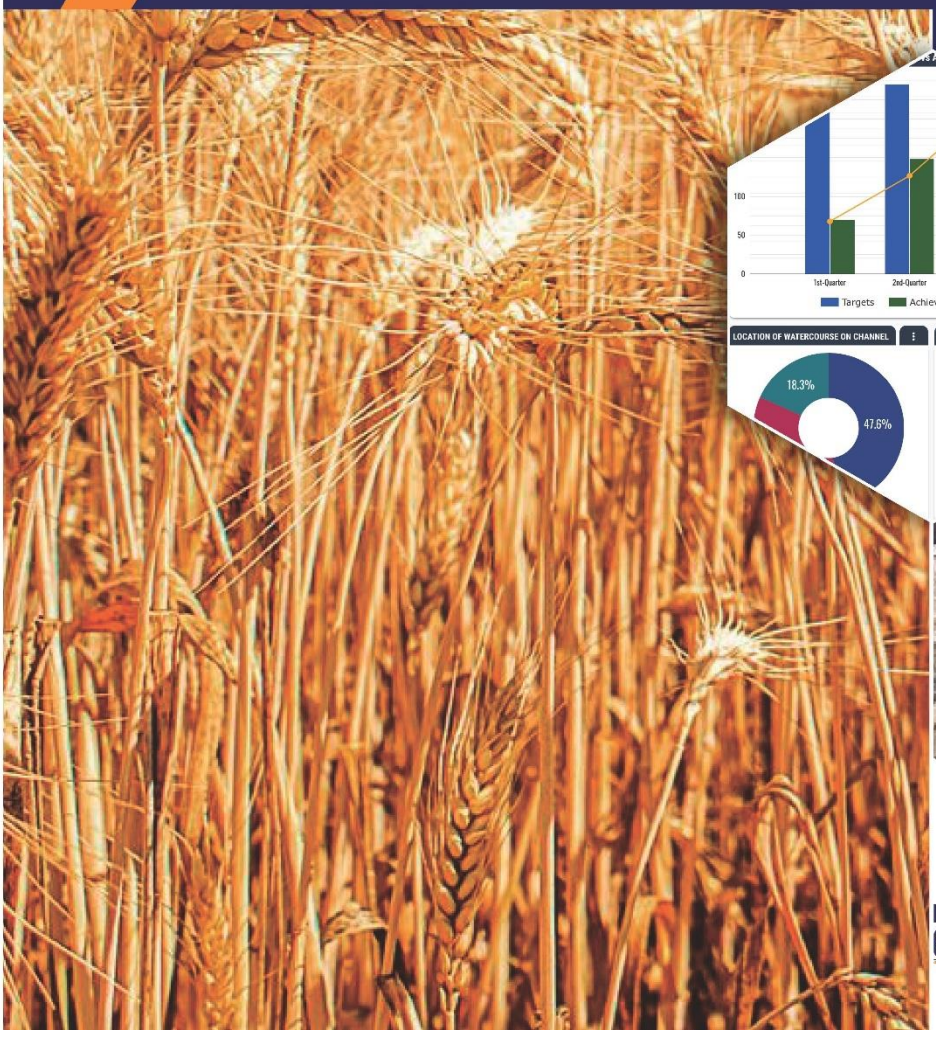
FEDERAL PROJECT MANAGEMENT UNIT
FEDERAL WATER MANAGEMENT CELL
MINISTERY OF NATIONAL
FOOD SECURITY & RESEARCH
ISLAMABAD - PAKISTAN

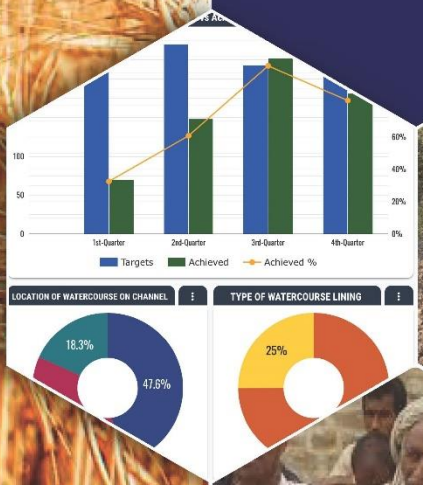
NATIONAL PROGRAM FOR IMPROVEMENT OF WATERCOURSES IN PAKISTAN PHASE-II: (NPIWC-II)

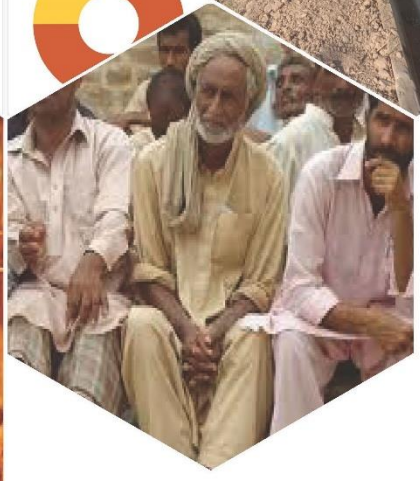
MONITORING, EVALUATION AND IMPACT EVALUATION CONSULTANTS

MONTHLY MONITORING REPORT

FEBRUARY 2022







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ADA Consultants Inc.
In Association with S&S Associates

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

Monitoring, Evaluation and Impact Evaluation (ME&IE) Consultants
For
National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II)

