ahmad Dy. Team Leader, Quetta Dr. Sarwar Zahid, Dy. Team Leader, Islamabad Mr. Muhammad Bilal ME&IE Consultants
	Agenda/Outcome
	A meeting was held by Team Leader, ME&IE Consultants with DTLs to discuss the plan for Baseline Survey at Zonal levels. The DTLs shared the progress regarding data / inventory collection from Client and Project Consultants till to date. The DTL,

	Balochistan shared the status of hiring field teams at zonal level.
Date	Venue/Participants
April 30, 2021	Office of Director General, OFWM, Balochistan, Sariat Road, Quetta. <ol style="list-style-type: none"> Mr. Behram Mulghani, Agriculture Officer, OFWM, Quetta Mr. Rizwan Ahmed, Dy Team Leader, ME&IE Consultants, Balochistan
	Agenda/Outcome
	A meeting was held with Mr. Behram Mulghani, Agriculture Officer OFWM. The Agriculture Officer was requested to provide the data / inventory of all 33 districts (2020-21), so that the site selections for Baseline Survey could be done accordingly. He had a busy schedule that day, however, he told Dy. Team Leader, ME&IE Consultants that the required data/information will be provided as soon as possible.
Date	Venue/Participants
10 th May 2021	Zoom meeting. <ol style="list-style-type: none"> Ch. Saifullah Ejaz Sb., Authorized Rep. G3JV Dr. Muhammad Abdul Quddus Team Leader Muhammad Yousaf Bhatti Dy. Team Leader, Lahore Dr. Sarwar Zahid Dy. Team Leader, Islamabad Rizwan Ahmad Dy. Team Leader, Quetta Other core team members
	Agenda/Outcome
	A meeting was held by the Team Leader on Zoom to discuss the planning / implementation of Baseline Survey. All DTLs gave suggestions and shared strategies to initiate the Baseline Survey on their zones.
	All DTLs, shared their strategy for initiating Baseline Survey.
	All DTLs and core team members were advised by Ch. Saif ullah Sb. to follow the timelines strictly and submission of deliverables to the Client within stipulated time.
Date	Venue/Participants
	Zoom meeting (Zonal Office, Quetta)

11 th May 2021	<ul style="list-style-type: none"> i. Dr. Muhammad Abdul Quddus Team Leader ii. M. Yousaf Bhatti Dy. Team Leader, Lahore iii. Dr. Sarwar Zahid Dy. Team Leader, Islamabad. iv. Rizwan Ahmad Dy. Team Leader, Quetta v. Other core team members
Agenda/Outcome	
A follow up zoom meeting was held by the Team Leader regarding outcomes of survey works and their analysis will be the responsibility of DTLs. It was decided a training regarding water flow measurement will be arranged to take accurate data from field.	
Date	Venue/Participants
17 th May 2021	<p>Office of OFWM Office, Gwadar (Sheed Tariq Zehri Road, Turabt)</p> <ul style="list-style-type: none"> i. Bahdur Khan (Agriculture Officer). ii. Khuda Dost, M&E Officer, ME&IE Consultants for NPIWC-II.
Agenda/Outcome	
<p>A meeting was held in the office of OFWM, Gwadar, the meeting agenda is stated below:</p> <ul style="list-style-type: none"> I. The OFWM Staff brief about the role ME&IE Consultants for NPIWC-II. II. The ME&IE Consultants were provided data of FY 2019-20 and FY 2020-21 by OFWM, Gwadar. <p>The Baseline Survey Field visits were discussed and OFWM staff assured their full support and cooperation at all levels</p>	
Date	Venue/Participants
17 th May 2021	<p>At the office of OFWM Office, Sheed Tariq Zehri Road, Turabt.</p> <ul style="list-style-type: none"> i. Barkat Ali (Agriculture Officer) ii. Dr. Nazeer Ahmed (Agriculture Officer) iii. Dawood Khan (Sub Engineer) iv. Kareem Jan (Sub Engineer) v. Khuda Dost, M&E Officer, ME&IE Consultants for NPIWC-II.

Agenda/Outcome	
<p>The M&E Officer met with OFWM staff of Turbat and discussed following points:</p> <ul style="list-style-type: none"> I. The ME&IE Consultants were provided data of FY 2019-20 and FY 2020-21 by OFWM, Turbat. <p>The tentative plan for Baseline Survey was discussed with OFWM staff. The OFWM extended their full support and cooperation for ME&IE Consultants</p>	
Date	Venue/Participants
18 th May 2021	<p>Office of Director General, OFWM Office, Sariab Road, Rani Bagh, Quetta</p> <ul style="list-style-type: none"> I. Mr. Ali Raza Jamali, Director General, OFWM, Balochistan II. Mr. Behram Mulghani, (Agriculture Officer) III. Mr. Rizwan Ahmed, Dy. Team Leader, ME&IE Consultants, NPIWC-II IV. Mr. Manzoor Kasi, M&E Expert, ME&IE Consultants for NPIWC-II
Agenda/Outcome	
<p>A meeting was held with Director General, OFWM in his good office on following agenda:</p> <ul style="list-style-type: none"> I. The DTL briefed DG, OFWM about planning and tentative work plan regarding Baseline Survey. II. The DG, OFWM extended his full support for M&E activities at all levels. III. The DG, OFWM advised to Mr. Bahram, Agriculture Officer to provide all data as per requirement of M&E Consultants. IV. The Agriculture Officer provided complete data of F.Y. 2019-20 as per requirement of ME&IE Consultants <p>The Agriculture Officer also provided the data of F.Y. 2020-21 (20 districts) and told to ME&IE Consultants the data of remaining districts are under process and will be shared soon.</p>	

Date	Venue/Participants
June 02, 2021	<p>Zoom meeting.</p> <ol style="list-style-type: none"> Dr. Muhammad Abdul Quddus Team Leader Muhammad Yousaf Bhatti Dy. Team Leader, Lahore Rizwan Ahmad Dy. Team Leader, Quetta Mr. Bilal, ME&IE Consultants <p>Agenda/Outcome</p> <p>A meeting was held by the Team Leader on Zoom and following points were discussed:</p> <ol style="list-style-type: none"> Discussed MMR for the month of May 2021 Planning / implementation of Baseline Survey. Discuss the methodology of baseline All DTL asked to prepare the tentative work plan for baseline field activities. <p>The TL requested to conduct a joint training of all field staff on Baseline MTs and measuring tools.</p>
Date	Venue/Participants
June 08, 2021	<p>Office of Deputy Director, Naseerabad, DMJ</p> <ol style="list-style-type: none"> Mr. Anwar Aadil, Deputy Director, Agriculture Department, Naseerabad Mr. Tariq, M&E Expert I/C, Team – 1, Naseerabad Zone. <p>Agenda/Outcome</p> <p>A meeting was held by the Team Leader on Zoom and following points were discussed</p> <ol style="list-style-type: none"> It was introductory meeting - Discussed the baseline survey activities Shared planning / role of M&E Consultants with DD. <p>The DD extended his support for M&E Consultants at all levels.</p>
Date	Venue/Participants
June 11, 2021	<p>Office of ME&IE Consultants, Cantt. Quetta.</p> <ol style="list-style-type: none"> Mr. Khalid Mehmood, Deputy Team Leader, Project Consultants, NPIWC-II, NESPAK

	<ol style="list-style-type: none"> Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, G3EC Mr. Manzoor Kasi, M&E Expert, I/C, M&E Consultants, G3EC. <p>Agenda/Outcome</p> <p>The DTL, Project Consultants visited the ME&IE Consultants Office at Cant. Quetta. The DTL, M&E Consultants showed him different sections of M&E Office. He also met with M&E Staff.</p> <p>The both DTL discussed the all-ongoing project activities and shared the updated project progress</p>
Date	Venue/Participants
June 16, 2021	<p>Office of Deputy Director, Naseerabad, DMJ</p> <ol style="list-style-type: none"> Mr. Ali Mardan, Site Engineer, OFWM, DMJ Mr. Tariq, M&E Expert, M&E Consultants, Mr. Saleem Abro, M&E Officer, M&E Consultants <p>Mr. Hamza Qureshi, M&E Officer, M&E Consultants.</p> <p>Agenda/Outcome</p> <p>A meeting was held by the M&E Consultants, Team-1 with OFWM Staff and discussed the following points.</p> <ol style="list-style-type: none"> It was introductory meeting - Discussed the baseline survey activities Shared visit plan with OFWM Staff. <p>The OFWM staff assured their full support at all field activities.</p>
Date	Venue/Participants
June 16, 2021	<p>Office of OFWM, Quetta at Sariab Road, Quetta.</p> <ol style="list-style-type: none"> Mr. Abdul Ghafoor Jabbar, Agriculture Officer, OFWM Mr. Khuda Dost, M&E Officer, M&E Consultants Mr. Rafiullah, M&E Officer, M&E Consultants <p>Agenda/Outcome</p> <p>A meeting was held by the M&E Consultants, Team-3 with OFWM Staff and discussed the following points.</p>

	<p>I. The M&E Consultants discussed the baseline survey activities</p> <p>II. Shared visit plan with OFWM Staff district Quetta.</p> <p>III. The OFWM staff assured their full support at all field activities.</p>
Date	Venue/Participants
June 18, 2021	<p>Office of Deputy Director, OFWM, Quetta at Sariab Road, Quetta.</p> <p>I. Mr. Noor Ahmed, Deputy Director, OFWM, Quetta.</p> <p>II. Mr. Rafiullah, M&E Officer, M&E Consultants</p>
	Agenda/Outcome
	<p>A meeting was held by the M&E Consultants, Team-3 with OFWM Staff and discussed the following points.</p> <p>I. The M&E Consultants discussed the baseline survey activities</p> <p>II. Shared visit plan with OFWM Staff district Quetta.</p> <p>III. The Deputy Director assigned his staff to support M&E Consultants during Baseline Field Activities.</p>
Date	Venue/Participants
June 21, 2021	<p>Office of M&E Deputy Director, OFWM, Kalat</p> <p>I. Mr. Sikandar Shah, Deputy Director, OFWM, Kalat</p> <p>II. Mr. Manzoor Kasi, Field Team In charge/ M&E Expert</p> <p>III. Mr. Rafiullah, M&E Officer</p> <p>IV. Mr. Khuda Dost, M&E Officer</p>
	Agenda/Outcome
	<p>A meeting was held with Deputy Director, OFWM, Kalat in his office at Kalat. The M&E Consultants met with him on agenda mentioned below:</p> <p>I. The M&E Expert, I/C and his team briefed to DD about Baseline Survey Field Activities</p> <p>II. The sites issued discussed in the meeting.</p> <p>III. The Deputy Director deputed his staff to facilitate the M&E Consultants during field visits.</p>
Date	Venue/Participants

June 23, 2021	<p>Office of M&E Consultants at Cant, Quetta</p> <p>I. Mr. Rizwan Ahmed, DTL, ME&IE Consultants</p> <p>II. Mr. Naseeb Jan, Field Team In charge/ M&E Expert</p> <p>III. Mr. Manzoor Kasi, Field Team In charge/ M&E Expert</p> <p>IV. Mr. Tariq, Field Team In charge/M&E Expert</p> <p>V. Mr. Qaisar Tareen, M&E Officer</p> <p>VI. Mr. Rafiullah, M&E Officer</p> <p>VII. Mr. Khuda Dost, M&E Officer</p> <p>VIII. Mr. Saleem Abro, M&E Officer</p> <p>IX. Mr. Hamza Qureshi, M&E Officer</p>
	Agenda/Outcome
	<p>An internal meeting was held by the DTL, Balochistan with all field teams after the completion of first baseline survey. Following points were discussed.</p> <p>I. The DTL appreciated to all field teams members on achieved the targets 100% within stipulated timelines successfully.</p> <p>II. The DTL asked to M&E Expert to submit detailed Baseline Survey Report by 25th June 2021.</p> <p>III. The field team shared field observations with DTL</p> <p>IV. All field teams appreciate the OFWM staff cooperation and support during baseline field activities in all districts.</p>
Date	Venue/Participants
June 30, 2021	<p>Office of Deputy Director, Zhob.</p> <p>I. Mr. Ali Muhammad Durrani, Deputy Director, OFWM, Zhob</p> <p>II. Mr. Naseeb Jan, Field Team In charge/ M&E Expert</p>
	Agenda/Outcome
	<p>An internal meeting was held by the M&E Expert, Naseeb Jan with Mr. Ali Murad Durrani, DD, Zhob in his good office at Zohb. Following points were discussed.</p> <p>I. The M&E Expert shared the up to-date M&E activities with DD.</p>

II.	The DD briefed about the M&E role in NPIWC-II.
III.	The upcoming field visits regarding regular monitoring shared with DD.
IV.	The DD extended his support for M&E Consultants at all levels.

1) Field Visit – Killi Khali, District Quetta:

The Deputy Team Leader visited three schemes of Quetta district with staff of OFWM as per detail given below:

Field Visit	Description
Type of Scheme	PVC 4" Watercourse
Date of field visit	December 31, 2020
Name Place	Killi Khali, District Quetta
ME&IE Consultants	Mr. Rizwan Ahmed, DTL Balochistan Zone
OFWM Staff	Haji Ali Mengal, Assistant Engr. Qari Abul Basit, Sub Engr.
Name of Farmer	Malik Ubaidullah
Pipe Length	2000 ft
Year	2019-20
Current Status	Completed
Source of water	Tubewell
Command Area	15 Acres
Data of Water Users Association	As per OFWM officials, WUA paper works are in process and hopefully it will be completed soon in all respects.
Farmer / Beneficiary Feedback:	
Cropped area	Increased
Farming efficiency	Increased
Cropping intensity	Increased
Crop Yield	Increased
Water losses	Reduced about 50%
Saving of Water	Yes about 90%
Time saving	Two to three hours per turn



Figure 4.11: View of Water Supply PVC Pipe at Killi Khali, Quetta



Figure 4.12: View of pipe passing through under Bypass Road



Figure 4.13: View of pipe joint section of PVC with RCC



Figure 4.14: View of command area at Killi Khali, Quetta

2) Field Visit – Killi Khali, District Quetta:

Field Visit	Description
Type of Scheme	New Watercourse & Rehabilitation of Old Watercourse
Date of visit	December 31, 2020
Name of Place	Killi Khali, District Quetta
ME&IE Consultants Staff	Mr. Rizwan Ahmed, DTL Balochistan Zone
OFWM Staff	Haji Ali Mengal, Assistant Engineer Qari Abul Basit, Sub Engineer
Name of Farmer	Malik Ghulam Farooq
Length	New Watercourse 2000 ft
Year	2019-20
Current Status	Completed
Source of water	Tube well
Command Area	12 Acres
Data of Water Users Association	As per OFWM officials, WUA paper works are in process and hopefully it will be completed soon in all respects.
Farmer / Beneficiary Feedback:	
Cropped area	Increased
Farming efficiency	Increased
Cropping intensity	Increased
Crop Yield	Increased
Water losses	Reduced about 70%
Saving of Water	Yes about 90%



Figure 4.15: Visit of Watercourse at Killi Khali, Quetta at Killi Khali, Quetta



Figure 4.16: View of Watercourse at Killi Khali, Quetta at Killi Khali, Quetta



Figure 4.17: View of washing-pad at Killi Khali, Quetta



Figure 4.18: View of command area at Killi Khali, Quetta

3) Field Visit – Killi Shamoza, District Quetta:

Field Visit	Description
Type of Scheme	Water Storage Tank
Date of visit	December 31, 2020
Name of Place	Killi Shamoza, District Quetta

ME&IE Consultants Staff	Mr. Rizwan Ahmed, DTL Balochistan Zone
OFWM Staff	Haji Ali Mengal, Assistant Engineer Qari Abul Basit, Sub Engineer
Name of Farmer	Malik Ghulam Farooq
WST size	(60'x60')
Year	2019-20
Current Status	Completed
Source of water	Tube well
Command Area	12 Acres
Data of Water Users Association	As per OFWM officials, WUA paper works are in process and hopefully it will be completed soon in all respects.
Farmer / Beneficiary Feedback:	
Cropped area	Increased
Delivery efficiency	Increased
Reduction in conveyance losses	Yes
Cropping intensity	Increased
Crop yield	Increased
Saving in time and labour	Yes
Reduction in water losses	Yes (about 70%)



Figure 4.19: DTL, Balochistan with Assistant Engineer, OFWM and Farmer, view of command area, scheme of WST at Killi Shamoza District Quetta



Figure 4.20: View of Water Storage Tank, Command Area and Source of Water at Killi Shamoza, District Quetta



Figure 4.21: View of Water Storage Tank and Discharge System at Killi Shamoza, Quetta



Figure 4.22: View of old Water Storage Tank (Kacha) which has been dismantled now by farmers at Killi Shamoza, District Quetta.

4.7 MEETINGS AND VISITS OF ME&IE CONSULTANTS – ICT AND AJK ZONE

The Following meetings have been carried out by ME&IE Team.

Date	Venue/Participants
January 20, 2020 at 11:00 AM	Office of Director AES ICT i. Mr. Waqar Anwar, Director AES ICT ii. Representative, DAES ICT iii. Technical staff, Director AES ICT iv. Mr. Iftikhar Ali Arain National DTL NWMC (NESPAC) v. Dr. Muhammad Sarwar Zahid, DTL (ICT & AJK Zone) ME&IE Consultants (NPIWC-II)
	Agenda/Outcome In this project introductory meeting, Project NPIWC-II was discussed with stakeholders and discussed coordination and provision of assistance for field activities.
Date	Venue/Participants
March 08, 2021	FPMU NPIWC-II Islamabad i. Mr. Tahir Anwar NPC (Chair) ii. Mr. Saif Ul Islam Deputy Project Coordinator iii. Dr. Muhammad Abdul Quddus TL iv. Dr. Sarwar Zahid DTL v. Mr. Rana Muhammad Usman Project Coordinator/ NPC Support
	Agenda/Outcome Progress review of three-month work plan: Observations: Pre-Field Activities: Chair Directed to complete National office renovations, Procurement of Furniture, Equipment's Establishment of field offices till end of March. Field Activities: Chair Directed to complete the field activities as per work plan. ICT Assignment It was decided that ME&IE Consultant will give demonstration of Android based Mobile application till 15 March on one day notice of TL ME&IE & directed to ensure compliance of work plan.