MONTHLY MONITORING REPORT
FEBRUARY 2022

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ACRONYMS

ADA	Assistant Director Agriculture
AES	Agriculture Extension Services
AF	Acre-Feet
AJK	Azad Jammu & Kashmir
AWPB	Annual Work Plan and Budget
AWPs	Annual Work Plans
BCR	Benefit Cost Ratio
CFT	Cubic Feet
CMS	Content Management System
CSRD	Center for Social Research and Development
DAES	Director Agriculture Extension Services
DDA	Deputy Director Agriculture
DGA	Director General Agriculture
DTL	Deputy Team Leader
EAs	Executing Agencies
EIRR	Economic Internal Rate of Return
FCR	Financial Completion Report
FCRs	Final Completion Reports
FMFSR	Framework for Federal Financial Management System
FOs	Farmers Organizations
FPMU	Federal Project Management Unit
FWMC	Federal Water Management Cell
GAP	Gender Action Plan
GB	Gilgit Baltistan
G3EC	G3 Engineering Consultants
GIS	Geographic Information System
HEIS	High Efficiency Irrigation System
IAs	Implementing Agencies
ICR	Interim Completion Report
ICT	Islamabad Capital Territory
IRR	Internal Rate of Return
ICT	Information & Communication Technology
JV	Joint Venture
KP	Khyber Pakhtunkhwa
LLL	Laser Land Leveler
LPS	Liter Per Second
M&E	Monitoring and Evaluation
MAF	Million Acre Feet
ME&IE	Monitoring, Evaluation and Impact Evaluation
MIS	Management Information System
MNFSR	Ministry of National Food Security and Research
MMR	Monthly Monitoring Report
MT	Monitoring Template
MTE	Mid-Term Evaluation
NESPAK	National Engineering Services Pakistan

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

EXECUTIVE SUMMARY

The report in hand, "Monthly Monitoring Report for the month of February 2022" comprises of six chapters.

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

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

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

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

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

Chapter-3 covers the details about the Monthly Monitoring Report. This Monthly Monitoring Report (MMR) covers the period from February 01, 2022, to February 28, 202

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

- Preparation for the 2nd Phase of Baseline Survey
- Improvement of Questionnaires in the light of experience of 1st Baseline Survey
- Training of Field Staff for 2nd Phase of Baseline Survey
- Preparation of baseline survey field visits plan
- Start of the 2nd Phase of Baseline Survey
- Regular Monitoring of Interventions in the Field
- Data Collection of the Interventions in the Field
- Data acquisition from Client, Data entry, Data cleaning, Data processing and analysis
- Meetings of ME&IE Consultants with Stakeholders about Project Progress / Issues
- Data collection of interventions in MIS/GIS database
- Implementation of Dashboard of Project Interventions
- Success Story - Case Study on the Project Interventions

Chapter-5 of this report covers the details of ME&IE Consultants' activities initiated for the Quarter (January 1, 2022 to March 31, 2022) are listed below:

- Pre-field Activities
- Field Activities
- ICT Assignment
- Coordination
- Deliverables

Time span detail for 1st Quarter of year 2022 is mentioned in the Tentative Work Plan. **Annex-A.**

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

Table: -ES-1: Compliance Status of Tentative Work Plan during Reporting Period

No.		Activities Planned for the Reporting Quarter	Status	
1	**Pre-Field Activities**			
	1.1	Improvement of Monitoring Tools	Complied	
	1.2	Preparation for 2nd Phase Baseline Survey	Complied	
	1.3	Training of Field Staff for 2nd Baseline Survey	Complied	
2	**Field Activities:**			
	2.1	Regular Monitoring of Interventions in the Field	Complied	
	2.2	Data collection of the interventions in the field	Complied	
	2.3	Baseline Survey Phase-2	Revised MTs, Training Field Staff, Pretesting of MTs in the field	
	2.4	Online data entry in android-based application	Complied	
3	**ICT Assignment:**			
	3.1	Work on Development of Website of NPIWC-II	Complied	
	3.2	Monitoring online data collection and Data entry	Complied	
	3.3	Monitoring Android based Mobile Application under implementation by field staff.	Complied	
	3.4	Data collection of interventions in MIS/GIS database	Complied	
	3.5	Dashboard for Project Interventions	Complied	
4	**Coordination**			
	4.1	Meetings of TL with NPC and OFWM Departments regarding Project Progress / Issues	Meetings conducted on regular basis	
	4.2	Meeting of DTLs with respective DTL of NWMC	Meetings conducted on regular basis	
5	**Deliverables:**			
	5.1	Monthly Monitoring Report (MMR)	12th MMR (Dec 2021)	Submitted
			13th MMR (Jan 2022)	Submitted
			14th MMR (Feb 20220	To be submitted in stipulated time
	5.2	Quarterly Monitoring & Evaluation Report (QM&ER)	QM&ER Oct-Dec 2021	Submitted
			QM&ER Jan-Mar 2022	Will be submitted in stipulated time
	5.3	Baseline Survey Report Ph-2 (Draft)	Will be submitted in stipulated time	

CHAPTER-1: INTRODUCTION

1.1 PROJECT PROFILE

Project Name	National Program for Improvement of Watercourses in Pakistan Phase-II **(NPIWC-II)**
Project Areas	Punjab, KP, Balochistan, Gilgit Baltistan, Azad Jammu & Kashmir, and Islamabad Capital Territory (ICT)
Sponsoring Agency	Ministry of National Food Security & Research
Executing Agencies (EAs)	1. Federal Project Management Unit (FPMU), 2. DGA OFWM Punjab 3. DG OFWM KP 4. DGA OFWM Balochistan 5. Director Irrigation and Small Dams, AJK 6. Director WM, GB 7. Director Agriculture Extension Services (AES) ICT
Project Period	5 Year (2019-2024)
Total Project Cost	154,542.355 million (Umbrella PC-1, including Sindh)
ME&IE Consultancy Period	4 year
ME&IE Consultant:	JV of G3 Engineering Consultants (Pvt.) Ltd., EASE PAK Engineering services (Pvt.) Ltd., Centre for Social Research and Development (CSRD) and ADA Consultants Inc. Canada
ME&IE Consultant Mobilized	November 20, 2020

1.2 PROJECT DESCRIPTION

1.2.1 Project Development Objectives

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

1.2.2 Project Objectives – General & Quantitative

1) General Objectives:

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

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

2) Quantitative Objectives:

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

v) Reduction in Water Logging and salinity in project areas to the extent of 10%.
vi) Cropping intensity is expected to increase by 5-20%.

vii) Crop's yield is estimated to increase by 10-15%.
viii) Equity in water distribution increased by about 30%.
ix) Reduction in water disputes/thefts and litigation amongst the Farmers over water distribution by about 80%.
x) Help poverty reduction through generation of employment.
xi) Self-sufficiency in food through utilization of water saved for edible oil seed production.

Project indirect benefits to industry/economic activities

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

Awareness support to farmers

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

1.2.3 Project Beneficiaries

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

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

1.2.4 Project Components

The NPIWC-II comprises four components.

C1: ORGANIZATION OF WATER USERS ASSOCIATIONS:

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

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.

C2: WATERCOURSE IMPROVEMENTS:

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

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

C3: CONSTRUCTION OF WATER STORAGE TANKS:

Construction of 14,932 Water Storage Tanks (WSTs)

i) 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,
ii) Provide flexibility for storage of plentiful canal and rainfall runoff water for its more expedient use subsequently,
iii) Collect, store and filter water from:
- Small Dams, Springs, Streams, Nallahs etc.
- Rainfall runoff over agricultural catchment during rainy season
- Tube-wells and dug wells of low flows
- Tail-waters from agricultural fields

iv) Regulate the flows so that it can be used efficiently when needed at large flow rates.

C4: PROVISION OF LASER LAND LEVELING UNITS:

Provision of 11,610 Laser Land Leveling units to the farmers; the component will strengthen LASER land leveling services in the country through provision of

Laser Land Leveling Units to farmers/service providers on 50% subsidized rates.

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

1.2.5 Project Targets

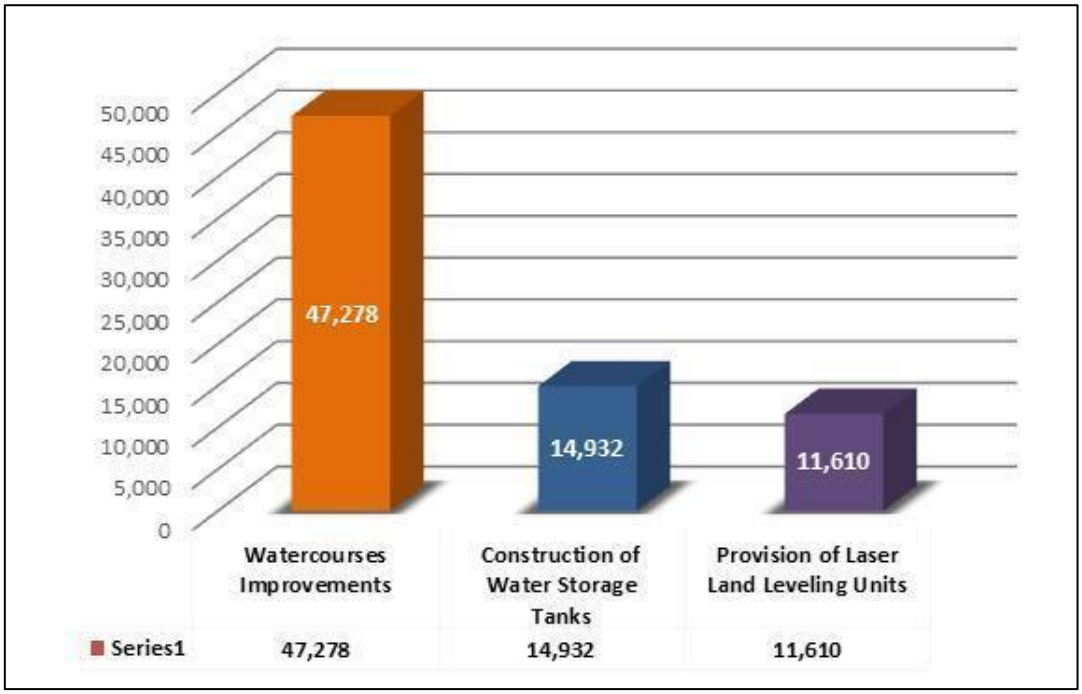
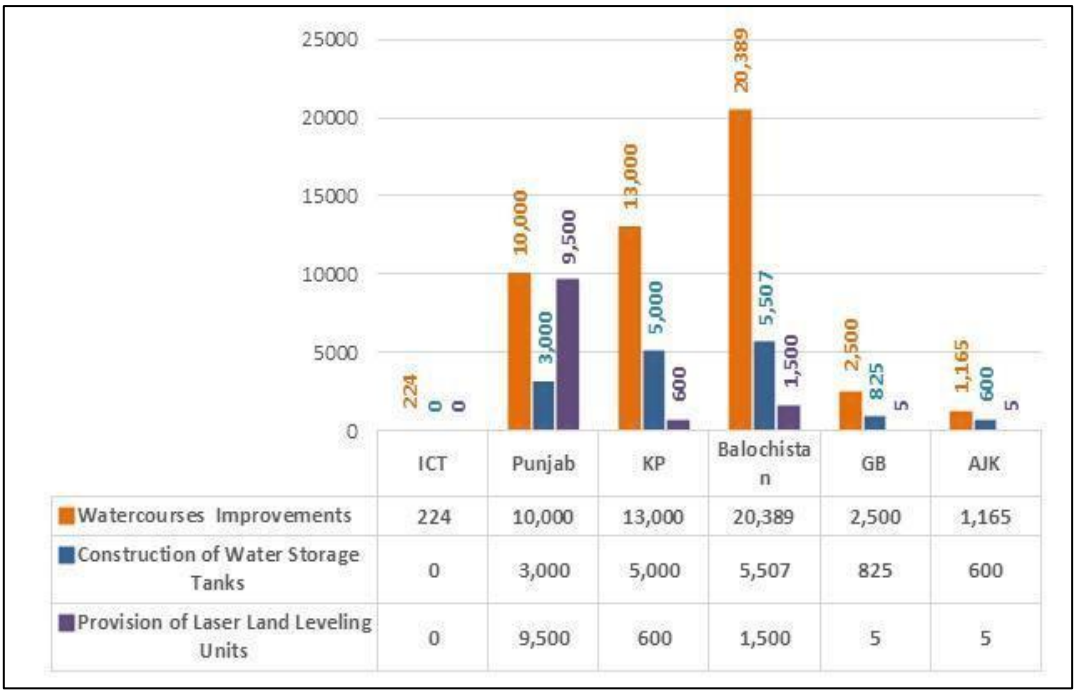