	Coordination: Chair Directed to share consolidated report of each visit /meeting with concern DGs, DA, DDA, and ADA. Deliverables: ME&IE Consultants will confirm to submit monthly progress report within stipulated time frame i.e., 10 th of March. Concerns: Chair shows concerns to ME&IE Consultants over meeting timelines of Pre-Field activities & Field Activities as per Work plan.
Date	Venue/Participants
April 26, 2021	Committee room of B-Block-Pak-Secretariat, Islamabad. i. Secretary, ii. Ministry of Food Security and Research. iii. Muhammad Tahir Anwar National Project Coordinator iv. Ch. Saifullah Ejaz v. Saif Ul Islam, Dy. National Project Coordinator vi. Dr. Muhammad Abdul Quddus, Team Leader-ME&IE Consultants vii. Dr. Usman Mustafa Team Leader (KP-Barani Project) viii. Rizwan Saleem, ICT Specialist
	Agenda/Outcome On April 26, 2021, a presentation was given to the Secretary, Ministry of Food Security and Research. At 9.30 a.m. Saifullah Ejaz (Project Director) started the presentation giving a brief history about the G3-EC, then Dr. Muhammad Abdul Quddus briefly explained the objectives of the study, the Monitoring Strategy, Monitoring Framework as well as Result Based Monitoring (RBM). In addition, the Baseline field survey and its strategy. Saifullah Ejaz - Authorized Representative G3JV highlighted the importance of Android Based System, Management Information System and the detailed processing of the Data on Dashboard. Secretary, Ministry of Food Security and Research recognized the full worth of the Dashboard Activity introduced by ME&IE Consultants. The Secretary,

	<p>Ministry of Food Security and Research desired that the ME&IE Consultants lend a helping hand to the Ministry for the updating of their Web Site, which was welcomed and agreed by Project Director-Saifullah Ejaz categorically.</p> <p>National Project Coordinator Visited the National Office, Islamabad</p> <p>After the presentation presented to the Secretary, National Project Coordinator, Dy. National Project Coordinator visited the ME&IE Consultants National Office, H. NO.6, F-6/4, Islamabad. He appreciated the office along with all the prerequisites available there.</p>
Date	Venue/Participants
April 27, 2021	<p>Office of Director Agriculture Extension (ICT).</p> <ol style="list-style-type: none"> Mr. Waqar Anwar, Director Agriculture Extension (ICT). Dr. Sarwar Zahid, DTL ICT Zone Mr. Ebadat-Ur-Rehman, ME&IE Consultants
	Agenda/Outcome
	<p>Meeting of Deputy Team Leader, Dr. Sarwar Zahid & Mr. Ebadat-Ur-Rehman with the Director Agriculture Extension (ICT) Mr. Waqar Anwar regarding baseline survey of NPIWC-II was held in his office on 27- 4 2021 to discuss the baseline study in detail. The Director extended full cooperation and deputed one of his Officer Mr. Mubeen with Islamabad office. Mr. Mubeen supplied data for 9 watercourses in ICT on which work is completed and after taking samples these samples will be included in the study. Similarly, data from AJK (lists of completed and ongoing schemes have been obtained and samples will be taken before going into the field for study.</p>
Date	Venue/Participants
18 th May 2021	<p>Office of S&S Associates</p> <ol style="list-style-type: none"> Mr. Muhammad Shahid Chairperson, S&S Associates Dr. M. Abdul Quddus Malik, Team Leader ME&IE Consultants NPIWC-II Dr. Usman Mustafa, Team Leader – WCBAPK

	<p>iv. Dr. Sarwar Zahid, Deputy Team Leader ME&IE Consultants NPIWC-II</p>
	Agenda/Outcome
	<p>For concluding the final results of these meetings on finalization of monitoring tools a meeting was held on 18th May 2021, in the office of S&S Associates. The meeting was arranged on the directive of NPC, Mr. Tahir Anwar to discuss and finalize all the technical matters relating to the baseline survey and monitoring tools. They reviewed the monitoring tools and gave their suggestions/input regarding the same. They concluded that monitoring tools need to be reviewed. It was decided that questionnaire will be developed by Thursday evening and Team Leader will discuss and finalize the questionnaire. A sampling methodology will also be developed and discussed in the meeting scheduled to be held on Monday 17th May 2021. Then it will be updated on Android application by IT team.</p> <p>Finally, after detailed discussions and revisions of monitoring tools it was decided that the monitoring tools already finalized by the ME&IE Consultants will be used for Baseline & Monitoring Surveys.</p>
Date	Venue/Participants
4 th June 2021	<p>National Office, Islamabad</p> <ol style="list-style-type: none"> Mr. Iqbal Chohan, Director WM, Rawalpindi Dr. Sarwar Zahid, DTL National Office Mr. Ebadat-Ur-Rehman, ME&IE Consultants
	Agenda/Outcome
	<p>Director Water Management of Rawalpindi Division Mr. Iqbal Chohan was invited to National Office, and he paid a visit for this meeting. Following discussions were held in in the meeting:</p> <ol style="list-style-type: none"> DTL Dr. Sarwar Zahid shared schedule of ME&IE Consultants' schedule of baseline survey field visits with Director WM and asked for required data of water storage tanks being constructed in financial year 2020-21.

	<p>ii. Director WM Mr. Iqbal explained the technical aspects of WSTs being constructed in Rawalpindi Division under NPIWC-II.</p> <p>iii. Mr. Iqbal assured full support and cooperation of OFWM Team, Rawalpindi to ME&IE Consultants for Baseline Survey.</p> <p>After the meeting, Mr. Iqbal shared the details of water storage tanks via email and Field Team of ICT unit selected the required sample through randomization.</p>
Date	Venue/Participants
4 th June 2021	<p>National Office, Islamabad</p> <p>i. Dr. Sarwar Zahid, DTL National Office</p> <p>ii. Mr. Ebadat-Ur-Rehman, ME&IE Consultants</p> <p>iii. Miss Syeda Sana Gull, ME&IE Officer</p> <p>iv. Dr. Hafiza Maryam Iqbal, ME&IE Officer</p>
Agenda/Outcome	
<p>A mock exercise of field interview was conducted for the practice and training of Field Team of ICT & AJK. Team members cleared their points regarding project and the monitoring & evaluation process. This practice exercise was for the better command of field team on monitoring tools.</p>	
Date	Venue/Participants
7 th June 2021	<p>National Office, Islamabad</p> <p>i. Dr. Sarwar Zahid, DTL National Office</p> <p>ii. Mr. Ebadat-Ur-Rehman, ME&IE Consultants</p> <p>iii. Miss Syeda Sana Gull, ME&IE Officer</p> <p>iv. Dr. Hafiza Maryam Iqbal, ME&IE Officer</p>
Agenda/Outcome	
<p>Planning for Baseline Survey by ICT Zonal office Field Survey Team.</p> <p>Dy. Team Leader, Dr. Sarwar Zahid and Field Team of ICT & AJK had an extensive meeting regarding baseline surveys. Following were the main discussions of this meeting:</p> <p>i. NPIWC-II & Role of ME&IE Consultants</p>	

	<p>ii. Sampling Methodology for baseline surveys.</p> <p>iii. Schedule of the baseline visits.</p> <p>Monitoring tools and android application.</p>
Date	Venue/Participants
8 th June 2021	<p>National Office, Islamabad</p> <p>i. Mr. Mubeen Ahmad, Field Engineer (OFWM)</p> <p>ii. Dr. Sarwar Zahid, DTL National Office</p> <p>iii. Mr. Ebadat-ur-Rehman, ME&IE Consultants</p>
Agenda/Outcome	
<p>Discussion on Baseline Survey Program Meeting was conducted with the Field Engineer (OFWM), Mr. Mubeen Ahmad in the National Office of ME&IE Consultants. Following were the discussions in the meeting.</p> <p>i. Dr. Sarwar Zahid, DTL National Office briefed the role of ME&IE Consultants and upcoming baseline surveys.</p> <p>ii. DTL Dr. Sarwar Zahid shared the schedule of ME&IE Consultants' baseline field visits and asked for required data of watercourses being constructed in the financial year 2020-21.</p> <p>Mr. Mubeen Ahmad explained the technical aspects of WCs being constructed in ICT under NPIWC-II and assured us the full support and cooperation of OFWM Team, ICT.</p>	
Date	Venue/Participants
11 th June 2021	<p>ICT Agriculture Complex</p> <p>i. Mr. Waqar Anwar, Director (AES), ICT</p> <p>ii. Mr. Mubeen Ahmad, Field Engineer</p> <p>iii. Dr. Sarwar Zahid, DTL National Office</p> <p>iv. Mr. Ebadat-Ur-Rehman, ME&IE Consultants</p>
Agenda/Outcome	
<p>Meeting of ME&IE Consultants and OFWM Staff, ICT was held at ICT Agricultural Complex. In this meeting, DTL Dr. Sarwar Zahid & Mr. Ebadat-ur-Rehman shared their observations of Pre-Testing visit at Phulgran Village and inquired about the system of WUA in Islamabad Capital Territory. The discussion in the meeting was as follow:</p>	

	<ul style="list-style-type: none"> i. OFWM staff explained the present situation of NPIWC-II in ICT. The system of WUA is unknown in ICT. ii. Topography & source of water in Islamabad. iii. 20 out of 45 watercourses (pipelines) has been installed in ICT in financial year 2020-21. <p>DTL Dr. Sarwar Zahid asked for an official document based on which OFWM negated the Umbrella PC-1 i.e., formation of WUA. The response is still awaited.</p>
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reporting years on a weekly basis while progress review meetings were continuously held on a fortnightly basis which was chaired by the Authorized representative of JV Mr. Saif Ullah Ejaz Sb.

4.9 PREPARATION OF GENDER ACTION PLAN

In the month of January 2021 after compilation of inception report literature review was carried out to prepare social safeguard outline for farmers of the project area. As social safeguard policies are essential tool to prevent and mitigate undue harm to the people during program activities.

Furthermore, ADB social safeguard policies were also reviewed to prepare grievance redressed mechanism at grass root level.

Gender mainstreaming and integration literature was reviewed so that we can develop a process to involve all in a program activity.

FAO, World Bank reports are under review to prepare a social mobilization process for farmers at grass root level. Social mobilization is important aspect of all activities to be carried out for monitoring and evaluation.

Lesson learnt in different projects were reviewed to calculate women folk activities participation in the project. The main reason of low participation is lack of resources, lack of education, cultural barriers but the main reason is that it is not supported by male members as they think that irrigation is male domain. For making a replicable model a detailed social mobilization and monitoring plan will be prepared under the guidance of client and team members of NPICW-II.

4.10 REVIEW / FINALIZATION OF MONITORING TOOLS

Consultants submitted Final Monitoring Tools in the MMR for the month of March 2021. Client asked to review and finalize the Monitoring Tools in coordination with his representative. In this regards a number of meetings were held with Client for restructuring and refinement of Monitoring Tools already submitted by the Consultants in the MMR for the month of March 2021. MTS Attached as **Annex-G**

For concluding the final results of these meetings on finalization of monitoring tools a meeting was held on 18th May 2021, in the office of S&S Associates.

1) Field Visit – ICT Areas:

The team consultants comprising of Dr. Muhammad Sarwar Zahid, DTL ME&IE Consultants and Mr. Iftikhar Ali Arain, DTL National Office along Agriculture department's official have visited project areas of ICT on January 21, 2021.

The Officials of Agriculture department informed that they have selected Five sites for the visit of project interventions in the area of Phulgran, Barakoh Murree road ICT. The selection criteria of the site were that a farmer must have 20 canals of land and availability of water. The extension department first advertised the facility by the Government and some farmers were found through the media. Some farmers were also found through personal contacts who applied for the similar facility.



Figure 4.23: Visit of Scheme-Watercourse at Phulgran, Barakoh Murree Road ICT

4.8 COLLECTIVE MEETINGS OF ME&IE CONSULTANTS

The ME&IE Consultants collective meetings continuously took place during the whole

Following were the participants of the meeting

- Mr. Muhammad Shahid Chairperson, S&S Associates
- Dr. M. Abdul Quddus Malik, Team Leader ME&IE Consultants NPIWC-II
- Dr. Usman Mustafa, Team Leader – WCBAPK
- Dr. Sarwar Zahid, Deputy Team Leader ME&IE Consultants NPIWC-II

The meeting was arranged on the directive of NPC, Mr. Tahir Anwar to discuss and finalize all the technical matters relating to the baseline survey and monitoring tools. They reviewed the monitoring tools and gave their suggestions/input regarding the same. They concluded that monitoring tools need to be reviewed. Consultants refined the Monitoring Tools in the light of discussions with Mr. Shahid and same are attached as **Annex-G** to this report.

4.11 TRAINING OF FIELD STAFF

Total ten field teams were deployed in Punjab, KPK & GB, Balochistan and Islamabad including AJK. Further, each province was given three teams and one field team was given to ICT and AJK. The teams' deployment will remain largely flexible.

For maximal output, a training session was conducted for the enumerators' team. A survey manual was developed and fine-tuned which directed the team throughout the survey and provided basic information and instructions.

Location: National Office, Islamabad

Date: 3rd May 2021 to 6th May 2021

Participants of the Training:

All field team members of Punjab, Balochistan, ICT, KPK, AJK & GB, Team Leader and Deputy Team Leaders of all zones got training on ZOOM.

Description of Training:

An extensive 3-days training sessions was held by GIS & Information system department for all the zonal field teams of Punjab, Balochistan, ICT, AJK, KPK & GB. The training was given by Mr. Rizwan Saleem ICT Specialist & his team. The main objective of this training was to build capacity of all field team members of all the zones. In this training, they learned all necessary information regarding NPIWC-

II. A detailed training of pre-designed Monitoring tools (WC, WST, LLL) was also given. All teams cleared their queries and confusions. Android applications were installed on the mobile phones of field team members, and they were trained how to use it. A practical demonstration of android application was given for better understanding. After the training all the participants were able to use android based application.

4.12 PRE-TESTING SURVEY OF MONITORING TOOLS

Pre-testing a survey is the only way to make sure that it is going to deliver to you the data that you were hoping to receive. While there may not be such a thing as a survey without a single response error, there are ways to make sure that the people answering the survey are providing you with the responses that you expect, and that the survey is working correctly.

Many survey researchers fail to pre-test the survey. But without pre-testing, it is difficult to find out if your survey has any logic problems, if the questions are too hard to understand, if it is prone to central tendency and habituation, if it has too high a dropout rate, or if it has any response bias. There are many issues that affect the quality of your data, and pre-testing is the only way to make sure that your survey is getting you as close to perfect answers as possible.

Six Ways to Pre-Test a Survey Questionnaire

Researchers' pre-test for a variety of reasons. At its core, pretesting is designed to make sure that people understand the questions, and that there isn't anything in the data that indicates that the information is inaccurate. Still, this is admittedly a difficult process – how can one assume that the answers they are receiving are accurate or inaccurate? What may seem like an anomaly may be honest answers, and what may look like sensible answers may be incorrect responses. In general, researchers look for the following in pre-test data to indicate that something may be wrong with their survey.

Skipped Questions

One of the most telling examples that a question may not be understandable is when it's skipped. While some people may answer the questions anyway, questions that are not understandable are the most likely questions to be skipped on a survey.

“Don’t Know” Answer

Another common answer when a question is unclear is the “don’t know” or default answer. If respondents are unclear what a question is asking, they may select the response that most closely resembles “don’t know.” If you don’t have this option, it may be the “neither agree nor disagree,” although confusion may arise if this is simply the most likely answer.

Data Differences

When businesses are willing to spend extra to run several pre-test surveys, another issue may be seen if identical questions have different meanings based on where they are in the survey. For example, if a question that shows up late in the survey gets a different response when it shows up early in the survey.

Hesitation Times

Some surveys show the length of time it takes for a person to answer a question. Hesitation times may be measured in some datasets to include long pauses that may indicate problems answering the questions.

Debriefing Respondents

Depending on your sample, it’s not uncommon to debrief a small number of respondents before sending the survey out to a large sample of people. This helps to find out if they had any issues while taking the survey, problems with any of the question clarity, and more.

Question Types

Sometimes researchers play around with multiple questions to see if there are different answers for different styles of questions that are supposed to be asking the same thing. If so, one may be preferable to another.

Another method of pre-testing is to simply have those trained in survey research to review the test and see if there are any issues. Often times a confusing question can be noticed by a trained interviewer in a way that not even data analysis would show. Finally, there are ways to analyze the data (such as looking at variation in the results and

whether that runs counterintuitive to the interviewer’s beliefs), that may indicate a problem.

Pre-testing a survey is very important, there is an inherent assumption that problems will reveal themselves, and this simply may not be the case. Several papers have discussed problems with the belief that all problems will be revealed with these pre-testing methods, and while it is always going to be an important part of the survey process, researchers should be careful about believing too strongly that their survey problems have been addressed. However, making sure that the person is trained in survey research and conforming to best practices will go a long way.

Still, pre-testing remains an important part of survey research, and does need to play a role in the way you handle your own research process. Without it, problems may not be noticed or addressed, and you may be wasting your survey if you haven’t caught an obvious error by the time the official survey has been conducted.

Pre-Testing of the Monitoring Tools in the Field Areas

4.12.1 PRE-TESTING OF MTs IN THE PUNJAB ZONE

Field visits for pre-designed monitoring and Evaluation Tools were planned with the coordination of OFWM officers of Sheikhpura District (DDA-OFWM) and ADA-OFWM-muridke. The visit was made as under:

1-Date of Visit:

March 26, 2021, Muridke, ADA-OFWM Office and field
March 27, 2021, DDA-OFWM Sheikhpura Office and Field.

2-ME&IE Consultants Team:

1. Muhammad Yousaf Bhatti, Deputy Team Leader (ME&IE Specialist)
2. Muhammad Rizwan Suleman, Field Team Engineer
3. Syed Ali Haider Shah, Field Team Engineer

3-OFWM officers and Staff Members:

The officers and staff members of OFWM provided necessary Basic data and cooperated fully during the field visit.

List of Officers and Staff Members of OFWM:

Sr. No	Name	Designation
1	Mr. Malik Charagh Din	Deputy Director (Agri) OFWM – Sheikhupura.
2	Mr. Zafar Munir	Assistant Director (Agri) OFWM-Muridke, District Sheikhupura.
3	Mr. Muhammad Bilal	Sub Engineer OFWM Muridke.
4	Ch. Asif Mehmood	Sub-Engineer OFWM Sheikhupura.
5	Rana Muhammad Tanveer	Sub-Engineer OFWM Sheikhupura.
6	Mr. Muhammad Ilyas	Rodman OFWM Muridke.



Figure 4.24: Meeting with Deputy Director Agriculture OFWM District Sheikhupura



Figure 4.25 Meeting with Assistant Director Agri. OFWM Tehsil Muridke District Sheikhupura

In the field various intervention sites were visited and Team interviewed various respondents keeping in view the present Tools defines and suggestions.

4-Interventions and their Respondents:

Efforts were made to collect the information From Various types of Respondents on Pre-Designed Monitoring Tools. Details of the Respondents are given below:

List of Respondents for Pre-Testing of Monitoring Tools:

i) Water Users Association / Share Holder Beneficiaries of improvement of Watercourses Intervention.

1. Ch. Muhammad Naseem Chairman (WUA)
Watercourse No: 6140-R Village: Bheianwala, Tehsil Muridke District Sheikhupura
2. Mr. Ahmad Moaeen Sindu
Watercourse No: 18800-R Village kukkar Gul, Tehsil and District Sheikhupura
3. Muhammad Nawaz (Treasurer WUA)
Watercourse No: 18800-R Village kukkar Gul, Tehsil and District Sheikhupura
4. Mr. Muhammad Adeel
Watercourse No: 6140-R Village Bheianwala Tehsil Muridke District Sheikhupura



Figure 4.26: Meeting with Assistant Director OFWM along with Chairman WUA of Tehsil Muridke





Figure 4.27: Data Collection from Farmers/Beneficiaries of Watercourse Bheinawala, Tehsil Muridke District Sheikhupura.

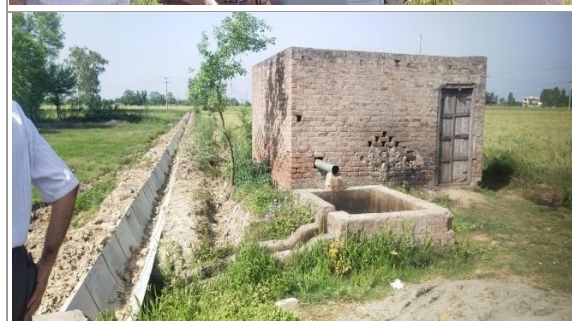


Figure 4.28: Visit of Watercourse 6140-R, Bheinawala, Tehsil Muridke, District Sheikhupura

(ii) Laser Land Levelling Units (Service provider and User)

1. Mr. Rasheed Ahmad:
Village Bheianwala, Tehsil Muridke District Sheikhupura
2. Mr. Intizar Ahmad:
Chak No 29, Tehsil Muridke District Sheikhupura



(iii) Water Storage Tanks Intervention (owner / Beneficiaries):

1. Habib-Ur- Rehman Hashmi
Village Qiampur Tehsil and District Sheikhupura
2. Muhammad Mansha Anjum (Farm Manager)
Village Qiampur Tehsil and District Sheikhupura



Figure 4.29: Visit of water Storage Tank, Qiampur Tehsil and District Sheikhupura



Figure 4.30: Meeting with Water Storage Tank owner



Figure 4.31: Meeting with Water Storage Tank Farm Manager

5-Conclusions:

As a result of Interview with the respondents, Discussion with OFWM officers/Field staff, and Team member's own observations, certain modifications in questions, additions, deletions and some new questions are added in the existing Monitoring Evaluation Tools. The refinement of Monitoring Tools is under process. The Monitoring Tools used for pretesting are attached as **Annexure-E**.