Figure 1.1 Pakistan Targets



	ICT	Punjab	KP	Balochistan	GB	AJK
Watercourses Improvements	224	10,000	13,000	20,389	2,500	1,165
Construction of Water Storage Tanks	0	3,000	5,000	5,507	825	600
Provision of Laser Land Leveling Units	0	9,500	600	1,500	5	5

Figure 1.2: Zonal Target

CHAPTER 2: SCOPE AND SERVICES OF ME&IE CONSULTANTS

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

2.1 OBJECTIVES

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

2.2 SCOPE OF THE SERVICES

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

i) Undertake baseline, midline and endline surveys for the project activities / interventions in all the project areas,
ii) Develop monitoring strategy, framework and Result-Based Monitoring (RBM) indicators,
iii) Preparation of monthly, quarterly and annual monitoring, evaluation and validation reports of the project activities,
iv) Assessing the water saving per annum on watercourses, water storage tanks and field levels as well as aggregate due to the project interventions,
v) Assessing the improvement in water availability due to the provision of conveyance system,
vi) Assessing the economic benefits to the agriculture in terms of changes in yields, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks,
vii) Assessing the extent of community mobilization, financial and administrative sustainability of water users' associations and ensuring the maintenance of watercourses, water storage tanks and laser land Levelers,
viii) Economic impact of project interventions,
ix) Carry out the impact evaluation of the project intervention on the economy and stakeholders,
x) Develop a website containing information on facilities and services, applications, procedures, watercourses, water storage tanks and laser Levelers database, etc. (while the project staff will maintain the website),
xi) Provide technical support for the development of a custom-designed mobile application (Android Based) to capture on-site project progress and geo-tagged photos. It should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management. The said requirement is based on the following functional features:

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

2.3 MONITORING STRATEGY

The monitoring strategy planned to be followed by

ME&IE Consultants is briefly described in the following **Table-2.1.** However, detailed methodology and procedures to carry out the Monitoring, Evaluations and Impact Evaluations of the project interventions were explained in Chapter 6 of Inception Report. The strategy aims to be finalized and implemented in close coordination with the client and active participation of the beneficiaries as well as the project stakeholders.

Table 2.1: Monitoring Strategy for ME&IE Activities

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
1	Baseline, midline and endline surveys	Team Leader, Socio-Economic Expert, Agricultural Economist and Deputy Team Leader of the respective province/unit.	• Baseline and impact surveys will be carried out on sample basis. • Data will be collected by field teams on pre-designed data collection tools through an android application on TABs. • Baseline and impact surveys will be carried out in phases as target watercourses are not preselected. • Baseline will be carried out before the intervention and the impact one year (two crop seasons) after the completion of the intervention. • The midterm study will review the project progress at middle of the project implementation • The endline study will assess the impact of the project interventions.
2	Reporting	All core team members	Following periodic reports will be prepared and submitted: • 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	**Water Saving on Watercourses:** • 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 will be reported per watercourse, per annum and aggregate for the project in LPS and Acre feet.
			Water Savings on WSTs • 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. **Water savings due to Laser Land Leveling** • Water savings at field level will be assessed through farmers' interviews. • The impact survey form will include questions to be asked from the farmers who got their land leveled: - 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 The difference will be water saving due to laser land leveling
			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	The extent of community mobilization will be assessed by investigating whether: • 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	• 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	• 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.
7	Impact evaluation-on the stakeholders	Team Leader, Agricultural Economist and Socio-Economic Expert	● 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	● 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	● The State-of-the-art MIS / Progress Monitoring Model will be developed for NPIWC-II. ● Customized forms will be developed to collect data from the implementing teams on-site for progress monitoring ● These forms will be made available to the teams on smart phones through an android application ● The teams will be adequately trained to use the application ● Data on physical and financial stages with dates will be fed to the system for process monitoring ● GIS coordinates for watercourses, WSTs, laser units (if available) and WUAs offices will be uploaded to the system and could be viewed / reached by the management online ● The system will be maintained on GOOGLE server so that it is accessible by the management from anywhere in Pakistan and abroad ● Custom reports will be possible as the user demands / desires ● The results could be displayed on small as well as large screens.
11	Development of Android based application	ICT / Technology Specialist	All the data collection forms / tools will be executed through customized developed Android based applications accessible with smart phones / TABs.