The Monitoring and Evaluation Tools, used for Pre-Testing have been Filled, Partially Filled in Some Cases only Important Points were noted. Filled in, partially filled in and other tools are available in the form of Hardcopy. Action taken in the light of Pre-testing in the Field is summarized in para 4.8 Refinement of monitoring Tools.

6-Limitations:

There were Certain Limitations in Completion of all the tools and in all respects. The main limitations were:

- 1) Finding out a Female Respondent and interview by the Field Team (males), on Social and Gender aspects was very difficult.

7-Suggestions:

For the Smooth operations of field activities following are the main Suggestions

- 1) The interviewee for filling the questionnaire for Social and Gender, the respondent should be female. Respondents may be taken from respondent's family members (6 beneficiaries on each watercourse). One respondent in each District will be a reasonable sample size OR one focus group/group meeting in each district. During the field survey a social and gender

specialist should accompany the team or this purpose.

- 2) Equipment is needed for measuring flow of water and recording the data on the tool. So, an Engineer is necessary in each field team.
- 3) Early mobilization of Field Team Social and Gender Specialists and DTL other team members are also required for assistance in field works.
- 4) In House training and field training of field teams should be initiated as early as Possible

PRE-TESTING OF MTs IN THE BALOCHISTAN ZONE

To determine the effectiveness of Monitoring Tools (MTs), it is necessary to pretest it before actually using it on field. Pretesting can help us determine the strengths and weaknesses of our survey concerning question format.

Pretesting field visits is an important way to pinpoint problem areas, reduce measurement error, reduce respondent burden, determine whether or not respondents are interpreting questions correctly, and ensure that the order of questions is not influencing the way a respondent answer.

In response to pretesting of MTs the Team Leader, Balochistan planned to visit 07 sites of 02 districts i.e., Pishin (North Zone) and Mastung (South Zone) with his team. Due to time constraints, the Team Leader selected nearest districts from Quetta.

The Deputy Team Leader, Balochistan organized two days workshop/training for ME&IE Officers on Monitoring Tools (MTs) and Survey Manual / guidelines from 23rd to 24th March 2021.

The Training was covered following topics:

- a) To determine the effectiveness of Monitoring Tools (MTs), it is necessary to pretest it before actually using it on field. Pretesting can help us determine the strengths and weaknesses of our survey concerning question format.
- b) Pretesting field visits is an important way to pinpoint problem areas, reduce measurement error, reduce respondent burden, determine whether or not respondents are interpreting questions correctly, and ensure that the order of questions is not influencing the way a respondent answer.

- c) Session on Survey Manual
- d) Selection of sites for Pre-Testing the MTs.

The team visited 07 sites as listed below: -

1. Watercourse, Haji Dinar Khan, District Pishin
2. Watercourse, PVC Pipe, Sidequllah, District Pishin
3. Watercourse, RCC Pipe, Sarwar Khan, District Pishin
4. Water Storage Tank, Haji Dinar Khan, District Pishin
5. Watercourse, Noor Muhammad, Mastung
6. Watercourse, Muhammad Arif Khan, Distt. Mastung
7. Water Storage Tank, Khair Muhammad, Distt. Mastung

1-Date of Visit:

- The first pretest field visit was conducted on 24th March 2021 of district Pishin
- The second pretest visit was made on 25th March 2021 of District Mastung.

2-ME&IE Consultants Team:

1. Rizwan Ahmed
Deputy Team Leader (ME&IE Specialist)
2. Qaisar Tareen
Field Team Engineer
3. Hamza Qureshi
Field Team Engineer

3-OFWM officers and Staff Members:

The officers and staff members of OFWM provided necessary Basic data and cooperated fully during the field visit.

Collective List of Officers and Staff Members of OFWM:

Sr. No	Name	Designation
1	Haji Faqir Muhammad	Deputy Director
2	Abdul Naeem	Water Management Officer
3	Tanveer Ahmed	Sub Engineer, OFWM
4	Imran Agha	Water Management Officer
5	Shams-Uddin Baqa	Agriculture Officer
6	Fazal Ahmed	Junior Engineer
7	Sher Ahmed	Sub Engineer
8	Daad Ali	Sub Engineer

Field Visit – Village Haji Dinnar Khan, District Pishin:

Field Visit	Description
Site Name:	Haji Dinnar Khan
District:	Pishin
Date of visit:	24 th March 2021
List of officials visited the site for pre-testing of Monitoring Tools	
1)	Rizwan Ahmed, Dy Team Leader, ME&IE Consultants
2)	Abdul Naeem, Water Management Officer,
3)	Tanveer Ahmed, Sub Engineer, OFWM
4)	Imran Agha, Water Management Officer
1)	Qaisar Tareen, M&E Office, ME&IE Consultants
5)	Hamza Qureshi, M&E Office, ME&IE Consultants



Figure 4.32: Group Session at Site of Haji Dinnar Khan (Watercourse and Water Storage Tank–2019-20)



Figure 4.33: Haji Dinnar Khan (View of Watercourse 2019-20)



Figure 4.34: Haji Dinnar Khan (View of Watercourse 2019-20)



Figure 4.36: Site of Sarwar Khan (View of RCC Pipe 2019-20)

Field Visit – Village Sarwar Khan, District Pishin:

Field Visit	Description
Site Name:	Sarwar Khan
District:	Pishin
Date of visit:	24 th March 2021
List of officials visited the site for pre-testing of Monitoring Tools	
1) Rizwan Ahmed, Dy Team Leader, ME&IE Consultants	
2) Abdul Naeem, Water Management Officer,	
3) Tanveer Ahmed, Sub Engineer, OFWM	
4) Imran Agha, Water Management Officer	
2) Qaisar Tareen, M&E Office, ME&IE Consultants	
5) Hamza Qureshi, M&E Office, ME&IE Consultants	

Field Visit – Village Sidiqullah, District Pishin:

Field Visit	Description
Site Name:	Sidiqullah
District:	Pishin
Date of visit:	24 th March 2021
List of officials visited the site for pre-testing of Monitoring Tools	
1) Rizwan Ahmed, Dy Team Leader, ME&IE Consultants	
2) Abdul Naeem, Water Management Officer,	
3) Tanveer Ahmed, Sub Engineer, OFWM	
4) Imran Agha, Water Management Officer	
3) Qaisar Tareen, M&E Office, ME&IE Consultants	
5) Hamza Qureshi, M&E Office, ME&IE Consultants	



Figure 4.35: Site of Sarwar Khan (View of Manhole, 2019-20 RCC Pipe)



Figure 4.37: Site of Sidiqullah (Scheme PVC Pipe, 2019-20 View of Tube Well and source of electricity)

Observations:

1. We felt a lot of problems in collecting data during field visits as the Farmer/Beneficiaries were not present at site. However, labour (Harris) was present and we tried to get maximum information from them as per our MTs requirements.
2. It has been observed that Water Users Associations are not operative as per demand of project.
3. The filing works of OFWM staff were found weak, a lot of information was missing. However, after the entrance of Project Consultants they made a checklist/file for OFWM staff, hopefully the filing system will be improved gradually.
4. All MTs found necessary and had sufficient indicators to cover all Monitoring Evaluation and Impact Evaluation aspects,
5. It has been observed that payment procedure is not being followed by the OFWM Staff. As per criteria payment will be made on 03 three stages i.e., ICR, 2CR & FCR, but in most cases payments made in two installments as per need. However, Project Consultants made proformas of 03 individual payments which will be applicable in works of 2020-21. It also has been observed that payment records were not maintained in files by OFWM staff.
6. The Balochistan agriculture zones have been divided in two zones i.e., Barani and Canal. The most of districts are belongs to Barani Zone, in these areas water source are tube wells while rest of district i.e., Naseerabad Zone, Lasbella, Jhal Magsi and some areas of Dera Bugti belong to Canal Zones. It is, therefore, data regarding feedback of three beneficiaries from head, middle and tail are applicable in Canal Zone only. However, MTs covering this component are okay and such data will be obtained from canal areas in regular monitoring.
7. The MTs to determine velocity of water through Pygmy Meter could not be taken due to non-availability of Pygmy Meter, however, MTs indicators found okay and will be filled in routine monitoring accordingly.

8. There are different types of constructions being used throughout Balochistan, hence, it was difficult to cover all components in pre-testing. However, MTs are very much comprehensive and will cover all required data/information.

Recommendations

1. The OFWM assures ME&IE Consultants that Farmer/beneficiaries and beneficiaries other than members of WUA should be present at site so that data can be obtained as per M&E requirement.
2. The MTs as per result of site visits are being highlighted with two colours i.e., yellow and green, the yellow colour is indicating that these indicators look repetition or un-necessary while green colour is indicating that these indicators should be added in MTs to make more comprehensive M&E data.
3. It is requested that a post of Social and Gender Expert (Female) should be filled on priority basis as it is very hard to collect such data without having female team members, especially in Balochistan's areas.
4. It is suggested that each team of three members should have one Engineer, so that engineering related works and quality of structures should be monitored properly.
5. It is therefore, that all MTs would not be applicable for each site due to different types of structure. It is suggested that before uploading data on Android Application, all Deputy Team Leaders may consult for their opinion to simplify the MTs.

Conclusion

As per pre-testing field visits and some field visits made in previous months, I found all MTs are very comprehensive and as per requirement of our service scope.

4.12.2 PRE-TESTING OF MTs IN THE KP ZONE

As per schedule the field team of NPIW-II ME&IE Consultants KP Zone made field visits of district Peshawar for pretesting of the monitoring tools. Keeping in view the time constraint the field visits were restricted to the central district of the province.

With the help of OFWM staff, three villages: namely Mera Badhaber, Urmur Bala and Urmur Miana were selected for pretesting of the Monitoring tools. Selection of these villages were made on the basis of source of irrigation. On this criterion two sites one for tube well and the other for canal irrigation were selected. Four cases were selected in these two sites listed below.

1. Shah Hussain Tube well Watercourse Mera Badhaber,
2. Water Storage Tank (Aamer Khan) Mera Badhaber,
3. Watercourse No. 21200 Urmur Bala
4. Watercourse No. 70,000, Urmur Bala

1-Date of Visit:

- The first pretest field visit was conducted on 26th March 2021 in two sites of district Peshawar.
- The second pretest visit was made on 27th March 2021 in another two sites of District Peshawar.

2-ME&IE Consultants Team:

1. Dr. Humayun Khan Deputy Team Leader (ME&IE Specialist)
2. Muhammad Bilal Core Team Member Islamabad
3. Abdul Rauf Saad Field Team Engineer

3-OFWM officers and Staff Members:

List of Officers and Staff Members of OFWM:

Sr. No	Name	Designation
1	Engr. Shaheen	Asstt Director, OFWM District Peshawar
2	Engr. Said Muhammad	WMO District Peshawar
3	Engr. Riyaz	Sub Engineer OFWM, District Peshawar

NOTE: Laser Land leveling activity has been terminated since 2018 due to lack of farmers' interest. However, it was told by the OFWM staff that those who need this activity, hire the services of machines from the local market.

I enquired telephonically from the office of the DG OFWM for the absence of laser land leveling. They explained that due to the non-availability of funds for the LLL, they couldn't intervene in this activity. Moreover, they also stated that, as private firms are involved in providing their services through the bidding process it will take a bit longer to initiate this activity for farmers after the release of funds from the concerned quarters.

1) Field Visit – Village Mera Badhaber, District Peshawar

Watercourse ID:	Shah Hussain Tube well Watercourse
Name of village:	Mera Badhaber
Union council:	Badhaber
Chairman WUA:	Shah Hussain
Tehsil & District:	Peshawar
Source of irrigation:	Tubewell
Total length of watercourse:	2100 meter
Estimated length of lining:	491 meters
Command area of watercourse:	40 Acres
No of beneficiaries:	07
Starting date:	25-01-2020
Completion date:	04-03-2020
Cost of Construction of WC:	Rs. 919,664 (80% OFWM 20% Farmer share)

Water Storage Tank (Aamer Khan)	
Name of village:	Mera Badhaber
Union council:	Badhaber
Chairman WUA:	Aamer khan
Tehsil & District:	Peshawar
Source of irrigation:	Tube well
Shape of water storage tank:	Square
Size of water storage tank:	12x12 meters
Depth of WST:	1.36 meters
Command area of watercourse:	22 Acres

No of beneficiaries:	05
Starting date:	January 2020
Completion date:	March 2020
Construction Cost of watercourse:	Rs. 500,000 (80% OFWM 20% Farmer share)

Estimated length of lining:	757 meters
Command area of watercourse:	500 Acres
No of beneficiaries:	15
Starting date:	28-01-2020
Completion date:	24-03-2020
Construction cost of WC:	Rs. 2,268,440 (80% OFWM 20% Farmer share)

2) Field Visit – Village Urmur Bala, District Peshawar

Watercourse ID:	21200
Name of village:	Urmur Bala
Union council:	Urmur Bala
Chairman WUA:	Zalo Khan
CNIC No.	17301-1436652-3
Cell No.	03347585379
Tehsil & District:	Peshawar
Source of irrigation:	Canal
Total length of watercourse:	4000 meters.
Estimated length of lining:	700 meters bricks work
PCPS:	800 meters
Command area of watercourse:	250 Acres
No of beneficiaries:	15
Starting date:	March 2020
Completion date:	April 2020
Cost of Construction of WC:	Rs. 24,42,383 (80% OFWM 20% Farmer share)



Figure 4.38 :Field visit of Mera Badhaber Shah Hussain Tube Well Watercourse District Peshawar along with Shaheen Assistant Director OFWM Peshawar

Watercourse ID:	70,000, Hazar Khwani Branch
Name of village:	Urmur Miana
Village council:	Urmur Miana
PK	70
Chairman WUA:	Muhammad Naseer
CNIC:	17301-0105518-9
Cell No.	03127703935
Tehsil & District:	Peshawar
Source of irrigation:	Canal
Total length of watercourse:	5000 meters



Figure 4.39: Aamer khan Water Storage Tank Mera Badhaber District Peshawar



Figure 4.40: Solar System for Tube well of Shah Hussain Mera Badhaber, District Peshawar



Figure 4.41: Water Storage Tank of Shah Hussain Mera Badhaber, District Peshawar



Figure 4.42: Survey Team Field Visit of Watercourse ID No. 21200 Urmur Bala, District Peshawar



Figure 4.43: Survey Team Field Visit of Watercourse ID No. 21200 Urmur Bala, District Peshawar



Figure 4.44: Survey Team Field Visit of Watercourse ID No. 21200 Urmur Bala, District Peshawar



Figure 4.45: Survey Team Field Visit of Watercourse ID No. 21200 Urmur Bala, District Peshawar

Main findings of field visits:

1. Monitoring tools were very comprehensive covering almost all aspects of activities taking place in the field. However, in most of the MTs unnecessary repetition was found among the
2. The OFWM staff had not maintained the file work in a systematic way so that one can easily understand the process of implementation.
3. The construction/improvement of watercourses made available more irrigation water, which resulted in increased crop production and application of modern seed technology (Hybrid seeds).
4. Water User Associations (WUA) were not functioning as per their mandated role. No WUA meetings were held for the maintenance of WCs. WUA were formed only for the official record.
5. Construction of watercourses and WSTs by OFWM has no effect on cropping patterns in the project areas.
6. Questions asked in the village profile especially in part-B, i.e., Village socio economic data S. No. 1 to 8 collected from the field is not authentic and is based on estimation. This data should be collected from the official sources.
7. Large variations exist reported by the farmers among the agriculture output prices especially,

- fruits and vegetables within the same crop season. As these are collected on daily bases the prices of these commodities are very unstable.
8. The data regarding the water flow Pygmy Current Meter (PCM) reading for determination of Velocity can't be collected without trained staff.
 9. No females were found in OFWM practices. The reason reported was the cultural barriers of Pakhtoon Society.
 10. Load shedding problem was reported in the areas where the source of irrigation was tube well. In these areas the farmers requested for the installation of solar energy systems along with the construction/improvement of watercourses/WSTs.
 11. Worth mentioning concern in the field survey is the cooperation of the OFWM staff. We can't succeed without their full cooperation in identifying the target farmers/watercourses.

Conclusion

With the exception of some minor repetition, all the MTs are very comprehensive covering almost all aspects of monitoring and evaluation and impact assessments of the interventions of the OFWM department of the Khyber Pakhtunkhwa. However, it is also to be noted that some questions in the MTs may be relevant to some zones while others to other zones of the province.

Recommendations

1. The services of at least one OFWM employee should be ensured during the field visits so that the availability of the relevant farmers may be made possible.
2. For collecting the technical data, it is important to include an agriculture engineer as a member in the field team.
3. Benefits accrued to the farmers due to OFWM intervention may be taken in real terms not in nominal terms so that real picture of improvement in farm benefits will emerge.
4. Findings of the pretesting cannot be generalized because of the limited scope of the survey.

OUTCOME OF THE PRE-TESTING OF THE MONITORING TOOLS - ME&IE CONSULTANTS

The pre-testing of the Monitoring Tools in the field areas of the three Zones (Punjab, KP and Balochistan)

was conducted from March 24, 2021, to March 27, 2021.

It was observed during the Pre-testing of the Monitoring Tools in the respective field areas that the MTs are very comprehensive covering almost all the aspects of the Monitoring and Evaluation and Impact assessments of the interventions.

However, it is also to be noted that some questions in the MTs may be relevant to some Zones while others to other Zones of the Province.

On the foregone, the present Monitoring Tools covering all the intervention will be refined and modified as per the field experience in the three Zones and the respondent's responses during the questions asked by them. Moreover, it is important to mention that due to unavoidable circumstances and COVID-19, the Pre-testing in the ICT, AJK and GB was not conducted. The Pre-testing of the MTs in these Units will be carried out shortly.

Moreover, at many sites the enough stakeholders were not present i.e., farmers etc. therefore ME&IE Consultants will perform the pre-testing activities again, if required.

4.13 METHODOLOGY OF SAMPLE SIZE DETERMINATION ME&IE CONSULTANTS (NPIWC-II)

Sampling is the process of choosing a representative portion (a respondent sample) of a population. The population is the entire group of items/ individuals of interest in a study for ME&IE study. Population comprises 4 different components viz Water Users Association, Watercourse Improvement, Water Storage Tank and Laser Land Leveler. Sampling design and sample size for each intervention will be drawn separately.

1. Sample Size of Watercourses

Generally, establishment of a watercourse association is a prerequisite for the improvement of a watercourse. So, the number of the target/sample will also represent the number/sample of water users' associations. In all there are 47,278 watercourses, scattered in the project area. As stated earlier in the inception report Cochran's formula and its modifications are considered appropriate in project situations. For example, in the Punjab

province sample size was estimated by using Cochran formula, as under.

$$n_o = \frac{(z)^2(p)(q)}{(e)^2}$$

Whereas:

- n_o =Sample size
- e is the desired level of precision (i.e., the margin of error)
- p is the (estimated) proportion of the population which has the attribute in question,
- q is $1-p$
- Z square is a numerical measurement that describes a value's relationship to the mean of a group of values.

Taking 90% confidence interval with $\pm 5\%$ precision so, $z\alpha/2=1.645$ $e=0.05$

$$p+q=1 \quad q=1-p$$

$$p=0.5 \quad q=1-0.5=0.5$$

So, while putting these values in formula we get:

$$n_o = \frac{(1.645)^2(0.5)(0.5)}{(0.05)^2}$$

$$n_o = 270.60 \sim 271$$

Cochran modified formula:

$$N=10,000$$

$$n = \frac{n_o}{1 + \left(\frac{n_o - 1}{10000}\right)}$$

$$= \frac{271}{1 + \left(\frac{271 - 1}{10,000}\right)}$$

$$= 263.8, \text{ say}$$

$$= 264$$

This modified formula is being used for sample size determination in each Province viz Punjab, KP and Balochistan. As regards the other units of the project GB and AJK sample size will be taken as 3 % of the population. As regards ICT areas whose population is too low, a sample size of 7 percent is considered measurable size for information from the target watercourses. The sample size is given in Table-4.7.