2.4 FRAMEWORK AND RESULTS-BASED MONITORING (RBM) INDICATORS

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

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

CHAPTER 3: MONTHLY MONITORING REPORT

3.1 INTRODUCTION

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

3.2 OBJECTIVE OF MONTHLY MONITORING REPORT

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

3.3 REPORTING PERIOD

This Fourteenth Monthly Monitoring Report (MMR) covers the period from February 01, 2022, to February 28, 2022.

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

CHAPTER 4: ACTIVITIES DURING THE REPORTING PERIOD

During the reporting month Consultants carried out different field as well as in-house activities related to ME&IE.

4.1 FINALIZATION OF MONITORING TOOLS (MTS) FOR 2ND PHASE BASELINE SURVEY

The ME&IE Consultants conducted multiple sessions of discussions on the improvement of MTs. The revision / improvement of the MTs was carried out in the light of Client's comments received on 1st Baseline Survey Report and lessons learnt by the consultants during activities during 1st Phase of Baseline Survey. The MTs were finalized and field staff was trained on the MTs.

4.2 REGULAR MONITORING / FIELD VISITS BY ME&IE CONSULTANTS

Field teams of the Zonal Offices started field visits for 2nd Baseline Survey and routine monitoring of the interventions by using the updated Monitoring Tools. Consultants also conducted meetings with client offices and other stakeholders and collected data for Baseline Survey and routine monitoring.

Detail of field visits and observations of the field teams of all the Zonal offices during the reporting period is given below:

4.2.1 Regular Monitoring / Field Visits by Zonal Office ICT

Field team of ICT Zone planned a two days' (22 – 23 February 2022) field visit of two districts of AJK (Mirpur and Bhimber). Following team members carried out these visits.

i) Mr. Muhammad Bilal, Field Team Incharge
ii) Hafiza Maryam Iqbal, M&E Officer
iii) Ms. Sana Gul, M&E Officer

The visit was carried out in coordination with Mr. Javed Qamar, Deputy Director Mirpur, who managed the visits of the watercourses. Following staff of Water Management Department of AJK accompanied the ME&IE Team of the consultants during the field visits.

i) Water Management Officer Mr. Muhammad Ali, and
ii) Assistant Director of Line Department, Mr. Jabar Rafique

Detail of interventions monitored during these visits is given below:

S#	Watercourse Name	District	Date of Visit
1	Faridabad	Mirpur	22nd February 2022
2	Dhok Balyala		
3	Ternal-4		
4	Ternal		
5	Sirla -1	Bhimber	23rd February 2022
6	Sokasan		
7	Channi Ganjal		

Figure 4.1: ME&IE Team with WMOAJK during field visit of Fareedabad, district Mirpur, AJK

Figure 4.2: ME&IE Field Team with A.D. AJK during Visit of Watercourse at Sirla, District Bhimber, AJK

4.2.1.1 Field Visits by Zonal Team ICT

i) Field Visit Watercourse Waheed Anjum, February 22, 2022

Scheme	Watercourse
Farmer Name	Waheed Anjum
Name of village:	Faridabad

Chairman WUA:	Waheed Anjum
District:	Mirpur
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	900ft
Command area of watercourse:	7.37 Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• The farmer is Chairman of the WUA • He has 200 Kanal land under this watercourse, however, 59 Kanal will be facilitated by the lining of this watercourse. • He has requested the Department for the lining of watercourse as it takes 7 hours to irrigate 1-acre land due to sandy land and non-sufficient rainfall patterns. • From this 59 kanal, 57 kanals is used for agriculture, while 2 kanal is being used for animal shed and labour residences.
General Observations	• Land in this area is sandy • WUA is actively working. • Watercourse is precast parabolic segments. • The source of the watercourse was Tube well which is owned by the beneficiary.

Figure 4.3: Faridabad: Unlined watercourse and condition of crops.

Figure 4.4: Faridabad: PCPS dumped before installation behind tube well.

ii) Field Visit - Watercourse (Dhok Balyala), 22 February, 2022

Scheme	Watercourse
Farmer Name	Abdul Majeed
Name of village:	Dhok Balyala
Chairman WUA:	Abdul Majeed
District:	Mirpur
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	848ft
Number of segments:	212
Command area of watercourse:	4 Acres (32 Kanal)
No of beneficiaries:	3

Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• The farmer is Chairman of WUA • WUA is actively working • No female is working in WUA.
General Observations	• The source of water was Tube well. • Farmers use water only from the tubewells and don't sell water to any other farmer.

Figure 4.5: Balyala: Plastic foldable pipes were being used for irrigation before lining.

Figure 4.6: Balyala: Lined Watercourse

iii) Field Visit - Watercourse (Ternal -4), February 22, 2022

Scheme	Watercourse
Farmer Name	Naveed Ahmed
Name of village:	Ternal
Chairman WUA:	Naveed Ahmed
District:	Mirpur
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	320ft
Number of segments:	60
Command area of watercourse:	4.75 Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• Farmer's current land holding is 38 Kanal and all the land is suitable for cultivation. • He had hired two permanent labors for farming activities. • No female participation in farming activities.
General Observations	• The type of the watercourse is precast parabolic segment. • The lining length of WC was 320ft, while the number of segments were 60. • The source of the watercourse was only Tube well.

Figure 4.7: Tarnal 4: Lined watercourse. It is yet not completed.

Figure 4.8: Tarnal 4: Comparison of irrigated vs rain-fed crops in same vicinity.

iv) Visit to 4th Watercourse (Ternal), 22 February, 2022

Scheme	Watercourse
Farmer Name	Naveed Ahmed
Name of village:	Ternal
Chairman WUA:	Naveed Ahmed
District:	Mirpur
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	472ft
Number of segments:	118
Command area of watercourse:	2.8Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• Farmer has his own farming equipment including rotavator, tractor • He also a tube well. • His current land holding is 23 Kanal and all the land was suitable for cultivation. • He had hired two permanent labors for farming activities. No female participation in farming activities
General Observations	• The source of the watercourse was only Tube well. • They had livestock and the consumption pattern of food was given by the beneficiary.

Figure 4.9: Tarnal watercourse branches

Figure 4.10: Discussion with farmers

v) Field Visit - Watercourse (Sirla-1), 23 February 2022

Scheme	Watercourse
Farmer Name	Muhammad Irfan
Name of village:	Sirla
Chairman WUA:	Muhammad Irfan
District:	Bhimber
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	700ft

Number of segments:	175
Command area of watercourse:	2.87 Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• The farmer is owner of 32 Kanal of land • He is the chairman of WUA. • The beneficiary was cultivating only fodder crops and is using his livestock for business purpose. • He had hired 2 labors as permanent. • There is no female participation in farming activities. • With the help of Agricultural Department, he got his land leveled by Laser Land Lever and made it useful for agriculture. • He has installed a tubewell in his land. Before lining of watercourses, he used to irrigate the land through plastic foldable pipes.
General Observations	• The source of the watercourse was only tube well. • Most of the land is sandy, and requires a lot of irrigation timing, however, the pipe system made it easy to irrigate. • Assistant Director told that other people have also levelled their land are requesting the Irrigation Department for the lining of the watercourse falling in their land.

Figure 4.11: Meeting with farmer in Serla

Figure 4.12: Newly Constructed Watercourse

vi) Field Visit - Watercourse (Sokason), February 23, 2022

Scheme	Watercourse
Farmer Name	Ulfat Hussain
Name of village:	Sokason
Chairman WUA:	Ulfat Hussain
District:	Bhimber
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	404ft

Number of segments:	101
Command area of watercourse:	3.75 Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• Farmer holds 30 Kanal of land. • He is the chairman of the WUA • No female participation in the farming activities • He hires casual labours whenever needed.
General Observations	• The source of the water is only tubewell and sometimes rainfalls, however rainfall is insufficient throughout the season.

Figure 4.13: Sokason Watercourse Under Construction

vii) Visit to 3rd watercourse (Channi Kanjal), 23 February 2022

Scheme	Watercourse
Farmer Name	Usman Mehmood
Name of village:	Channi Kanjal
Chairman WUA:	Usman Mahmood
District:	Bhimber
Province	Ajk
Source of irrigation:	Tube Well
Type of watercourse:	PCPS
Length of the watercourse:	870ft
Number of segments:	290
Command area of watercourse:	7.5 Acres
No of beneficiaries:	3
Cropping intensity increased	Not measured due to new lining.
Equity in water distribution increased	*No Problems related to Equity in Water Distribution.*
Reduction in water disputes/thefts	*No problems related to water theft*
Overall feedback of Farmer / Beneficiary	• He is holding 60 Kanal agriculture land • He has established a farm for his livestock including Australian cows, buffaloes, ducks. • He installed lined watercourses during NPIWC-I • During NPIWC-II he not got more lining of WC but he also constructed Dam in a gully area to store water for irrigation purpose. • He also installed few tube well in this land holding and watercourses are lined in a way that lower watercourses can be irrigated from upper area whenever needed. • No female participation in farming activities.
General Observations	• This land was uneven and was not useful for Agriculture. Now he has leveled lot of area and using for agriculture. • He planted Eucalyptus in his land before 7

	years which are more than 60,000 trees. • Now he has planted olive plants on other part of his land which will be more productive for him. • He has to hire experienced labor from Punjab or KPK and the hiring cast of those labor is much higher

Figure 4.14: Channi Kanjal Watercourse Under Construction

4.2.2 Regular Monitoring / Field Visits by Zonal Office Punjab

The Monitoring/Baseline is to be conducted of intervention of the project viz watercourse improvement, Water User Association Water Storage Tank and Laser Land Leveler. Such surveys are carried out from time to time as a part of regular activity of ME&IE Consultants.

4.2.2.1 Sampling Methodology of Punjab Zone

Sampling is the process of choosing a representative proportion of a population, the entire group of items (elements) of various interventions in the project. It is contrasted with the process of complete enumeration in which every number of defined populations is included. In the study under review the defined population/number of various intervention units in the Punjab zone are:

i)	Watercourses for Improvement	10,000
	a) Additional Watercourses	7,500
	b) Regular Watercourses	2,500
ii)	Water Storage Tanks	3,000
iii)	Laser Land Levelers	9,500

The establishment of a water user association is a pre – requisite for the improvement of a watercourse. The number of Water User associations will be the same as for the watercourses.