Table 4.7: Sample Size of Watercourses

Sr. No.	Province /Unit	Target Population (Watercourses)	Sample Size	Say
1	Punjab	10,000	264	300
2	KP	13,000	265	300
3	Balochistan	20,389	268	450
4	GB	2,500	(3 %)	75
5	AJK	1,165	(3%)	35
6	ICT	224	(7%)	15
		47,278	922	1175

Considering the ground reality of the provinces, the estimated sample size in Punjab and KP was enhanced to 300 in each. Whereas in Balochistan it was enhanced to 450. So, the overall sample size increased from 922 to 1175. It is more than 2.28 percent of the total watercourses in the project area. The Baseline study will be conducted in three phases and sample size will accordingly spread over three phases/periods. In each phase sampled watercourses will be divided into various districts of a respective province /unit to its allocated target.

The first phase baseline is likely to be started towards the end of 2nd financial year (2020-21) of this project. There are limited chances for getting information on (Before the startup of an intervention (particularly construction work of the watercourse) as most of the work might be completed or in the last stage of completion. It will not be possible to measure the water flow before improvement work starts.

The second phase of baseline will be started in the beginning of the 3rd financial year of the project (2021-22). There seems to be logic and ground realities that 1st and 2nd baseline will be conducted in one go and there will be only one report i.e. (Combine baseline)

The baseline will be started with watercourse improvement intervention (also applicable for other interventions) data at district level. Initially samples will be drawn proportionally from the target number of watercourse improvement intervention numbers for the year 2019-20, 2020-21. The sample will be chosen from the available number of watercourse (T.S. issued or improvement work is pending yet). Similarly, the 2021-22 target will be included later on.

Each watercourse has a Water Users Association. The association comprises its members/shareholders generally the landowners using the water of this watercourse. At the same time there are certain farmers who are non-owners/ non-member of this association.

Besides getting the feedback from the association, users are also interviewed for feedback. A list of total beneficiaries (owners/non-owners) on this watercourse will be prepared. Number of users on each watercourse varies from watercourse to watercourse. This reflects the beneficiary status regarding farm size, reburial status as well the farm location on the watercourse. Such data are used to draw the sample of beneficiaries.

In the second stage six beneficiaries (owners/non owners of land) on each watercourse will be selected with due representation of farm size, tendril status, location of the watercourses. In all these 7050 (1175 *6) beneficiaries will serve as feedback respondents of the baseline survey.

In addition to these six respondents generally male, one female member of these respondent's family using a convenient sampling method will also be sampled. This respondent will be asked questions regarding social structure and female participation in this project activities. So, there will be in all 1175 extra respondents to be included in this sample size. In Punjab, there will be 300 extra female respondents.

2. Sample Size of Water Storage Tanks

We have used the same formula (Cochran's formula and its modifications) in estimation of sample size of water storage tank in the project area. The sample size becomes 300 (More than 2 %). Using the convenient sampling technique, the sample size is further divided proportionally in the Provinces / Units as shown in table 4.8.

Table 4.8: Sample Size of Water Storage Tank

Sr. No.	Province /Unit	Target population (WSTs)	Sample Size
1	Punjab	3,000	60
2	KP	5,000	100
3	Balochistan	5,507	110
4	GB	825	17
5	AJK	600	13
		14,932	300

The sample size in each province/unit will be divided into three phases and subsequently into districts in proportion of their targets.

There is generally one beneficiary of the water storage tank, i.e., the owner of the water tank. Therefore, 300 beneficiaries are our respondent

farmers for feedback. In Punjab such beneficiaries/owners will be 60.

Baseline /end-line survey of WST beneficial/owner will also be conducted on the same pattern as for watercourse improvement intervention.

3. Sample of Laser Land Leveler

While using the same formula, as used for other interventions, the sample size for the project area is estimated to be 374 (2.2 %). In the units GB and AJK, the sample size is 40% as the population is too tiny but needs representation. Sample is distributed among the population of each Province / Unit proportionally as in table 4.9.

Table 4.9: Sample Size of Laser Land Leveler

Sr. No.	Province /Unit	Target LLL Service Provider	Sample Size
1	Punjab	9,500	300
2	KP	600	20
3	Balochistan	1,500	50
4	GB	5	2
5	AJK	5	2
		16,610	374

This sample will be further subdivided into phases and then in each district proportionally on the basis of yearly target. Generally, each Laser land Leveler will be given to an individual who will provide services to the farmers. It is the respondent for the purpose of evaluation.

It is felt that users of the Laser Land Leveler are the real beneficiaries of this service. So at least one user of each service provider vicinity will be taken into account and will also be interviewed in addition to the interview of the Laser land Leveler service provider. So, in all 374 users of Laser Land leveling unit will form our beneficiary /Respondents. In Punjab the number of such beneficiaries/respondents becomes 300.

4.14 TRAINING SESSIONS OF FIELD TEAMS AND KEY STAFF ON MONITORING TOOLS & ANDROID APPLICATION

Mr. Rizwan Saleem ICT Manager has conducted the training session regarding use of Monitoring Tools & Android Application for all ME&IE Field Teams & Key Staff. Moreover, it was also decided to conduct series of virtual Training Sessions in the next month of April

2021, after pretesting of MTs in the field and refinement of MTs.

4.15 TRAINING ON MEASUREMENT OF WATER FLOW (PYGMY CURRENT METER)

A comprehensive Training Session for ME&IE Field Teams was conducted to use of Pygmy current meter for the measurement of Water Flow during the field activity.

4.16 Development of Baseline Survey Manual

A survey manual provides basic concepts about surveying and is intended for use in the training course and helped enumerator for better understanding of the questionnaire and monitoring tools.

Project prepared a manual for baseline survey; this manual includes all the Modules (Questionnaire) which were used in the field area through Android. Each question is properly explained, and a detail of methodology has been explained in coming pages for what care should be taken before and during execution of these questionnaires.

4.17 BASELINE SURVEY

4.17.1 Baseline Survey by Punjab Zonal Office

Coordination with OFWM-Field Offices

It was necessary for ME&IE Consultants to coordinate with OFWM Department field offices. Coordination with OFWM was pre-respective. Therefore, the Deputy Team Leader briefed the field teams of ME&IE consultants concerned how to coordinate/consult with DDA (OFWM) / ADA (OFWM) and other field officers of various sub-zones. The main objective of these conversations was to introduce the role of ME&IE Consultants and the availability of OFWM-field staff and WUA chairman for the field visits.

The field team in charge consulted with the OFWM department Deputy Director Agriculture (District level), Assistant Director Agriculture (Tehsil level), and other relevant officers in their respective sub- zones.

Team In charge of each field survey team remained in contact with OFWM offices of their respective zones to get data / information related to the NPIWC-II

project. The team in charges emphasized on:

- Technical sanction issue of watercourses
- Availability of basic data of sampled watercourses
- Visit to the site of intervention/owner of water storage tank
- Contact with chairman water user's association

Data Collection Techniques

With coordination and assistance of the OFWM Field staff, targeted interventions were approached in their areas. The general criteria for selection such intervention was followed as under:

- a. Watercourses Criteria for Selection of an Intervention:
 - i. Watercourse Technical Sanctions (TS) has been issued or likely to be issued soon.
 - ii. Water flow on the watercourse could be measured before actual improvement of the watercourse starts.
 - iii. Due sharing of Regular Watercourses will be given in the Sample
 - iv. Water user association (Through Chairperson of the same water course will also become an independent respondent for MI&IE study purposes).
 - v. Water Storage Tank- The main criteria was Technical Sanction (TS) Issued, regardless the stage of construction.

Data Collection Tools / Instruments

Different types of data / information were used to collect data from various stakeholders during conduction of the baseline survey. It starts from the formation / organization of the Water Users Association and concludes with data on agricultural production asked from sample farmers. Various monitoring and Evaluation tools (MTS) were pre-designed and pre-tested for this purpose. These MTs have been converted into android-based applications on mobile phones. The information shared / observation recorded, and responses of respondents were filled through tabs / smartphone using this android based application. The data collected from the field will be uploaded to the MIS / GIS system online for further process and analysis.

The different tools / instruments / questionnaires pre-design and pre-tested before implementation in the field, pertain to:

- i. Basic data information from OFWM

- department regarding sampled interactions.
- Data on monitoring and evaluations of sampled interventions.
 - Benchmark / baseline level information from users of improved watercourse and water storage tanks regarding their input – output level at respective farms.

Data Collection Method

Important methods of data collections, used in study include:

- Data sharing with OFWM department in the field.
- One to one interview with Chairman WUA.
- Face to face interventions with beneficiaries of watercourse and water storage tank

Allocation of Field Teams

Team Sub Zone-1		Team Sub Zone-2		Team Sub Zone-3	
Awais Jahangeer (FTI)		M. Rizwan Suleman (FTI)		M. Zubair (FTI)	
Syed Ali Haider		Nouman Rashid		M. Misbah Ur Rehman	
Shahid Khalil Rana		Muhammad Bilal Sohail		Umar Farooq Hammad	
Division	District	Division	District	Division	District
Faisalabad	Faisalabad	Gujranwala	Gujranwala	Bahawalpur	Bahawalpur
	Jhang		Hafizabad		R.Y Khan
	Chiniot		Narowal		Bahawalnagar
	T.T. Singh		Sialkot	D.G. Khan	D.G. Khan
Sahiwal	Sahiwal	Sargodha	M.B Din		Muzaffargarh
	Pakpattan		Gujrat		Layyah
	Okara		Sargodha		Rajanpur
Lahore	Lahore		Khushab	Multan	Multan
	Sheikhupura		Bhakkar		Khanewal
	Nankana Sahib		Mianwali		Vehari
	Kasur				Lodhran
Sub Zone-1 Areas Visited by Team-1		Sub Zone-1 Areas Visited by Team-2		Sub Zone-1 Areas Visited by Team-3	
District Kasur Tehsil Kasur, Kot Rada Kishain and Chunian.		District Gujranwala Tehsil Wazirabad and Nowshera Virkan.		District Muzaffargarh, Tehsil Kot Aduu	
District Okara Tehsil Depalpur		District Gujrat Tehsil Gujrat.			

List of visited Watercourses Sub Zone-1

Sr. No	WC ID	Status	WC Type	Address
1	3854/L	ICR-II	Regular	Mozah Bakar kay Tehsil Kasur Distt Kasur
2	11430/R	ICR-II	Additional	Bhuddo ki Tehsil Chunia Dist. Kasur
3	20100/L	ICR-I	Additional	Arora Mian khan Tehsil Depalpur Dist. Okara
4	10483/L	ICR-I	Additional	Sharif Abad Tehsil Depalpur Dist. Okara
5	18000/L	ICR-I	Additional	Mozah Budhana Tehsil Depalpur Distt Okara
6	67700/L	ICR-II	Additional	Fareed Pur Suhaag Tehsil Depalpur Distt Okara

List of visited Watercourses Sub Zone-2

Sr. No	WC ID	Status	WC Type	Address
1	21600-R	ICR-2	Additional	Tung Khurd Nowshera Virkan Gujranwala
2	58622-TL	ICR-1	Additional	Pandoki, wazirabad Gujranwala
3	18715-R	ICR-1	Additional	Hazrat kalia wala, wazirabad Gujranwala
4	12445-R	ICR-2	Additional	Dhellah Chahta, Wazirabad, Gujranwala
5	125800-R	ICR-2	Additional	Garmula Virkan, Nowshera Virkan, Gujranwala
6	63100-L	ICR-2	Additional	Moza Pagalla, Nowshera Virkan, Gujranwala
7	73300-R	ICR-2	Regular	Khan Musalman Nowshera Virkan Gujranwala

List of visited Watercourses Sub Zone-3

Sr. No	WC ID	Status	WC Type	Address
1	26590/L	ICR-I	Additional	Mozah Shadi Khan Munda, Kot Addu, Muzaffar Garh
2	211073/R	ICR-I	Additional	Chak 521 TDA Kot Addu, Muzaffar Garh

Sr. No	WC ID	Status	WC Type	Address
3	17600/L	ICR-I	Additional	Raan, Kot Addu, Muzaffar Garh
4	94934/L	ICR-II	Additional	Chak 604 TDA Kot Addu, Muzaffar Garh
5	46922/L	ICR-I	Additional	583 TDA, Kot Addu, Muzaffar Garh
6	26338/R	ICR-II	Regular	Khar Sharqi, Kot Addu, Muzaffar Garh

Pictorial View of Team-1 Field Visits



Figure 4.46: Alternate way of watercourse 3854/L



Figure 4.49: Visit of field team with ADA at sight of Moza Budho-ki WC 11430/R



Figure 4.47: View of Concreted WST



Figure 4.50: Data collection from beneficiaries of WC-20100/L Depalpur



Figure 4.48: Visit of WST with ADA at Moza Mojo-ki



Figure 4.51: View of concreted WST 42/2L Okara



Figure 4.52: View of Outlet for WC 10483/L Depalpur



Figure 4.56: Improper placement of Segments & Naccas on watercourse no 21600-R



Figure 4.53: Proper back filling of watercourse 11430/R



Figure 4.57: Collection of Data from beneficiaries of Watercourse No 58622/TL



Figure 4.54: Data collection from beneficiaries of WC-10483/L



Figure 4.58: Picture with WMO officer and beneficiaries after collection the data of Watercourse No 58622/TL

Pictorial View of Team-2 Field Visits



Figure 4.55: Field Visit at WST with ADA Noshehra Virkan



Figure 4.59: Slope issue at Watercourse in Kalianwala of watercourse no18715/R



Figure 4.60: Discussion with WMO about Mogga point of Watercourse No 58622/TL



Figure 4.61: Measuring the Length of watercourse with measuring wheel of Watercourse No 58622/TL

Pictorial View of Team-3 Field Visits



Figure 4.62: Briefing in Progress between Field Team In charge and Officers with ADA Kot Addu



Figure 4.63: Introduction and Briefing of Supervisors of Respective Water courses and Water Storage Tank



Figure 4.64: In meeting with WUA Chairman WC 221073 R



Figure 4.65: Field Team Members with chairman of WC 46922 L

4.17.2 Baseline Survey by KP Zonal Office

Visits of ME&IE Field Team-1 - KP Zone

Team-1 (Peshawar)	District	WC	WST	Beneficiary Interviewed
Mumtaz Ullah (FTI), Fawad Ali, Aftab Ahmed	Swabi	1	0	13
	Swabi	1	0	
	Nowshera	1	0	13
	Nowshera	0	1	8
	Peshawar	1	0	10
	Charsadda	1	0	
	Charsadda	0	1	10
	Mardan	1	0	9

Field Visit – Village Boko

Watercourse ID:	Baaz Muhammad Tube well pipe WC
Name of village:	Boko
Union council:	Jahnda
Chairman WUA:	Baaz Muhammad
Tehsil & District:	Sawabi
Source of irrigation:	Tube-well
Total length of watercourse:	900
Estimated length of lining:	400

Command area of watercourse:	17
No of beneficiaries:	15
Starting date:	15- Feb-2020
Completion date:	21-March-2020
Cost of Construction of WC:	227101



Figure 4.66: Group Photo with OFWM Swabi

2) Field Visit – 026/L WC

Watercourse ID:	026/L
Name of village:	Jahnda Wand
Union council:	Jahnda
Chairman WUA:	Akhtar Nawaz
Tehsil & District:	Swabi
Source of irrigation:	Canal
Total length of watercourse:	600
Estimated length of lining:	173
Command area of watercourse:	50
No of beneficiaries:	9



Figure 4.67: 026/L WC Jahnda Wand Swabi

Water Storage Tank	Rehaj Gul
Name of village:	Umari Kale

Union council:	Akora Khatak
Chairman WUA:	Rehaj Gul
Tehsil & District:	Nowshera
Source of irrigation:	Tubewell
Shape of water storage tank:	Square
Size of water storage tank:	40*40

Watercourse ID:	Tahir Shah TWWC
Name of village:	Deri Kati Khail
Village council:	Hakimabad
Chairman WUA:	Tahir Shah
Tehsil & District:	Nowshera
Source of irrigation:	Tub well
Total length of watercourse:	1600
Estimated length of lining:	780
Command area of watercourse:	40
No of beneficiaries:	13
Starting date:	28/12/2020
Completion date:	10/01/2021
Construction cost of WC:	924660



Figure 4.68: Tahir Shah WC Nowshera

Water Storage Tank	Noorul Amin
Name of village:	Mardand
Union council:	Mardand
Chairman WUA:	N/A
Tehsil & District:	Tangi/Charsadda
Source of irrigation:	Tube-well
Shape of water storage tank:	Square
Size of water storage tank:	38*38

Watercourse ID:	3077R
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Name of village:	Hisara Nehri
Village council:	Hisara Nehri
Chairman WUA:	Muhammad Iqbal
Tehsil & District:	Tangi Charsadda
Source of irrigation:	Canal
Total length of watercourse:	3330
Estimated length of lining:	806
Command area of watercourse:	119
No of beneficiaries:	15
Construction cost of WC:	999478



Figure 4.69: 3077R WC Charsadda

Watercourse ID:	Shad Muhammad
Name of village:	Telaband
Village council:	Telaband
Chairman WUA:	Shad Muhammad
CNIC:	1730-5321907-5
Cell No.	3018989826
Tehsil & District:	Peshawar
Source of irrigation:	Tube-well/ canal
Total length of watercourse:	1600
Estimated length of lining:	564
Command area of watercourse:	30
No of beneficiaries:	10
Starting date:	22/01/2020
Completion date:	24/02/2020

Watercourse ID:	Ali Sarwar WC
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Name of village:	Hussay
Village council:	Garyala
Chairman WUA:	Muhammad Umair
Tehsil & District:	Mardan
Source of irrigation:	Tubwell
Total length of watercourse:	698
Estimated length of lining:	253
Command area of watercourse:	30
No of beneficiaries:	9
Starting date:	2/11/2020
Construction cost of WC:	Rs. 10,13,081/-



Figure 4.70: Ali Sarwar WC Mardan

Visits of ME&IE Field Team-2 - KP Zone

Team-2 (DI Khan)	District	WC	WST	Beneficiary Interviewed
Inamullah (FTI), Farhan Tayab, Matlub Husain.	Kohat	1	0	6
	Lakki Marwat	1	0	6
	DI Khan	1	0	7
	DI Khan	1	0	7
	Lakki Marwat	1	0	6
	Bannu	1	0	6
	Tank	0	1	
	Lakki Marwat	0	1	

Field Visit – Village Gumbat

Watercourse ID:	Asim Altaf TWWC / Kohat 01
Name of village:	Gumbat
Union council:	Gumbat

Chairman WUA:	Asim Altaf
Tehsil & District:	Kohat
Source of irrigation:	Tube Well
Total length of watercourse:	2000 Meter
Estimated length of lining:	930 Meter
Command area of watercourse:	17 Acre
No of beneficiaries:	6
Starting date:	1/12/2020
Completion date:	30/12/2020



Figure 4.71: BSL at TWWC Asim Altaf Kohat

Field Visit – Lakki Marwat

Watercourse ID:	Gulo Khan TWWC/LM01
Name of village:	Wanda Dalan
Union council:	Mila Shahb Khel
Chairman WUA:	Gulo Khan
Tehsil & District:	Lakki Marwat
Source of irrigation:	TWWC
Total length of watercourse:	850 m
Estimated length of lining:	402
PCPS:	NA/ PVC 6 inch
Command area of watercourse:	14 Acres
No of beneficiaries:	6
Starting date:	6/1/2021
Cost of Construction of WC:	Rs. 895,702/-



Figure 4.72: BSL at TWWC Gulo Khan Lakki Marwat

Watercourse ID:	Safeer Ullah TWWC/LM 02
Name of village:	Kot Kashmir
Union council:	Kot Kashmir
Chairman WUA:	Safeer Ullah
Tehsil & District:	Sariye Norang/Lakki Marwat
Source of irrigation:	TWWC
Estimated length of lining:	890 m
PCPS:	No/ PVC
Command area of watercourse:	31 Acres
No of beneficiaries:	6
Starting date:	May 20/2021
Cost of Construction of WC:	Rs. 969,848/-



Figure 4.73: BSL at TWWC Safeer Ullah Khan Lakki Marwat

Water Storage Tank	WST Mehtab Ahmad
Name of village:	Asmat Abad
Union council:	Mash Masti Khani
Chairman WUA:	Abdul Hakim
Tehsil & District:	Saraye Norang/ Lakki Marwat
Source of irrigation:	TW
Shape of WST:	Square
Size of water storage tank:	35.0*35.0 feet
Depth of WST:	4.6 feet
Command area of watercourse:	15.5



Figure 4.74: BSL at WST Abdul Hakim Lakki Marwat

Watercourse ID:	Sona Khan TWWC/ DIKhan 1
Name of village:	Rodi Khel
Village council:	Rodi Khel
PK	96
Chairman WUA:	Muhammad Zubair
Tehsil & District:	DIKhan
Source of irrigation:	Tube Well
Command area of watercourse:	68
No of beneficiaries:	6
Starting date:	On TS
Completion date:	On TS
Construction cost of WC:	Rs. 824,517/-



Figure 4.75: Measuring length of TWWC Sona Khan DI Khan

Watercourse ID:	Naimatullah TWWC/DIK 02
Name of village:	Rodi Khel
Union council:	Band Korie
Chairman WUA:	Naimat Ullah

Tehsil & District:	Paharpur/DIKhan
Source of irrigation:	TWWC
Total length of watercourse:	TS/
Estimated length of lining:	545 m
PCPS:	Yes
Command area of watercourse:	38 Acres
No of beneficiaries:	6
Starting date:	On TS
Completion date:	On TS
Cost of Construction of WC:	Rs. 1,099,357/-



Figure 4.76: Measuring TWWC Naimat Ullah DI Khan

Field Visit Bannu

Watercourse ID:	Habibullah TWWC/Bannu 01
Name of village:	Azim Kaly
Union council:	Khandar Khel
Chairman WUA:	Habib Ullah
Tehsil & District:	Domil/Bannu
Source of irrigation:	TWWC
Total length of watercourse:	2200 m
Estimated length of lining:	1100 m
PCPS:	No/ PVC 4 inch
Command area of watercourse:	31 Acres
No of beneficiaries:	6
Starting date:	Dec/8/2020
Cost of Construction of WC:	Rs. 1,231,500/-



Figure 4.77: BSL at TWWC Habib Ullah Bannu

Field Visit Tank

Water Storage Tank	1 WST Abdul Hakim
Name of village:	Maidad Khel
Union council:	Mulazia
Chairman WUA:	Mehtab Ahmad
Tehsil & District:	Tank
Source of irrigation:	TWWC
Shape of water storage tank:	Square
Size of water storage tank:	35.7*35.7 feet
Depth of WST:	4.1 feet
Command area of watercourse:	9.5
Construction Cost of watercourse:	Rs. 458418/-



Figure 4.78: BSL at WST Mehtab Ahmad District Tank

Visits of ME&IE Field Team-3 - KP Zone

Team-3 (Mansehra)	District	WC	WST	Beneficiary Interviewed
Mahmood Hassan (FTI),	Haripur	1	0	
	Haripur	1	0	
	Abbottabad	1	0	
	Mansehra	1	0	
	Battagram	1	0	
	Torghar	1	0	
	Haripur	0	1	

Haripur	0	1	
Gilgit	1	0	
Gilgit	0	1	

Field Visit Village “Jagal Dheenda”

Watercourse ID:	Nazakat Khan Tube Well Watercourse
Name of village:	Jagal
Union council:	Deendha
Chairman WUA:	Nazakat Khan
Tehsil & District:	Haripur
Source of irrigation:	Tubewell
Total length of watercourse:	1900 m
Estimated length of lining:	852 m
Command area of watercourse:	13.62 acres
No of beneficiaries:	11
Cost of Construction of WC:	1.56 M



Figure 4.79: Nazakat Khan WC Haipur, with OFWM officers & farmers

Watercourse ID:	Shakir Tube Well Watercourse
Name of village:	Mohrri Malya
Union council:	Banian
Chairman WUA:	Shakir Ali
CNIC No.	13302-6343561-3
Cell No.	0315-5852981
Tehsil & District:	Haripur
Source of irrigation:	Tube Well
Total length of watercourse:	2159 m
Estimated length of lining:	954 m
Command area of watercourse:	30 acres
No of beneficiaries:	14

Starting date:	19-11-2020
Completion date:	30-06-2021
Cost of Construction of WC:	2.50 M



Figure 4.80: Shakir TW Wc Haipur, with OFWM officers & farmers



Figure 4.81: During interview at Shakir TW WC Haripur

Watercourse ID:	Baghoter Doga pipeline WC
Name of village:	Baghoter Doga
Union council:	Boai
Chairman WUA:	Muhammad Sabir
Tehsil & District:	Abbottabad
Source of irrigation:	Stream
Total length of watercourse:	2665 m
Estimated length of lining:	As Above
Command area of watercourse:	Acres
No of beneficiaries:	15
Cost of Construction of WC:	Rs.998400



Figure 4.82: Baghoter Doga, Abbottabad

Watercourse ID:	Ashaiq Hussain Tw Wc
Name of village:	Maswal
Union council:	Hamsherya
Chairman WUA:	Ashaiq Hussain
Tehsil & District:	Mansehra
Source of irrigation:	Tube Well
Total length of watercourse:	900 m
Estimated length of lining:	400 m
Command area of watercourse:	10 Acres
No of beneficiaries:	9
Starting date:	10-20-2020
Cost of Construction of WC:	Rs.544,384/-



Figure 4.83: With farmer and OFWM Engineer in Mansehra

Watercourse ID:	Badiuz Zaman WC
Name of village:	Garhi Muzaffar Khan
Village council:	Banian
Chairman WUA:	Fakhar Zaman
CNIC:	13202-0775258-5

Tehsil & District:	Batagram
Source of irrigation:	Stream
Estimated length of lining:	540 m
No of beneficiaries:	14
Starting date:	05-05-2021
Construction cost of WC:	Rs.540,800/-



Figure 4.84: Data collection in district Batagram



Figure 4.85: Data collection in district Batagram

Watercourse ID:	Jaaga Bala Wc
Name of village:	Jaaga Bala
Union council:	Judbah
Chairman WUA:	Abdul Basit
Tehsil & District:	Torghar
Source of irrigation:	Stream
Total length of watercourse:	1400 m
Estimated length of lining:	205 m
Command area of watercourse:	54 Acres
No of beneficiaries:	10
Starting date:	04-12-2020

Cost of Construction of WC:	Rs.999,556/-
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Figure 4.86: with sub- Engineer Fazlur Raham, District Torghar

Water Storage Tank	Nazakat Khan WST
Name of village:	Jagal Dheenda
Union council:	Dheenda
Chairman WUA:	Nazakt Khan
Tehsil & District:	Haripur
Source of irrigation:	Tube Well
Shape of water storage tank:	Square
Size of water storage tank:	11*11 m
Depth of WST:	5' feet
Command area of watercourse:	13.62 acres
No of beneficiaries:	11
Starting date:	05-11-2020
Construction Cost of watercourse:	Rs.646683

Water Storage Tank	Abid Khan WST
Name of village:	Khair Barra
Union council:	Khair Barra
Chairman WUA:	Muhammad Asif
Tehsil & District:	Ghazi & Haripur
Source of irrigation:	Tube Well
Shape of water storage tank:	Square
Size of water storage tank:	9*9 m
Depth of WST:	5' F



Figure 4.87: data collection of WST in District Haripur



Figure 4.88: WST at District Haripur



Figure-4.1: WST in District Ghazi

Watercourse ID:	Main Chakar Kot Channel
Name of village:	Pari
Union council:	GB
Chairman WUA:	Fida Ullah
Tehsil & District:	GB
Source of irrigation:	Stream
Total length of watercourse:	1219 m

4.17.3 Baseline Survey by Balochistan Zonal Office

Visits of ME&IE Field Team-1 - Balochistan Zone

The team – 1 monitored 05 watercourses and 04 water storage tanks of two districts i.e., Naseerabad and Sohbatpur.

Division	Districts	Tehsils	Sub Tehsils
Nasirabad	Nasirabad	1. D.M. Jamali 2. Tamboo 3. Baba Kot 4. Landhi	1. Chattar
	Sohbatpur	1. Sohbatpur 2. Manjipur 3. Hair Din 4. Fareedabad	1. Syed Muhammad Kanrani

1) Field Visit Date: 16th June 2021

Watercourse ID:	WC/BALC/NB/01
Name of village:	Haji Qamar Din
Union council:	Quba Sher Khan
Chairman WUA:	Munawar Ali
Tehsil & District:	D.M. Jamali, Naseerabad
Source of irrigation:	Rabi Canal
Total length of watercourse:	2722.6 ft.
Estimated length of lining:	1580 ft.
Command area of watercourse:	28 Acres
No of beneficiaries:	15
Cost of Construction:	2,825,815



Figure 4.89: Spot Checking of Watercourse

2) Field Visit Date: 17th June 2021

Watercourse ID:	WC/BALC/SB/01
Name of village:	Dirghi
Union council:	Dirghi

Chairman WUA:	Khalil Ahmed
Tehsil & District:	Dirghi, Sohbatpur
Source of irrigation:	Pat Feeder
Total length of watercourse:	3200 ft.
Estimated length of lining:	1960 ft. (As per design, under construction)
Command area of watercourse:	200 Acres
No of beneficiaries:	14
Cost of Construction:	2,825,815



Figure 4.90: Soil Compaction for construction of Watercourse

3) Field Visit Date: 18th June 2021

Watercourse ID:	WC/BALC/NB/02
Name of village:	Jan Jamali
Union council:	Quba Sher Khan
Chairman WUA:	Muhammad Safar
Tehsil & District:	D.M. Jamali, Naseerabad
Source of irrigation:	Rabi Canal
Total length of watercourse:	1150 ft.
Estimated length of lining:	1150 ft.
Command area of watercourse:	41 Acres
No of beneficiaries:	14
Cost of Construction:	2,825,815



Figure 4.91: Concrete Culvert with Watercourse

4) Field Visit Date: 19th June 2021

Watercourse ID:	WC/BALC/SB/02
Name of village:	Muhammad Ali
Union council:	Ghuri
Chairman WUA:	Shehzad Ali
Tehsil & District:	Fareedabad, Sohbatpur
Source of irrigation:	Naseer Shakh
Total length of watercourse:	2000 ft.
Estimated length of lining:	1150 ft.
Command area of watercourse:	130 Acres
No of beneficiaries:	6
Cost of Construction:	2,825,815



Figure 4.92: Measuring dimensions of Watercourse

5) Field Visit Date: 20th June 2021

Watercourse ID:	WC/BALC/SB/03
Name of village:	Muhammad Bakhsh
Union council:	Noorpur

Chairman WUA:	Muhammad Bakhsh
Tehsil & District:	Fareedabad, Sohbatpur
Source of irrigation:	Jhuder Shakh
Total length of watercourse:	1700 ft.
Estimated length of lining:	1450 ft.
Command area of watercourse:	40 Acres
No of beneficiaries:	15
Cost of Construction:	2,825,815



Figure 4.93: Checking Water flow using Pygmy Meter

6) Field Visit Date: 21st June 2021

Water Storage Tank (Abdul Rehman)	
Name of village:	Abdul Rehman
Union council:	Bedar Beroon
Chairman WUA:	Abdul Rehman
Tehsil & District:	D.M. Jamali, Naseerabad
Source of irrigation:	Pat Feeder
Type of water storage tank construction:	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.5
Command area of water storage tank:	58
No of beneficiaries:	8
Cost of Construction:	1,590,868



Figure 4.94: Checking of Design and Dimensions

7) Field Visit Date: 21st June 2021

Water Storage Tank (Javaid Ahmed)	
Name of village:	Javaid Ahmed
Union council:	Chattar
Chairman WUA:	Israr Ahmed
Tehsil & District:	Chattar, Naseerabad
Source of irrigation:	Tube well
Type of water storage tank construction:	Bricks
Size of water storage tank:	50x50
Depth of WST:	4.5
Command area of water storage tank:	25
No of beneficiaries:	2
Cost of Construction:	1,236,921



Figure 4.95: Tube well as source of water for WST

8) Field Visit Date: 22nd June 2021

Water Storage Tank (Muhammad Din)	
Name of village:	Muhammad Din
Union council:	Quba Sher Khan

Chairman WUA:	Muhammad Din
Tehsil & District:	D.M. Jamali, Naseerabad
Source of irrigation:	Pat Feeder
Type of water storage tank construction:	Bricks
Size of water storage tank:	50x50
Depth of WST:	4.5
Command area of water storage tank:	35
No of beneficiaries:	5
Cost of Construction:	1,236,921



Figure 4.96: Checking of Design and Dimensions

9) Field Visit Date: 22nd June 2021

Water Storage Tank (Fareed Khan)	
Name of village:	Ameer Bukhsh Umrani
Union council:	Sikandarabad
Chairman WUA:	Fareed Khan
Tehsil & District:	D.M. Jamali, Naseerabad
Source of irrigation:	Pat Feeder
Type of water storage tank construction:	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.5
Command area of water storage tank:	62
No of beneficiaries:	7
Cost of Construction:	1,590,868



Figure 4.97: Spot checking before the construction of WST

Visits of ME&IE Field Team-2 - Balochistan Zone

Team 2 monitored 05 watercourses and 06 water storage tanks of 04 districts i.e., Mastung, Killa Abdullah, Killa Saifullah and Loralai.

Districts	Tehsil	Sub Tehsil
Mastung	1. Mastung 2. Dasht	1. Khed Kucha 2. Kirdgab
Killa Abdullah	1. Chaman 2. Killa Abdullah 3. Ghulistan	1. Dobandi
Killa Saifullah	1. Killa Saifullah 2. Muslim Bagh 3. Loi Band	Kaan Mehtarzai Badini Shinkai
Loralai	1. Loralai 2. Mekhthar	NA

1) Field Visit – Village Mammani

Watercourse ID:	WC/BALC/MT/01
Name of village:	Mammani
Union council:	Dhasht
Name of Farmer:	Abdul Ghani
Tehsil & District:	MASTUNG
Source of irrigation:	Tube well
Total length of watercourse:	2000 Rft
Estimated length of lining:	2000 Rft
Command area of watercourse:	14 Acre
No of beneficiaries:	5
Cost of Construction:	1,548,697



Figure 4.98: Village Mammani

2) Field Visit – Village Gundain

Water Storage Tank (WST/BALC/MT/01)	
Name of village:	Gundain
Union council:	Dhasht
Chairman WUA:	Salman Ahmed
Tehsil & District:	Mastung
Source of irrigation:	Tube well
Type of water storage tank:	Brick Masonry
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Storage Tank:	8 Acre
No of beneficiaries:	5
Cost of Construction:	1,590,868



Figure 4.99: Village Gundain

3) Field Visit – Village Pingow

Water Storage Tank (WST/BALC/MT/02)	
Name of village:	Pingow
Union council:	Dhasht

Chairman WUA:	Abdul Samad
Tehsil & District:	Mastung
Source of irrigation:	Tube well
Type of water storage tank:	Brick Masonry
Size of water storage tank:	50x50
Depth of WST:	4.75
Command area of water Storage Tank:	12 Acre
No of beneficiaries:	7
Cost of Construction:	1,236,921



Figure 4.100: Village Pingow

4) Field Visit – Village _ Badwan

Watercourse ID:	WC/BALC/KA/01
Name of village:	Badwan
Union council:	Kulak
Chairman WUA:	Rehmat ullah
Tehsil & District:	Killa Abdullah
Source of irrigation:	Tube well
Total length of watercourse:	2000 R-ft
Estimated length of lining:	2000 R-ft
Command area of watercourse:	50 Acre
No of beneficiaries:	9
Cost of Construction:	1,548,697



Figure 4.101: Village Badwan

5) Field Visit – Village Lamarin

Water Storage Tank (WST/BALC/KA/01)	
Name of village:	Lamarin
Union council:	Kulak
Chairman WUA:	Abdul Qahar Agha
Tehsil & District:	Killa Abdullah
Source of irrigation:	Tube well
Type of water storage tank:	Brick Masonry
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Storage Tank:	25 Acre
No of beneficiaries:	7
Cost of Construction:	1,590,868



Figure 4.102: Village Lamarin

6) Field Visit – Village Sra Bazala

Watercourse ID:	WC/BALC/KS/01
Name of village:	Sra Bazala
Union council:	Kan Matherzai

Chairman WUA:	Malik Younas
Tehsil & District:	Killa Saif Ullah Kan Matherzai
Source of irrigation:	Tube well
Total length of watercourse:	2188 R-ft
Estimated length of lining:	2000 R-ft
Command area of watercourse:	10 Acre
No of beneficiaries:	5
Cost of Construction:	1,548,697



Figure 4.103: Village Sra Bazala

7) Field Visit – Village Kharkaran

Water Storage Tank (WST/BALC/KS/01)	
Name of village:	Kharkaran
Union council:	Saddar
Chairman WUA:	Abdul Rasheed
Tehsil & District:	Killa Saif ullah
Source of irrigation:	Tube well
Type of water storage tank:	Brick Masonry
Size of water storage tank:	50x50
Depth of WST:	4.75 (as per Design, under construction)
Command area of water Storage Tank:	12 Acre
No of beneficiaries:	7
Cost of Construction:	1,236,921



Figure 4.104: Village Kharkaran

8) Field Visit – Village Killi Molvi Bakthar

Watercourse ID:	WC/BALC/KS/02
Name of village:	Killi Molvi Bakthar
Union council:	Bindad Mirzai
Chairman WUA:	Muhammad Gulab
Tehsil & District:	Bindad Mirzai/KSF
Source of irrigation:	Tube well
Total length of watercourse:	2000 R-ft
Estimated length of lining:	2000 R-ft (as per design, under construction)
Command area of watercourse:	10 Acre
No of beneficiaries:	9
Cost of Construction:	1,548,697



Figure 4.105: Village Killi Molvi Bakthar

9) Field Visit Kach Amakzai

Watercourse (PVC Pipe) ID:	WC/BALC/LL/01
Name of village:	Dara Zinda
Union council:	Kach Amakzai
Chairman WUA:	Abdul Ghaffar

Tehsil & District:	Bori/Loralai
Source of irrigation:	Tube well
Total length of PVC Pipe:	1600 R-ft
Command area of watercourse:	12 Acre
No of beneficiaries:	8
Cost of Construction:	1,431,586



Figure 4.106: Visit Kach Amakzai

10) Field Visit – Village Zangiwal

Water Storage Tank (WST/BALC/LL/01)	
Name of village:	Zangiwal
Union council:	Zangiwal
Chairman WUA:	Muzakar Habib
Tehsil & District:	Bori/Loralai
Source of irrigation:	Tube well
Type of Construction:	Brick Masonry
Size of water storage tank:	50x50
Depth of WST:	4.5
Command area of water Storage Tank:	12 Acre
No of beneficiaries:	10
Cost of Construction:	1,590,868



Figure 4.107: Village Zangiwal

11) Field Visit – Village Shah Kareize

Water Storage Tank (WST/BALC/LL/02)	
Name of village:	Shah Kareize
Union council:	Shah Kareize
Chairman WUA:	Allaah-ud-Din
Tehsil & District:	Bori/Loralai
Source of irrigation:	Tube well
Type of water storage tank:	Brick Masonry
Size of water storage tank:	50x50
Depth of WST:	4.75
Command area of water Storage Tank:	6 Acre
No of beneficiaries:	9
Cost of Construction:	1,236,921



Figure 4.108: Village Shah Kareize

Visits of ME&IE Field Team-3 - Balochistan Zone

The team- 3 monitored 01 watercourse and 11 water storage tanks of 04 districts i.e., Quetta, Mastung, Pishin and Kalat.