ME&IE Consultants have submitted Survey Methodology and updated MTs/questionnaire for Baseline Survey Phase-II to NPC Office vide its letter No. NPIWC-II/ME&IE/NOISD/0222-0116, dated 28 February 2022, considering observations and comments given by FPMU vide letter No. F.1-3/2020-FPMU(M&E) dated 29th October 2021 on Baseline Survey Report Phase-I.

Sample Size

The overall appropriate sample size of various interventions in the project area was estimated earlier keeping in view the dispersion of interventions as well as financial and human resources. For this evaluation study, the best statistical techniques were used for estimating the appropriate sample size for each intervention and Province/unit as mentioned in the inception report. The sample size estimated for Punjab province was as under:

i)	Watercourses for Improvement	300 (3% of total target)
	a) Additional Watercourses	75
	b) Regular Watercourses	225
ii)	Water Storage Tanks	60 (2% of total project cost)
iii)	Laser Land Levelers	300 (3% of total project target)

The sample size units (subjects) determination was for the entire universe, to be completed over the period of 5 Years. (2019-2020 to 2023-2024)

It was proposed to conduct the baseline survey in 3 phases Phase – I was completed towards the end of June 2021. Phase – II is in progress, whereas Phase – III will be conducted later on. In each phase 1/3 sample size will be covered. The phase-II will spin around the target units up to 2020-21 of each intervention.

Sampling Techniques in Distribution of Sample

To draw a true, representative sample of various interventions following sampling techniques have been used.

- Stratified
- Purposive
- Cluster
- Multi - stage
- Randomized

Stratified Sampling

The Punjab zone could be stratified on the basis of source of irrigation and cropping patterns in a specific area*. Each stratum is being called a crop ecological zone. The crop ecological zones along with their location (districts) are shown below.

i)	Barani	Attock, Chakwal, Rawalpindi and Jhelum
ii)	Partial Barani	Mianwali and Bhakkar
iii)	Irrigated (Rice zone)	Gujranwala, Hafizabad, Gujrat, Narowal, Sialkot, Mandi Bahu Din. Lahore, Kasur, Nankana Sahib and Sheikhupura.
iv)	Irrigated (Mixed Zone)	Sahiwal, Okara, Pakpattan, Faisalabad, Jhang, Chiniot, Toba Tek Singh, Sargodha, and Khushab.
v)	Irrigated (Cotton zone)	Bahawalpur, Bahawalnagar, Rahim Yar Khan, Vehari, Lodhran, Khanewal, Multan D.G khan, Rajanpur, Muzaffargarh and Layyah.

Purposive Sampling

Out of 36 districts, 9 districts (about 25 percent) as a representative of a respective crop ecological zone considering homogeneity and purposiveness were sampled as under:

i)	Barani zone	Chakwal
ii)	Partial Barani zone	Bhakkar
iii)	Irrigated Rice – wheat	Hafizabad, and Sheikhupura
iv)	Irrigated Mix – Wheat	Faisalabad and Sargodha
v)	Irrigated cotton – Wheat	Bahawalnagar R.Y Khan and D.D Khan

*Source: *Farm Account, the Family Budget of rural families, and Cost of Production of Major Crops (2017 – 18), Punjab Economic Research Institute, Lahore*

The remaining districts other than sampled in phase – II, and already covered in Phase – I baseline survey, will be given due weightage in Baseline Survey – III for enhancing the representation of the respective zones.

Cluster Sampling

Within each district sampled a cluster of 1-2 homogenous tehsils based on local conditions are identified with the consultation and coordination of OFWM, field teams.

Multi-Stage Sampling

First Stage Sampling

The choice of the cluster of tehsils in each district is the first stage sampling. The identification of the sampled sites of each intervention will be carried out with the cooperation of OFWM field staff at the tehsil level. Selection of tehsils is in process and will be finalized during the field survey.

Second Stage Sampling / Randomized Sampling

After the identifications of various intervention sites, second stage sampling of the respondents will be conducted randomly.

Water Course Users / Beneficiaries

About 15 – 20 % of beneficiaries / users are randomly drawn out of the list of beneficiaries of water course for further study on the baseline / impact of the project. Selection is made as 1/3 at the head, 1/3 at the middle, and 1/3 at the tail (approximately six users, 2 at each location). The number may vary with the variation of the beneficiaries/user of water of the respective watercourses.

Due consideration is given to the farm size. However female and tenant beneficiaries (if Any) are

preferably included in the list of respondents to highlight their representations.

Water Storage Tank Users / Beneficiaries

There is generally one beneficiary/ user of a water storage tank i.e., owner He / She becomes the respondent.

Laser Land Leveler Users / Beneficiaries

Besides the service provider of the laser land leveler there are many beneficiaries/ users of this service. With the consultation of respective service users one beneficiary / user will be selected as a respondent for collecting the relevant data / information.

Summary of sample size for Baseline Survey-II

In each sampled district/ ecological zone total sample size for each intervention in phase-II survey are shown in **Table 4.1 below**, whereas details regarding target, technical sanction and intervention completed are shown in **Annexure-F** for additional water courses, **Annexure-G** regular water courses, **Annexure-H** water storage tanks, and **Annexure-I** Laser Land Levelers respectively.