District	Tehsil	Sub Tehsil
Quetta	1. Quetta city 2. Quetta Saddar 3. Kuchlak	1. Punjpai
Pishin	1. Pishin 2. Hurramzai 3. Karezat 4. Saranan 5. Bostan 6. Nana Sahab	1. Barshore
Kalat	1. Kalat 2. Khaliq Abad	1. Johan 2. Gazg

1) Field Visit Date: 16th June 2021

Water Storage Tank (Waseem Ullah khan)	
Name of village:	Mustafabad
Union council:	Saddar
Chairman WUA:	Waseem Ullah
Tehsil & District:	Quetta
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	15
No of beneficiaries:	05



Figure 4.109: Measuring the WST

2) Field Visit Date: 16th June 2021

Water Storage Tank (Abdul Majid)	
Name of village:	Khaili
Union council:	Saddar
Chairman WUA:	Abdul Majid
Tehsil & District:	Quetta
Source of irrigation:	Tube well
Construction of works	Bricks
Size of water storage tank:	40x40 (As per design, under construction)
Depth of WST:	4.75
Command area of water Tank:	12
No of beneficiaries:	05



Figure 4.110: Discussion and filling the data

3) Field Visit Date: 17th June 2021

Water Storage Tank (Ahmed yar)	
Name of village:	Yaranabad
Union council:	Baleli
Chairman WUA:	Ahmed yar
Tehsil & District:	Kuchlak Quetta
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	30
No of beneficiaries:	05



Figure 4.111: View of WST

4) Field Visit Date: 17th June 2021

Water Storage Tank (Watan yar)	
Name of village:	Yaran abad
Union council:	Baleli
Chairman WUA:	Watan yar
Tehsil & District:	Kuchlak Quetta
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	30
No of beneficiaries:	5



Figure 4.112: Meeting with DD, OFWM

5) Field Visit Date: 18th June 2021

Water Storage Tank (Hanan ud din)	
Name of village:	Malik yar
Union council:	Malik yar
Chairman WUA:	Hanan ud din
Tehsil & District:	Pishin
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	40x40
Depth of WST:	4.75
Command area of water Tank:	30
No of beneficiaries:	05



Figure 4.113: View of WST Structure

6) Field Visit Date: 18th June 2021

Water Storage Tank (Ain ud din)	
Name of village:	Malik yar
Union council:	Malik yar
Chairman WUA:	Ain ud din
Tehsil & District:	Pishin
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	30x30
Depth of WST:	4.75
Command area of water Tank:	11
No of beneficiaries:	08



Figure 4.114: View of WST

7) Field Visit Date: 19th June 2021

Water Storage Tank (Muhammad Younas)	
Name of village:	Killi Abdullah Jan
Union council:	Pishin-2
Chairman WUA:	Muhammad Younas
Tehsil & District:	Pishin

Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	15
No of beneficiaries:	06



Figure 4.115: View of filled WST

8) Field Visit Date: 18th June 2021

Water Storage Tank (Abdul Manan)	
Name of village:	Malik yar
Union council:	Malik yar-1
Chairman WUA:	Abdul Manan
Tehsil & District:	Pishin
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	40/32
Depth of WST:	4,75
Command area of water Tank:	11
No of beneficiaries:	05



Figure 4.116: M&E Team at WST

9) Field Visit Date: 21st June 2021

Water Storage Tank (Muhammad Yousuf)	
Name of village:	Kapoto
Union council:	Kalat
Chairman WUA:	Muhammad Yousuf
Tehsil & District:	Kalat
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	15
No of beneficiaries:	08



Figure 4.117: View backfilling of WST

10 Field Visit Date: 21st June 2021

Water Storage Tank (Ghulam Raza)	
Name of village:	Hasan Lalo
Union council:	Kalat
Chairman WUA:	Ghulam Raza
Tehsil & District:	Kalat
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	60x60
Depth of WST:	4.75
Command area of water Tank:	30
No of beneficiaries:	08



Figure 4.118: Measuring the WST

11) Field Visit Date: 21st June 2021

Water Storage Tank (Ghulam Mustafa)	
Name of village:	Muhammad goharam
Union council:	Khaliqabad
Chairman WUA:	Ghulam Mustafa
Tehsil & District:	Khaliqabad kalat
Source of irrigation:	Tube well
Construction of work	Bricks
Size of water storage tank:	50x50
Depth of WST:	4.75
Command area of water Tank:	40
No of beneficiaries:	09



Figure 4.119: View of WST

12) Field Visit Date: 21st June, 2021

Watercourse ID:	WC/BALC/KT/01
Name of village:	Zarazai
Union council:	Khaliqabad
Chairman WUA:	Abdul Hameed
Tehsil & District:	Khaliqabad / Kalat

Source of irrigation:	Tube well
Total length of watercourse:	2000
Estimated length of lining:	2000
Command area of watercourse:	40
No of beneficiaries:	10

4.17.4 Baseline Survey by ICT Zonal Office

Before starting the Baseline Survey ICT Zonal Survey team conducted pretesting survey of two sites in UC Phulgran ICT Zone on 10 June 2021. Detail of this survey visit is explained below.

Pre-testing Visit -1 at Phulgran Village

The owner of this watercourse is Mr. Raja Zaheer Ahmad, who is retired from Punjab Police. His age is 76 with 7 family members. One of his sons is lawyer and other runs a store at F-7 Markaz.

Date of Visit	10 June 2021
Location	Phulgran, ICT
Name of Owner	Mr. Raja Zaheer Ahmad, Landowner
Length of watercourse	500 meters
Condition of watercourse	It is new watercourse
ME&IE Consultants' team:	
i)	Dr. Sarwar Zahid, Deputy Team Leader
ii)	Mr. Ebadat-Ur-Rehman, ME&IE Consultants
iii)	Ms. Syeda Sana Gull, Field Team Member
iv)	Ms. Hafiza Maryam Iqbal, Field Team Member
Client's Representative:	
i)	Mr. Muneeb Ahmad, Field Engineer (Department of Water Management, ICT)



Figure-4.2: Visit of Watercourse in UC Phulgran

ME&IE field team interviewed the owner of watercourse Raja Zaheer Ahmed and gathered data on the questionnaires.

Field team also visited an under-construction water storage tank in this village. Mr. Muneeb Ahmad, Field Engineer (WM Department ICT) explained the technical aspects of whole construction process.



Figure-4.3: Under Construction Water Storage Tank in UC Phulgran

After site visit ME&IE team visited house of Raja Zaheer Ahmed to conduct a household survey of the respondent at Pulgran house UC Phulgran.



Figure 4.120: Pre-testing field visit (1st) at Raja Zaheer House, Phulgran.

Pre-testing Visit -2 at Phulgran Village

Date of Visit	10 June 2021
Location	Phulgran, ICT
Name of Owner	Mr. Raja Asim, Landowner
Length of watercourse	500 meters
Condition of watercourse	It is new watercourse
ME&IE Consultants' team:	

- i) Dr. Sarwar Zahid, Deputy Team Leader
 - ii) Mr. Ebadat-Ur-Rehman, ME&IE Consultants
 - iii) Ms. Syeda Sana Gull, Field Team Member
 - iv) Ms. Hafiza Maryam Iqbal, Field Team Member
- Client's Representative:**
- ii) Mr. Muneeb Ahmad, Field Engineer (Department of Water Management, ICT)

The 2nd Project visited was from the same village Phulgran. The owner's name was Raja Asim Iftikhar. He is an Advocate (LLB, LLM). His is 37 years old with 6 family members. He has 4 servants. He has two pieces of land, 100 kanal and 50 Kanal. He is cultivating all the land by himself. He has no concept of WUA. According to the intervention they are getting water from a perennial Naala flowing below the land, bring it in WST. It was told that there is no water logging in the area. It was told that there were no trees cut even then they are going to plant olive trees in vast area. The farmer has his own agriculture tools. They grow their own wheat and maize for domestic use and for gift. The product depends on rain. Single farmer is owner of the land. The water pump will be of 16 Hp. The length of the pipe (WC) is 575 M.



Figure 4.121: Pre-testing field visit (2nd) at Phulgran House, Phulgran.

Base Line Visit -1: Rawalpindi

Water Storage Tank No. 1: Rawalpindi

Location: Chak Khushi, Kallar Kahar, Chakwal

Date: 15th June 2021

Survey Time: 12:40 PM to 3:00 PM

Survey Team:

Dr. Sarwar Zahid, Deputy Team Leader
Mr. Ebadat-Ur-Rehman, ME&IE Consultants
Ms. Syeda Sana Gull, Field Team Member
Ms. Hafiza Maryam Iqbal, Field Team Member
Mr. Abdul Sattar, Deputy Director WM Kallar Kahar
Mr. Yaseen, Supervisor WM, Kallar Kahar
Mr. Muhammad Afzaal, Supervisor WM, Kallar Kahar

Description of Visit:

Zonal Field Team of ICT & AJK along with Dr. Sarwar Zahid, Deputy Team Leader and Team of Water Management, Kallar Kahar visited a water storage tank at Chak Khushi. The owner of this WST is Mr. Rizwan Haider. The Field Team In-charge and Field Team Members asked him questions as given in the questionnaire of baseline survey. The team also visited the water storage tank site. The work will be started in 2-3 days. We also met the engineer of this WST. He and Mr. Yaseen explained the technical aspects of whole construction process. Following is the summary and observations of this visit:

Chak Khushi	
Province/Unit	Punjab
Division	Rawalpindi
District	Chakwal
Tehsil	Kallar Kahar
Village	Chak Khushi
Name of WST	Chak Khushi
Coordinates	N 32.768335, E 72.734366
No. of beneficiaries	1
Culturable Command Area (CCA)	12 Acres
Name of WUA Chairman	M. Rizwan Haider
Total No. of Water Users	6
Cropping Pattern	Maize, Wheat
Type of WST	Concrete
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	0.764 LPS
Main Source of water	Bore
Additional Source of water	Naala
Size of WST	9.14*9.14*1.52 M
Date of Technical Sanction	02-06-2021
Sanctioned Cost	Rs. 574,784/-
Government's Share	Rs. 300,000/-
Farmer's Share	Rs. 274,784/-



Figure 4.122: ME&IE Consultants' Baseline visit to Chak Khushi, Kallar Kahar

Water Storage Tank No. 2: Rawalpindi

Location: Manaq Pur, Kallar Kahar, Chakwal

Date: 15th June 2021

Survey Time: 3:30 PM to 5:00 PM

Survey Team:

Dr. Sarwar Zahid, Deputy Team Leader

Mr. Ebadat-ur-Rehman, ME&IE Consultants

Ms. Syeda Sana Gull, Field Team Member

Ms. Hafiza Maryam Iqbal, Field Team Member

Mr. Yaseen, Supervisor WM, Kallar Kahar

Mr. Muhammad Afzaal, Supervisor WM, Kallar Kahar

Description of Visit:

Zonal Field Team of ICT & AJK along with Dr. Sarwar Zahid, Deputy Team Leader and Team of Water Management, Kallar Kahar had its second visit to a water storage tank at Manak Pur. The owner of this WST is Mr. Muhammad Khan, who do business of fruits at Sargodha. The Field Team In-charge and Field Team Members asked him questions as given in the questionnaire of baseline survey. He gave answers to all asked questions very calmly. As the owner is new, he planned to cultivate olives on the whole area. He does not possess any livestock. There was no increase in labor observed yet. The team took the measurement of WST bed using the measuring tape and recorded the observations. The construction work is under process. Mr. Yaseen & Mr. Afzaal explained the technical aspects of whole construction process. Following is the summary and observations of this visit:

Manaq Pur	
Province/Unit	Punjab
Division	Rawalpindi
District	Chakwal
Tehsil	Kallar Kahar
Village	Manaq Pur
Name of Water Storage Tank	Manaq Pur
Coordinates	N 32.774440, E 72.697618
No. of beneficiaries	1
Culturable Command Area (CCA)	8.5 Acres
Name of WUA Chairman	Muhammad Khan
Total Number of Water Users	3
Cropping Pattern	Olive (Not sown yet)
Type of WST	Concrete

Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	1.48 LPS
Main Source of water	Bore
Additional Source of water	No
Size of WST	7.62*7.62*1.52 Meters



Figure 4.123: Field Team questioning landowner for baseline survey

Baseline Visit No. 2: Muzaffarabad

Watercourse No. 1: Muzaffarabad

Location: Mera Dupatta, Muzaffarabad

Date: 17th June 2021

Survey Team:

Mr. Ebadat-Ur-Rehman, ME&IE Consultants

Ms. Syeda Sana Gull, Field Team Member

Ms. Hafiza Maryam Iqbal, Field Team Member

Mr. Ghulam Murtaza Chatha, Field Team In-charge

(NESPAC)

Mr. Tariq Malik, Assistant Director

Mr. Faizan Waheed, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK went to Muzaffarabad for baseline survey of watercourses. Firstly, the Team visited the Department of Irrigation & Small Dams, Muzaffarabad and met Mr. Khawaja Ejaz, Director / Mr. Nadeem, Deputy Director / Mr. Ghulam Murtaza Chatha, Team In-charge NESPAC / Mr. Tariq Malik, Assistant Director / Mr. Faizan Waheed, Sub-Engineer. Team took details of watercourses under survey and collected the required documents and information from them. Then along with the team of OFWM visited a watercourse at Mera Dupatta. Following is the summary and observations of this visit:

Mera Dupatta	
Province/Unit	AJK
Division	Muzaffarabad
District	Muzaffarabad
Tehsil	Muzaffarabad
Village	Mera Dupatta
Name of Watercourse	Mera Dupatta
Coordinates	N 34.209854, E 73.6495426
No. of beneficiaries	13
Culturable Command Area (CCA)	52.88 Acres
Name of WUA Chairman	Raja Nazeer Khan
Total Number of Water Users	14
Cropping Pattern	Rice, Maize, Wheat, Potatoes
Type of Watercourse	PCC
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	84.95 LPS
Main Source of water	Naala Nowshera
Additional Source of water	No
Sanctioned Lining Length	701.04 m
Date of Technical Sanction	21-01-2020
Sanctioned Cost	Rs. 2811498/-
Government's Share (80 %)	Rs. 2257198/-
Farmer's Share (20 %)	Rs. 564300/-



Figure 4.124: ME&IE Consultants' Baseline visit to Mera Dupatta, Muzaffarabad



Figure 4.125: Field Team with OFWM & NESPAK staff at Muzaffarabad

Watercourse No. 2: Muzaffarabad

Location: Dhani Mai Sahiba, Muzaffarabad

Date: 21st June 2021

Survey Team:

Mr. Ebadat-ur-Rehman, ME&IE Consultants
Ms. Syeda Sana Gull, Field Team Member
Ms. Hafiza Maryam Iqbal, Field Team Member
Mr. Tariq Malik, Assistant Director
Mr. Faizan Waheed, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK went to Muzaffarabad for baseline survey of 2nd watercourse under survey. Firstly, the Team visited the Department of Irrigation & Small Dams, Muzaffarabad and met Mr. Basharat Hussain, Project Director / Mr. Tariq Malik, Assistant Director / Mr. Faizan Waheed, Sub-Engineer. Team took details of watercourse under survey and collected the required documents and information from them. Then, along with the team of OFWM visited a watercourse at village Dhani Mai Sahiba. Following is the summary and observations of this visit:

Dhani Mai Sahiba	
Province/Unit	AJK
Division	Muzaffarabad
District	Muzaffarabad
Tehsil	Muzaffarabad
Village	Dhani Mai Sahiba
Name of Watercourse	Dhani Mai Sahiba
Coordinates	N 34.405197, E 73.4821156
No. of beneficiaries	48
Culturable Command Area (CCA)	23.125 Acres
Name of WUA Chairman	Muhammad Rafiq Abbasi
Total Number of Water Users	48

Cropping Pattern	Krum Saag, Desi Methi, Paalak, Peas
Type of Watercourse	PCPS
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	28.32 LPS
Main Source of water	Naala
Additional Source of water	No
Sanctioned Lining Length	3587 m
Date of Technical Sanction	19-03-2020
Sanctioned Cost	Rs. 3,819,144/-
Government's Share (80 %)	Rs. 3,055,315/-
Farmer's Share (20 %)	Rs. 763,829/-



Figure 4.126: FTI ME&IE with OFWM Staff at WC Dhani Mai Sahiba



Figure 4.127: ME&IE Consultants' Baseline visit to Dhani Mai Sahiba, Muzaffarabad.

Baseline Visit No. 3: Mirpur

Watercourse No. 1: Mirpur

Location: Lehri-6, Mirpur

Date: 18th June 2021

Survey Team:

Mr. Ebadat-Ur-Rehman, ME&IE Consultants
Ms. Syeda Sana Gull, Field Team Member
Ms. Hafiza Maryam Iqbal, Field Team Member
Mr. Javed Qamar, Deputy Director
Mr. Mohammad Ali, WMO
Mr. Shahid Mughal, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK went to Mirpur for baseline survey of watercourses. Firstly, the team visited the Department of Irrigation & Small Dams, Mirpur and met Mr. Javed Qamar, Deputy Director / Mr. Mohammad Ali, WMO / Mr. Shahid Mughal, Sub-Engineer. Team took details of watercourses under survey and collected the required documents and information from them. Then, along with the team of OFWM visited a watercourse at Lehri village. The work at this watercourse has not yet started but their technical sanction is issued. Team took the measurements of precast slabs. Mr. Shahid & Mr. Mohammad Ali explained the technical aspects of whole construction process. Following is the summary and observations of this visit:

LEHRI-6	
Province/Unit	AJK
Division	Mirpur
District	Mirpur
Tehsil	Mirpur
Village	Lehri
Name of Watercourse	Lehri-6
Coordinates	N 33.0921058, E 73.7010088
No. of beneficiaries	3
Culturable Command Area (CCA)	12.5 Acres
Name of WUA Chairman	Allah Ditta
Total Number of Water Users	6
Cropping Pattern	Maize, Wheat, Potatoes
Type of Watercourse	PCPS
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	28.32 LPS
Main Source of water	Tubewell
Additional Source of water	No
Sanctioned Lining Length	266.25 m
Date of Technical Sanction	11-11-2020
Sanctioned Cost	Rs. 344097/-
Government's Share (80 %)	Rs. 275278/-
Farmer's Share (20 %)	Rs. 68819/-



Figure 4.128: ME&IE Consultants' Baseline visit to Lehri, Mirpur



Figure 4.129: Checking the pre-cast slabs at Lehri, Mirpur

Watercourse No. 2: Mirpur

Location: New Sunian, Mirpur

Date: 18th June 2021

Survey Team:

Mr. Ebadat-ur-Rehman, ME&IE Consultants
Ms. Syeda Sana Gull, Field Team Member
Ms. Hafiza Maryam Iqbal, Field Team Member
Mr. Javed Qamar, Deputy Director
Mr. Mohammad Ali, WMO
Mr. Shahid Mughal, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK along with OFWM team went to the 2nd watercourse at New Sunian village in Mirpur. The work at this watercourse has not started but their technical sanction is issued. Team took the measurements of precast slabs. Mr. Shahid & Mr. Mohammad Ali explained the technical aspects of whole construction process. Following is the summary and observations of this visit:

NEW SUNIAN	
Province/Unit	AJK
Division	Mirpur
District	Mirpur
Tehsil	Mirpur
Village	New Sunian
Name of Watercourse	New Sunian
Coordinates	N 33.0702398, E 73.7925129
No. of beneficiaries	3
Culturable Command Area (CCA)	5 Acres
Name of WUA Chairman	Rashid Iqbal
Total Number of Water Users	6
Cropping Pattern	Maize, Wheat, Potatoes, Rice
Type of Watercourse	PCPS
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	28.32 LPS
Main Source of water	Tube well
Additional Source of water	No
Sanctioned Lining Length	518.75 m
Date of Technical Sanction	31-03-2021
Sanctioned Cost	Rs. 705400/-
Government's Share (80 %)	Rs. 564320/-
Farmer's Share (20 %)	Rs. 141080/-



Figure 4.130: Checking the dimensions of pre-cast slabs at New Sunian, Mirpur.



Figure 4.131: ME&IE Consultants' Baseline visit to New Sunian, Mirpur

Baseline Visit No. 4: Islamabad

Watercourse No. 1: ICT

Location: Sihala, ICT

Date: 22nd June 2021

Survey Team:

Mr. Ebadat-Ur-Rehman, ME&IE Consultants

Ms. Syeda Sana Gull, Field Team Member

Ms. Hafiza Maryam Iqbal, Field Team Member

Mr. Mubeen Ahmad, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK went to Sihala village for baseline survey of watercourses. Firstly, the Team visited the Department of Water Management, ICT and met Mr. Mubeen Ahmad, Sub-Engineer for details and data of watercourses under observation. Then, along with the team of OFWM visited a watercourse at Sihala.

The landowner was reluctant in sharing the information with us. He noted seriously the listening of call by one of the team members. The farmer also pointed out lengthy questionnaire.

Following is the summary and observations of this visit:

Sihala	
Province/Unit	ICT
Division	ICT
District	ICT
Tehsil	ICT
Village	Sihala
Name of Watercourse	Sihala
Coordinates	N 33.5625639, E 73.2025685

No. of beneficiaries	1
Culturable Command Area (CCA)	7.4875 Acres
Name of WUA Chairman	Misbahuddin Chohan
Total Number of Water Users	4
Cropping Pattern	Bitter Gourd, Tomatoes, Peas
Type of Watercourse	PVC 3"
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	8 LPS
Main Source of water	Naala (River Swaan)
Additional Source of water	No
Sanctioned Lining Length	580 m
Date of Technical Sanction	24-06-2020
Sanctioned Cost	Rs. 955389/-



Figure 4.132: ME&IE Consultants' Baseline visit to Sihala, ICT



Figure 4.133: ICT & AJK Field Team asking questions of baseline survey at Sihala, ICT.

Watercourse No. 2: ICT

Location: Tumair, ICT

Date: 23rd June 2021

Survey Team:

Mr. Ebadat-Ur-Rehman, ME&IE Consultants
Ms. Syeda Sana Gull, Field Team Member
Ms. Hafiza Maryam Iqbal, Field Team Member
Mr. Mubeen Ahmad, Sub-Engineer

Description of Visit:

Zonal Field Team of ICT & AJK went to Tumair village for baseline survey of watercourses. Field Team of ME&IE Consultants along with the team of OFWM visited a watercourse at Tumair. Following is the summary and observations of this visit:

Tumair	
Province/Unit	ICT
Division	ICT
District	ICT
Tehsil	ICT
Village	Tumair
Name of Watercourse	Tumair
Coordinates	N 33.672494, E 73.2830883
No. of beneficiaries	1
Culturable Command Area (CCA)	2.75 Acres
Name of WUA Chairman	Sher Bahadurzada Khan
Total Number of Water Users	4
Cropping Pattern	Wheat, Maize
Type of Watercourse	PVC 3"
Water Logging & Salinity	No
Warabandi System	No
Designed Discharge	8 LPS
Main Source of water	Naala (Mini Dam)
Additional Source of water	No
Sanctioned Lining Length	400 m
Date of Technical Sanction	23-06-2020
Sanctioned Cost	Rs. 1326587/-



Figure 4.134: Checking the design of pipeline installed at Tumair, ICT



Figure 4.135: ME&IE Consultants' Baseline visit to Tumair, Islamabad Capital Territory



Figure 4.136: Signboard of WC at Zarazai

4.17.5 Data entry, cleaning, processing & Analysis

The data collection through android based application for baseline survey (Phase-1) has been completed. The data entry, data cleaning, data processing & data analysis has been completed accordingly. The data sets and analysis on the basis of its Empirical Results will be the part of Baseline survey Report. The data sets will be available online in MIS/GIS System as well as with data export facility.

4.18 REGULAR MONITORING

This phase of the assignment includes

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

Regular routine monitoring will look at the extent to which the proposed project activities are being implemented as planned.

ME&IE Consultants are responsible for the regular routine monitoring and work in close collaboration with FPMU-FWMC, NWMC, OFWM Depts., FO/WUAs, District Governments, etc.

Regular Monitoring/Spot Checking activities have been started in this quarter. The regular monitoring activity was also carried out parallel to Baseline survey and now continued as regular activity during the course of project.

4.19 DEVELOPMENT OF ANDROID BASED APPLICATION

The development of an Android based application which was started in the second week of February 2021 and has been completed at the end of April 2021.

4.19.1 Testing of Monitoring tools on Android based system

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.

4.20 WEBSITE DEVELOPMENT 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. By 26th August 2021, the final version will be presented to NPC for the final approval after which the website will be hosted to the dedicated server of NPIWC-II and will be accessible on public domain "https://npiw2.org".

4.21 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:

4.21.1 Phase-I – MIS Development

4.21.1.1. 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*

4.21.1.2. 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.

4.21.1.3. 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).

4.21.1.4. 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. According to the 2nd quarterly work plan, the final presentation of Web-Based PMIS, integrated with GIS and M&E system was presented to NPC office and received the approvals.

4.21.2 Implementation of GIS Integrated MIS Dashboard - Under Progress

4.21.2.1. 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.

4.21.2.2. 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 need 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.

4.21.3 Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard – PMIS

To accomplish the assignment as defined in project scope "PMIS and GIS based Progress Monitoring Dashboard", GIS & Information System Department of ME&IE consultants' adopted the Agile Methodology as Software Development Process. Under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and end user / field experiences. It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, and it encourages rapid and flexible response to change.

GIS & Information System Department of ME&IE consultants developed customized android based (Mobile & Tablet) Data Collection application as per the project need.

From data collection application collected data synchronize with Aggregate Server and submit all record over there. Secured hosted under SSL encryption a robust aggregation and data storage application server also designed and customized as per the project requirement.

Data cleaning is a complex process, after receiving the field data GIS & Information System team will validate it in coordination of District Directors and Field Teams of Agriculture/Water Management. Clean the cleaning of the blank fields, validation of data based upon internal manipulations and also can communicate with field teams to re-submit the form if found any erroneous data. On finalization of the clean data, it will push to customized designed GIS and Analytical Dashboard for Progress Monitoring.

For a successful implementation of system "PMIS and GIS based Progress Monitoring Dashboard", GIS & Information System Department of ME&IE Consultants' adopted the Agile Methodology as project management here as well. Agile Methodology will equip the implementation team to evaluate the results after implementation of each process, which will lead to a continues process of refining the implementation strategy for quality results.

On the completion of the PMIS development phase, the next phase is implementation which is more crucial. 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

5. DELIVERABLES SUBMITTED TO THE CLIENT DURING FIRST YEAR

This chapter is based on the reports already submitted to the client prepared by the M&E consultants during the first year of the assignment, i.e., December 2020 to June 30, 2021. Major activities completed includes completion of the draft inception report, completion of final inception report, completion of monthly monitoring reports upto June 30, 2021, Quarterly Monitoring & Evaluation Reports, and Baseline Survey Report which at the stage of its completion.

5.1 DRAFT INCEPTION REPORT

The first deliverable “Draft Inception Report” was submitted to the client within stipulated time on December 21, 2020.

5.2 FINAL INCEPTION REPORT

The Final Inception Report was submitted successfully to the NPC at the end of January 2021, after incorporating the valuable comments on the draft inception report by the NPC and provincial DGAs, also incorporating of queries mentioned in the minutes of meetings of combined Inception workshop, held at FMPU Islamabad dated January 14, 2021.

Main concepts of the Inception Report are summarized as below:

The proposed project Phase-II will be beneficial for the country, as highlighted under:

- Water saving per Watercourse per annum: **123 AF**
- Watercourse to be Improved: **47,278**
- Estimated Water to be saved per annum: **5.82 MAF**
- Estimated Economic Value per MAF: **\$400 Million**
- Total Economic benefit due to water saving: **\$2.328 Billion**
- Total Saving (PKR): **372.5 Billion**

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

The consultants plan to carry out ME&IE assignments in two parts:

First, monitoring through field visits and surveys of Watercourses, Water Storage Tanks, and Laser Land Leveling Units will be carried out. The processes, timelines and physical progress against targets set in the Annual Work Plans (AWPs) will be marked. The monitoring activities include baseline, midline and end line surveys. The water saving assessment will be simultaneously carried out with the improvement activities of watercourses, construction of water storage tanks and the use of laser land levelers. The economic benefits to the agriculture sector will also be estimated in addition to the impact evaluation on the stakeholders and economy as a whole. For each monitoring activity checklist(s) are developed based on planned SOPs (Modus Operandi) and timelines. The activities are monitored according to the checklists.

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

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

Main features of the MIS are briefly presented as under:

- a) Planning and input-output process monitoring, as well as the tracking of results indicators, assume a critical role in the management of development projects. We propose to develop, set up and implement a Web Based Monitoring Information System (MIS) useful for:
 - Monitor the progress of project implementation and provide timely feedback to all project stakeholders,
 - Monitor, assess, and summarize achievements (outputs and outcomes),
 - Analyze factors affecting the project's implementation and achievements.

- b) The basic functions of the NPIWC-II MIS will be to:
- Enable the FPMU-FWMC and PC to track the outcome indicators and assess progress in implementation against timescales and targets, and resources used against budgets, based on agreed annual work plans.
 - Describe the factors and reasons triggering variations,
 - Record and reflect new targets, whenever it is required,
 - Draw important lessons to guide the decision-making,
 - Enable forecasting for project accomplishment in comparison to the currently reported progress,
 - Enable the project management to generate reports to funding partners, project beneficiaries and other stakeholders on the status and progress of the project implementation,
 - Integrate GIS components to the MIS to complement field-level surveys and measurements.
- c) Potential users' profiles could be the following:
- Federal Ministries
 - NPC FPMU-FWMC
 - Project Consultants
 - ME&IE Consultants
 - Provincial concerned departments / maintaining system administrators.
- d) The MIS will allow the project to enter the Annual Work Plan and Budget (AWPB) to enable process monitoring. This interface should facilitate the user to create activities for the current year and go back in previous years.
- e) The following project information will be accessible at all times.
- Project description
 - Project's objectives
 - Implementation partners
 - Locations of implementation
 - Timelines
 - Project activities (and % of accomplishments)
 - Budgets (% of spending)
 - The dashboard is a "real-time" user interface showing graphical and tabular information of multiple data sets. Dashboards allow users to appreciate a situation at a glance and aids in making informed decisions. The way in which data are presented directly affects how they are understood and interpreted / consequently the decisions that are made because of the data.
- f) The kind of data that can be represented in the dashboard includes:
- Activity/indicator completion rates
 - Budget expenditures
 - Information disaggregated by localities (map views)
 - Timelines, etc.
- g) Notifications/Alerts
For each type of events (e.g., incoming deadlines, new data input, requests, etc.) the user will receive notifications/alerts of said events within the MIS and via e-mail either:
- As the event is created
 - Daily / Weekly/ Monthly/Quarterly updates.
- When an alert generated and in what form and frequency will be decided in consultation with users/clients.
- h) Change Tracking
The system records actions of users such as creating data, removing data, data entry, data validation, etc. (e.g., latest update to an open quarterly report). The system records the name of the user, the date and time of change, actions made, code of items altered. This function is crucial to monitor the ME&IE processes.
- i) Key Principles
- The system provides Excel-like functionality including filtering/sorting columns (reducing data-entry and increasing ease-of-use).
 - The data entry and validation of plans and different reports are linked to user profiles
 - The system displays an error message when not able to save the data.
 - For all operations, the system keeps an audit trail with the user, date and time of the operation.

5.3 MONTHLY MONITORING REPORTS (MMRs)

Six Monthly Monitoring Reports, January 2021 to June 30th, 2021, were submitted to the Client within stipulated time.

5.4 QUARTERLY MONITORING AND EVALUATION REPORT (QM&ER)

The first and second Quarterly Monitoring and Evaluation Reports (QM&ERs) for the period of 20 November 2020 to March 2021 and April 2021 to June 2021 were submitted to the client within stipulated time.

5.5 BASELINE SURVEY REPORT

ME&IE Consultants carried out Baseline Survey of the targeted samples of Watercourses and Water Storages Tanks of the project areas and collected requisite data. After data analysis report is being prepared and is at the final stage of its completion which will be submitted to the client for review and comments.

5.6 SPECIAL REPORTS

5.6.1 Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard

A Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard – PMIS has been submitted to Client. Brief of the document is as follows:

COMPONENTS OF DEVELOPED PMIS

- Android Based Data Collection Application
- Data Aggregate Server
- GIS Based Progress Monitoring Analytical Dashboard

IMPLEMENTATION PHASE

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

6. MAIN CHALLENGES AND CONSTRAINTS

The Main Challenges and Constraints are as follows:

- It was observed during the Baseline & Monitoring Surveys, that execution of improvement works and release of payments against WCs and WSTs without the issuance of Technical Sanction (TS) were found, particularly in Balochistan & up to some extent in KP. This practice does not comply the project documents (PC-I).
- It was noticed that the allocated project funds according to the approved PC-1 of all Provinces/Units were not released in time, which effected the progress of the project.
- NPIWC program benefited only the well-off landowner farmers, while the subsistence farmers were not taking benefits of the mentioned program.
- A Lack of awareness exists about the NPIWC schemes among the subsistence farmers. They do not know how to approach to the OFWM department and improve their water courses.
- In the Rainfed/barani areas where the tube-wells are installed belong to those farmers who can afford the cost of installation of the tube-well. The NPIWC program extends the facility of improvement of water courses and construction of water storage tanks only to the above-mentioned farmers. And those who have land but cannot afford the installation of tube-well were deprived of the NPIWC schemes.
- Water user associations were formed just to fulfil the formalities of the files. On the ground they were not functional.
- In majority of the cases payment to the farmers was not made as per standard procedure. It was observed that the blank cheques were signed from the farmers and in returned only part of the payment was made in cash.
- Looking after the watercourses was not properly done by the farmers. Weeds were grown inside the water courses that were hindering the smooth flow of the water.

- It was observed in some areas that the water storage tanks were constructed but these were non-functional.
- There was a lack of coordination between the OFWM Department and farmers.
- In some districts watercourses were improved on fake water user association.
- There was high demand of the farmers for the improvement of watercourses, but they couldn't afford to contribute 20% of the costs on their part.
- Delay in the release of funds was also reported by the farmers.
- In some cases, technical sanction has been issued but due to lack of funds the work on the WCs/WSTs has not been started.

RECOMMENDATIONS AND THE WAY FORWARD




- Ensuring cooperative management of the watercourses by involving the real stake holders is important for achieving the required objectives of the NPIWC-II.
- Similarly, ensuring laser land levelling may reduce the wastage of scarce resources of water.
- Involving stakeholders to develop adaptive water management strategies.
- Appropriate crop zoning and cropping pattern should be adopted and implemented. For example, water intensive crops should be restricted to those zones where water is in abundant.
- Public Awareness Program needs to be pursued through media and the extension wing of the Provincial Departments for Agriculture.

Conclusion:

Having noted the issues and bottlenecks by the survey teams in the field the NPIWC-II has contributed to a greater extent towards the reduction of water losses on the farmers' fields where the WCs/WSTs have been constructed or renovated. However, for achieving the required objectives of the NPIWC-II schemes the issues noted above be addressed on priority basis.

ANNEXES A to H

ANNEX-A: WORK PLAN TILL JUNE 2021

TENTATIVE WORK PLAN ME & IE CONSULTANTS - NPIWC-II													LEGEND		
													ACTIVITY STARTS		
													ACTIVITY ENDS		
													ACTIVITY SPAN		
NO.	ACTIVITIES		3 Months - Year 2021 (Weeks)												
			January				February				March				
			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	Pre-field Activities:														
	1.1	Incorporating the comments in Final Inception Report.													
	1.2	Meetings With stakeholders (DGs OFWM,NPC & PC).													
	1.3	Renovation of National office Islamabad and Zonal offices.													
	1.4	Operational of National office Islamabad and Zonal offices.													
	1.5	Procurement of office Furniture, Equipment, Computer, Tabs/Smart Phone, Pygmy Current Meter and Vehicles, etc.													
	1.6	Acquiring the buildings for field offices.													
	1.7	Renovation/furnishing of buildings for field offices.													
	1.8	Establishment/operational of field offices.													
	1.9	Preparation of 3-months plan.													
2	Field Activities:														
	2.1	Mobilization of field teams.													
	2.2	Training sessions of field teams and key staff on Monitoring Tools & Android application.													
	2.3	Pre-testing of Monitoring Tools.													
	2.4	Refinement of Monitoring Tools.													
	2.5	Training on Measurement of water flow (Pygmy Current Meter).													
	2.6	Determination of Sample size on District/Tehsil level.													
	2.7	Sampling and data collection methodology, Approval from Client.													
	2.8	Baseline Survey.													
3	ICT Assignment:														
	3.1	Development of web site of NPIWC-II.													
	3.2	Development of Android based Mobile Application.													

TENTATIVE WORK PLAN ME & IE CONSULTANTS - NPIWC-II												LEGEND					
												ACTIVITY STARTS	↓				
												ACTIVITY ENDS	↑				
												ACTIVITY SPAN	---				
NO.	ACTIVITIES				3 Months - Year 2021 (Weeks)												
					April				May				June				
					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	Pre-field Activities:																
1.1	Functional Field Offices in Punjab, KP & Balochistan Zones																
2	Field Activities:																
2.1	Data collection from OFWM Department/NWMC for Baseline survey/regular monitoring																
2.2	Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System																
2.3	Training of Measurement of water flow-Pygmy current meter																
2.4	Determinants of Sample size at District/Tehsil levels with the assistance from ADA/DDA (OFWM)																
2.5	Baseline survey field visit																
2.6	Data entry, Data cleaning, Data processing & data Analysis																
2.7	Regular Monitoring																
3	ICT Assignment:																
3.1	Development of web site of NPIWC-II.																
3.2	Development of Android based Mobile Application.																
3.3	Testing of Monitoring tools on Android based system.																
3.4	Data collection of interventions in MIS/GIS database.																
3.5	Designing of dashboard of Project Interventions.																
4	Coordination																
4.1	Meeting of DTLs with respective DTL of NWMC.																
5	Deliverables:																
5.1	Monthly Monitoring Report (MMR)																
5.2	Quarterly Monitoring & Evaluation Report (QM&ER)																
5.3	Baseline Survey Report																

ANNEX-B MATRIX OF RESPONSIBILITIES

MATRIX OF RESPONSIBILITIES

SR. NO.	DELIVERABLE / ACTIVITIES	LEGEND			
		<p>● Primary Responsibility</p> <p>○ Secondary Responsibility</p> <p>○ Assistance</p>			
		NPC-PPMU	Agriculture Dept. (QEWMI)	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

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

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
C2: Watercourses Improvements	Improvement of 47,278 watercourses on cost sharing basis: 40% farmers in terms of labour, and 60% funded by project.	a) Establishment of 47,278 Water users' 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: <ul style="list-style-type: none"> • Precast concrete parabolic lining (PCPL) segments, or • Rectangular brick masonry, or 	a) 47,278 WCAs established b) 47,278 WCAs registered c) 47,278 watercourses improved and lined	a) Conveyance losses for improved 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	a) Increase in cropping intensity on 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%	a) Increase in farm income b) Increase in employment for farm labour c) Reduction in poverty d) Enhanced food security for the country.	a) The water flow measurements will be carried 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: <ul style="list-style-type: none"> • Cropping pattern before and after the improvement • Cropping intensities before and

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
		any other method as approved by the project					after improvement • Before and after crop yields • Before and after employment d) The difference between before and after will be considered the result of the intervention after netting out the contribution of the growth pattern of the crop sector otherwise.
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	a) 14,932 WSTs constructed b) 14,932 WSTs operated and maintained	a) Water which was otherwise largely going to be wasted is saved	a) More area irrigated b) Increased cropping intensities	a) Increased crop yields b) Increased total crop output quantum	a) 2-5% sample of WSTs will be surveyed b) A data collection

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
		tanks for irrigation b) They agree to contribute 40% of the cost c) Agree to first construct the tank with his/her own funds and then received subsidy at 40% on issuance of FCR		b) Irrigation provided at critical stages of the crops c) Flexibility achieved for irrigation		c) Increased farm income d) Increased farm employment	form will be designed to measure water saving due to WSTs c) The forms used for baseline and impact surveys in case of 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	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	a) Water application efficiency increased at field level b) Even germination of seed.	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

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
	farmer / service provider and 50% by the project.			c) Total 3.483million acres levelled by 11,610 units.	c) Field application losses reduced by 10 percentage points d) Water productivity increased by 24%		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 teams after one years of delivery c) The unit will be verified d) Area treated during the year will be collected e) Farmers' feedback collected on quality of the unit, quality of

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
							the after-sale service, etc.

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: ME&IE CONSULTANTS STAFF MOBILIZATION STATUS

Sr. No.	Position	Employees Name	Date of Joining
1. Consultant Core Team (National Office Islamabad)			
Key Staff			
1	Team Leader/ Monitoring and Evaluation Specialist	Dr. Muhammad Abdul Quddus	7-Nov-20
2	Deputy Team Leader/ Monitoring and Evaluation Specialist at National Office	Dr. Sarwar Zahid	20-Nov-20
3	IT/ Technology Specialist	Rizwan Saleem	20-Nov-20
4	Irrigation Agronomist	Dr. Muhammad Fateh	20-Nov-20
5	Social & Gender Specialist	Muniza Bashir Tarrar	20-Nov-20
6	Financial Management Specialist	Waseem Ahmed Masood	7-Nov-20
1. Zonal Team (Islamabad Office)			
Non-Key Staff			
1	Project and Document Controller	M. Amjad Shakeel	1-Jan-21
2	Supporting Technical Staff-1	Farwa Yousaf	7-Nov-20
3	Supporting Technical Staff-2	Tehreem Asif	7-Nov-20
4	Supporting Technical Staff-3	M. Moeen Chishty	7-Nov-20
5	Supporting Technical Staff-4	Ali Mushtaq	7-Nov-20
6	ICT Manager	Umer Aslam Bhatti	7-Nov-20
7	Data Analyst	Shumail Mehmood	7-Nov-20
8	Data Supervisor	Ebadat ur Rehman	7-Nov-20
Non-Key Staff (ICT Zonal Team)			
1	Supporting Technical and Non-Technical Staff	Ali Ahtisham	7-Nov-20
ICT Zonal Field Team			
1	Field Team In charge/ M&E Expert/ Socio-Economic Expert	Muhammad Bilal Ahmad	7-Nov-20
2	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-1	Hafiza Maryam Iqbal	1-Feb-21
3	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-2	Syeda Sana Gul	10-Mar-21
(B-I) Supporting Staff: National Office (Islamabad)			
1	Manager Admin & Accounts-1	Muhammad Awais Farooq	7-Nov-20
2	Manager Admin & Accounts-2	Muhammad Naeem	7-Nov-20
3	Dy. Manager Admin & Accounts	Asad Jhangir	7-Nov-20
4	Computer Operator	Muhammad Asif	7-Nov-20
5	Admin Assistant	Yasir Ali	7-Nov-20
6	Office Assistant	Anas Khan	1-Dec-20
7	Dispatch Rider	Muhammad Fawad	1-Dec-20

Sr. No.	Position	Employees Name	Date of Joining
8	Peon-1	Yasir Arafat	7-Nov-20
9	Chowkidar-1	Rashid Ali	7-Nov-20
10	Chowkidar-2	Mubair Iqbal	7-Nov-20
11	Sweeper	Nasir Massih	7-Nov-20
12	Cook	Nasir Mehmood	1-Dec-20
13	Cook-Helper	Muhammad Zafraan	1-Dec-20
14	Driver-1	Liaqat Ali	1-Apr-21
15	A-Coordination Support Manager for NPC Support	Zeeshan Elahi	24-Dec-20
16	B-IT/ GIS and Data Base Advisor for NPC Support	Rana Sohail	24-Dec-20
2. Zonal Team (Punjab Office)			
Key Staff			
1	Deputy Team Leader/ Monitoring and Evaluation Specialist I/C Lahore Zone	Muhammad Yousaf Bhatti	20-Nov-20
Non-Key Staff			
1	ICT/ Technology Specialist	Hamza Tariq	7-Nov-20
2	Irrigation Agronomist	Malik Ghulam Akbar	1-Apr-21
3	Supporting Technical and Non-Technical Staff	Irfan Aziz	7-Nov-20
Zonal Field Team Punjab			
1	Field Team In charge/ M&E Expert/ Socio-Economic Expert-1	Awais Jhangeer	1-Dec-20
2	Field Team In charge/ M&E Expert/ Socio-Economic Expert-2	Muhammad Zubair	1-Dec-20
3	Field Team In charge/ M&E Expert/ Socio-Economic Expert-3	Rizwan Suleman	1-Dec-20
4	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-1	Nauman Rasheed	1-Feb-21
5	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-2	Shahid Khalil	1-Feb-21
6	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-3	Syed Ali Haider	1-Feb-21
7	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-4	Misbah ur Rehman	1-Feb-21
8	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-5	Muhammad Bilal Sohail	1-Feb-21
9	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-6	Umar Farooq Hammad	1-Feb-21
(B-II) Supporting Staff: Provincial Offices - Punjab			
1	Manager Admin & Accounts	Abdul Samee	7-Nov-20
2	Dy. Manager Admin	Muhammad Aslam	7-Nov-20
3	Computer Operator	Muhammad Amjad	7-Nov-20
4	Office Assistant/ Clerk	Mazhar Iftikhar	7-Nov-20
5	Dispatch Rider/ Photocopier	Hammad Gillani	7-Nov-20

Sr. No.	Position	Employees Name	Date of Joining
6	Peon-1	Asif Ali	7-Nov-20
7	Peon-2	Sawan Yaqoob	7-Nov-20
8	Guard-1	Shahabad Hassan	7-Nov-20
9	Guard-2	Kamran Abbas	7-Nov-20
10	Sweeper	Ahmed Ali	7-Nov-20
11	Cook	Muhammad Imtiaz	7-Nov-20
12	Cook-Helper	Shababat Hussain	7-Nov-20
3. Zonal Team (KP Office)			
Key Staff			
1	Deputy Team Leader/Monitoring and Evaluation Specialist I/C Peshawar Zone	Prof. Dr. Humayun Khan	1-Jan-21
Non-Key Staff			
1	ICT/ Technology Specialist	Fawad Ahmed	7-Nov-20
2	Irrigation Agronomist	Zahoor Khattak	15-Mar-21
3	Supporting Technical and Non-Technical Staff	Imran Zafar	7-Nov-20
Zonal Field Team KP			
1	Field Team In charge/ M&E Expert/ Socio-Economic Expert-1	Mehmood ul Hassan	1-Dec-20
2	Field Team In charge/ M&E Expert/ Socio-Economic Expert-2	Inam Ullah Khan	1-Dec-20
3	Field Team In charge/ M&E Expert/ Socio-Economic Expert-3	Mumtaz Ullah	1-Dec-20
4	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-1	Abd Ur Raoof Saad	1-Feb-21
5	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-2	Ather Iqbal	1-Feb-21
6	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-3	Ferhan Tayyab	1-Feb-21
7	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-4	Aftab Ahmed	1-Feb-21
8	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-5	Matloob Hussain	1-Feb-21
9	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-6	Fawad Ali	1-Feb-21
(B-II) Supporting Staff: Provincial Offices - KP			
1	Office Manager	Shams-ul-Hayat	1-Dec-20
2	Account Assistant	Syed Shahzaib	1-Dec-20
3	Computer Operator	Munsaf	1-Dec-20
4	Peon	Syed Aftab Shah	1-Dec-20
5	Guard-1	Iftekhar Ali	1-Dec-20
6	Guard-2	Zubair Ahmed	1-Dec-20
7	Cook	Bilal Khan	1-Dec-20

Sr. No.	Position	Employees Name	Date of Joining
4. Zonal Team (Balochistan Office)			
Key Staff			
1	Deputy Team Leader/ Monitoring and Evaluation Specialist I/C Quetta Zone	Rizwan Ahmed	20-Nov-20
Non-Key Staff			
1	ICT/ Technology Specialist	Osama Azhar	7-Nov-20
Zonal Field Team Balochistan			
1	Field Team In charge/ M&E Expert/ Socio-Economic Expert-1	Manzoor Ahmed Kasi	15-Mar-21
2	Field Team In charge/ M&E Expert/ Socio-Economic Expert-2	Naseeb Jan	21-Apr-21
3	Field Team In charge/ M&E Expert/ Socio-Economic Expert-3	Muhammad Tariq	21-Apr-21
4	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-1	Khuda Dost	1-Jan-21
5	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-2	Hamza Hassan Qureshi	1-May-21
6	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-3	Saleem Ahmed	17-May-21
7	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-4	Rafiullah	17-May-21
8	Field Engineers/ Technician/ M&E Officers/ Socio-Economic Officer-6	Qaiser Khan	15-Mar-21
(B-II) Supporting Staff: Provincial Offices - Balochistan			
1	Office Manager	Syed Abrar Hussain Shah	7-Nov-20
2	Account Assistant	Mubeen Raheem	15-Mar-21
3	Computer Operator	Adnan Bashir	1-Jan-21
4	Peon	Nasir Ahmed	7-Nov-20
5	Guard-1	Ghulam Farooq	7-Nov-20

ANNEX-F: CUMULATIVE SUMMARY OF CIVIL WORKS PROGRESS OF NPIWC-II PROJECT

CUMMULATIVE SUMMARY OF CIVIL WORKS PROGRESS OF NPIWC-II PROJECT (as per NWMC data, July 01, 2021)

Activity	F.Y. 2019-20 & 2020-21													
	Target	Technical Sanction (TS)	Completed Cases				On-Going Cases for Certification by NWMC							
			Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC	S & D		ICR-I		ICR-II		FCR	
							Offered	Approved	Offered	Approved	Offered	Approved	Offered	Approved
Regular	5,451	2,578	3,906	1,155	1,851	968	261	138	131	128	104	94	166	161
Additional Lining of Watercourse	1,577	1,574	1,574	1,337	1,203	1,186	327	316	246	244	126	107	112	103
Rehabilitation of 20 Years Old Watercourses	238	-	121	-	43	-	-	-	-	-	-	-	-	-
Grand Total Watercourses	7,266	4,152	5,601	2,492	3,097	2,154	588	454	377	372	230	201	278	264
Water Storage Tanks/Ponds	2,461	1,338	1,604	758	1,110	718	417	98	15	15	5	4	136	136
Laser Land Levellers	2,700	-	2,700	794	794	794	-	-	-	-	-	-	-	-

ANNEX-G: PROGRESS OF CIVIL WORKS F.Y. 2019-20 & 2021-22 OF PROJECT

PROGRESS OF CIVIL WORKS F.Y. 2019-20 & 2020-21 OF NPIWC-II PROJECT (as per data of NWMC, July 01, 2021)

Sr. No.	Regional / Entity	Activity	F.Y. 2019-20						F.Y. 2020-21														
			Target	Technical Sanction (TS)	Completed Cases				Target	Technical Sanction (TS)	Completed Cases				On-Going Cases for Certification by NWMC								
					Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC			Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC	S & D		ICR-I		ICR-II		FCR		
															Offered	Approved	Offered	Approved	Offered	Approved	Offered	Approved	
1	Punjab	Regular Watercourses	150	150	150	150	150	149	117	117	117	90	41	41	56	55	45	44	37	31	27	25	
		Additional Lining of Watercourse	800	800	800	800	800	798	581	581	581	469	343	343	327	316	246	244	126	107	112	103	
		Rehabilitation of 20 Years Old Watercourses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Water Storage Tanks/Ponds	101	101	101	101	101	100	300	300	300	236	236	236	75	74	-	-	-	-	-	64	64
		Laser Land Levellers	640	-	640	-	-	-	2,060	-	2,060	794	794	794	-	-	-	-	-	-	-	-	-
2	KPK	Regular Watercourses	1,015	1,014	1,008	389	358	277	447	428	362	145	134	126	52	25	-	-	-	-	-	47	44
		Additional Lining of Watercourse	158	158	158	54	46	35	38	35	35	14	14	10	-	-	-	-	-	-	-	-	-
		Rehabilitation of 20 Years Old Watercourses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Water Storage Tanks/Ponds	276	276	276	126	119	99	231	218	186	95	91	83	14	11	2	2	2	2	27	27	

Sr. No.	Regional / Entity	Activity	F.Y. 2019-20							F.Y. 2020-21												
			Target	Technical Sanction (TS)	Completed Cases				Target	Technical Sanction (TS)	Completed Cases				On-Going Cases for Certification by NWMC							
					Total Schemes Cases	Offered to NW/MC	Checked by NW/MC	Verified by NW/MC			Total Schemes Cases	Offered to NW/MC	Checked by NW/MC	Verified by NW/MC	S & D		ICR-I		ICR-II		FCR	
															Offered	Approved	Offered	Approved	Offered	Approved	Offered	Approved
		Laser Land Levellers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	Balochistan	Regular Watercourses	1,623	-	1,770	-	781	-	644	-	12	-	12	-	95	-	-	-	-	-	-	-
		Additional Lining of Watercourse	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Rehabilitation of 20 Years Old Watercourses	238	-	121	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Water Storage Tanks/Ponds	383	-	358	-	246	-	603	-	117	-	117	-	315	-	-	-	-	-	-	
		Laser Land Levellers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	GB	Regular Watercourses	496	331	247	234	228	228	497	167	34	-	-	-	15	15	-	-	36	34	33	33
		Additional Lining of Watercourse	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Rehabilitation of 20 Years Old Watercourses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Water Storage Tanks/Ponds	163	155	130	112	112	112	164	116	3	-	-	-	-	-	-	-	3	2	-	-

Sr. No.	Regional / Entity	Activity	F.Y. 2019-20							F.Y. 2020-21												
			Target	Technical Sanction (TS)	Completed Cases				Target	Technical Sanction (TS)	Completed Cases				On-Going Cases for Certification by NWMC							
					Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC			Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC	S & D		ICR-I		ICR-II		FCR	
															Offered	Approved	Offered	Approved	Offered	Approved	Offered	Approved
		Laser Land Levellers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	AJK	Regular Watercourses	190	105	84	84	84	84	227	246	102	63	63	63	13	13	66	64	11	9	39	39
		Additional Lining of Watercourse	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Rehabilitation of 20 Years Old Watercourses																				
		Water Storage Tanks/Ponds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Laser Land Levellers	120	39	39	39	39	39	120	133	94	49	49	49	13	13	13	13	-	-	45	45
6	ICT	Regular Watercourses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Additional Lining of Watercourse	-	-	-	-	-	-	45	20	20	-	-	-	30	30	20	20	20	20	20	20
		Rehabilitation of 20 Years Old Watercourses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		Water Storage Tanks/Ponds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sr. No.	Regional / Entity	Activity	F.Y. 2019-20							F.Y. 2020-21													
			Target	Technical Sanction (TS)	Completed Cases				Target	Technical Sanction (TS)	Completed Cases				On-Going Cases for Certification by NWMC								
					Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC			Total Schemes Cases	Offered to NWMC	Checked by NWMC	Verified by NWMC	S & D		ICR-I		ICR-II		FCR		
															Offered	Approved	Offered	Approved	Offered	Approved	Offered	Approved	
		Laser Land Levellers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Entire Region	Regular Watercourses	3,474	1,600	3,259	857	1,601	738	1,977	978	647	298	250	230	261	138	131	128	104	94	166	161	
		Additional Lining of Watercourse	958	958	958	854	846	833	619	616	616	483	357	353	327	316	246	244	126	107	112	103	
		Rehabilitation of 20 Years Old Watercourses	238	-	121	-	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Grand Total Watercourses	4,670	2,558	4,338	1,711	2,490	1,571	2,596	1,594	1,263	781	607	583	588	454	377	372	230	201	278	264	
		Water Storage Tanks/Ponds	1,043	571	904	378	617	350	1,418	767	700	380	493	368	417	98	15	15	5	4	136	136	
		Laser Land Levellers	640	-	640	-	-	-	2,060	-	2,060	794	794	794	-	-	-	-	-	-	-	-	

ANNEX-H: FINANCIAL STATUS OF ALLOCATION AND EXPENDITURES ON PROJECT COMPONENTS PROJECT

The below data is zone wise allocation & expenditure of funds for civil works which is taken from Project Consultants.

Punjab Zone:

In Financial year 2019-20 total allocation of funds for watercourses & water storage tanks is 1945.39 million & expenditure was 1945.05 million. For Laser land Leveler's allocation is 160 million in which total funds were consumed. In Financial year 2020-21 total allocation of funds for watercourses & water storage tanks is 1852.28 million in which 1850.72 million was expenditures. For Land laser land Leveler's allocation is 641.99 million & expenditure was 642 million.

F.Y 2019-20				F.Y 2020-21			
Watercourses + WST		Laser Land Levelers		Watercourses + WST		Laser Land Levelers	
Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures
1,945,391,000	1,945,054,795	160,000,000	160,000,000	1,852,287,748	1,850,725,774	641,999,000	642,000,000

KP:

In Financial year 2019-20 total allocation of funds for watercourses & water storage tanks is 731.545 million & expenditure was 724.94 million. In Financial year 2020-21 total allocation of funds for watercourses & water storage tanks is 568.57 million in which 553.461 million was expenditures.

F.Y 2019-20				F.Y 2020-21			
Watercourses + WST		Laser Land Levelers		Watercourses + WST		Laser Land Levelers	
Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures
731,545,733	724,942,109	-	-	568,577,382	553,461,492	-	-

Balochistan:

In Financial year 2019-20 total allocation of funds for watercourses & water storage tanks is 1950.346 million & expenditure was 1682.31 million. In Financial year 2020-21 total allocation of funds for watercourses & water storage tanks is 1506.76 million in which 852.61 million was expenditures.

F.Y 2019-20				F.Y 2020-21			
Watercourses + WST		Laser Land Levelers		Watercourses + WST		Laser Land Levelers	
Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures
1,950,346,000	1,682,312,000	-	-	1,506,761,823	852,612,579	-	-

GB

In Financial year 2019-20 total allocation of funds for watercourses & water storage tanks is 686.8 million & expenditure was 171.37 million. In Financial year 2020-21 total allocation of funds for watercourses & water storage tanks is 689.79 million in which 527.05 million was expenditures.

F.Y 2019-20				F.Y 2020-21			
Watercourses + WST		Laser Land Levelers		Watercourses + WST		Laser Land Levelers	
Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures
686,800,000	171,370,000	-	-	689,790,000	527,050,000	-	-

AJK

In Financial year 2019-20 total allocation of funds for watercourses & water storage tanks 296.45 million & expenditure was 45.10 million. In Financial year 2020-21 total allocation of funds for watercourses & water storage tanks is 335 million in which 129.665 million was expenditures.

F.Y 2019-20				F.Y 2020-21			
Watercourses + WST		Laser Land Levelers		Watercourses + WST		Laser Land Levelers	
Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures	Allocation	Expenditures
296,450,000	45,107,000	-	-	335,000,000	129,665,500	-	-

ICT

In Financial year 2020-21 total allocation of funds for watercourses is 39.757 million in which 18.514 Million was expenditures.

Allocation		
Irrigation schemes	Allocation	Expenditures
	39,757,000	18,514,824