Table 4.1: Sample Size – Baseline Survey Phase – II *

Sr. No.	Cropping Zone	Sample District	Water Course for Improvement **		Water Storage Tank		Laser Land Leveler
			Sample Baseline Stage 2 As per the Inception Report	Sample Regular Monitoring Completed WSTs (20 %)	Sample Baseline Stage 2 As per the Inception Report	Sample Regular Monitoring Completed WSTs (20 %)	Sample Baseline Stage 2 As per the Inception Report
1	BARANI	Chakwal	-	-	7	6	-
Sub Total					7	6	-
2	PARTIAL BARANI	Bhakkar	11	09	04	04	23
Sub Total			11	09	04	04	23
3	IRRIGATED (RICE ZONE)	Sheikhupura	13	09	01	01	26
		Hafizabad	12	09	02	01	21
Sub Total			25	18	03	02	47
4	IRRIGATED (MIXED ZONE)	Faisalabad	10	12	05	04	29
		Sargodha	19	13	05	04	28
Sub Total			29	25	10	08	57
5	IRRIGATED (COTTON ZONE)	B. Nagar	40	35	05	04	32
		R.Y. Khan	61	38	06	05	32
		D.G. Khan	14	9	05	04	09
Sub Total			115	82	16	13	79
Grand Total			180	136	40	33	200
No of Beneficiaries / Respondents per unit of an intervention			6		1		1
Total Beneficiaries / Respondents			1080		40		200

* Details regarding target technical sanction /booking and estimated sample size are shown in respective annexures 1.1 additional watercourses, 1.2 regular watercourses, 1.3 water storage tank, 1.4 laser land levelers.
** Watercourses for improvements are about 25% regular and 75% additional.

4.2.2.2 Field Visit and Data Collection by Zonal Team Office Punjab

During the period under review, following sites were visited.

a) Field Visit on February 21, 2022

Field Team composition for the visit on Feb 21, 2022 was as under:

i)	Awais Jahngeer	Field Team Incharge Team 1
ii)	Muhammad Zubair	Field Team Incharge Team 3
iii)	Shahid Khalil Rana	Field Team Engineer Team 1

i) Basic Profile of Watercourse Monitored / Visited

Date of Visit	Feb 21, 2022	
Watercourse No	12648/R	
Type of Watercourse	Additional Lining	
Chak No/Village	97-GB	
District and Tehsil	Faisalabad / Jaranwala	
Name of Distributary	Pawalian	
Type of Moga	Open Flume	
Measured Discharge Before Improvement	**Head**	145 LPS (Liter per Second)
	Middle	70 LPS
	Tail	50 LPS
Sanctioned Discharge	52 LPS	
Tube well Discharge (if any)	20 LPS	
Designed Discharge	165 LPS	
Gross Command Area	641 Acres	
Culturable Command area	612 Acres	
Total No of water users	39	
Estimated lining Length	2411 meter	
Additional Lining	First lining was made in 1992-93. The old watercourse flow was insufficient.	

Figure 4.15: Site Visit at 12648 R Under Construction Watercourse along with Supervisor and Beneficiaries

Beneficiaries Interviewed at the Spot

Date	WC No.	Name	Location on WC	Area/Acres				Status
				Owned	Rented In	Rented Out	Operated Area	
21-02-2022	12648	Shahid Farooq	Head	33	17	-	50	ICR-II
		Sayed Ghulam Muhammad Shah	Tail	4	-	-	4	
		Hafiz Muhammad Sajjad	Middle	2.5	0	-	2.5	
		Muhammad Aslam	Middle	6	10	-	16	

Observations:

Major Crops	Wheat, sugarcane, rice
Area under Salinity	About 10-15% of the main land was affected mainly due to shortage of ground water. Unfit for irrigation.
Satisfaction of Farmers	Farmers are satisfied with the working of OFWM.
Farmers Concern	Farmers are concerned about the proper repair and maintenance of the old watercourse portion.

ii) Basic Profile of Water Storage Tank Monitored / Visited

WST Owner:	**Aftab Iftekhar**
Name of village:	100 GB
Union council:	100/GB
Tehsil & District:	Jarawala / Faisalabad
Source of irrigation:	Canal + Tube well
Shape of water storage tank:	Trapezoidal + Geomembrane
Size of water storage tank:	24.5m x 25.0m
Depth of WST:	5 ft
Command area of water storage tank:	8.00 acres
No of beneficiaries:	1

Figure 4.16: View of WST

Figure 4.17: ME&IE Team Interviewing Owner of WST for Data Collection

Beneficiaries interviewed at the Spot

Date	Name	Area/Acres				Status	Remarks
		Owned	Rented In	Rented Out	Owned		
21-02-2022	Aftab Iftikhar	8	-	-	8	FCR	

Observations:

Owner / Beneficiary was satisfied with the overall progress of the construction of WST and the support from OFWM department.

b) Field Visit on February 22, 2022

Field visited on February 22,2022 is as under:

i)	Muhammad Rizwan Suleman	Field Team Incharge Team 2
ii)	Muhammad Bilal Sohail	Field Team Engineer Team 2
iii)	Noman Rasheed	Field Team Engineer Team 2
iv)	Muhammad Misbah ur Rehman	Field Team Engineer Team 3

i) (A) Basic Profile of Watercourse Monitored / Visited

Date of the Visit	Feb 22, 2022	
Watercourse No	6730-L	
Type of Watercourse	Additional Lining	
Chak No/Village	Marh Bashi	
District and Tehsil	Hafizabad / Hafizabad	
Name of Distributary	Dherankay	
Type of Moga	A.O.S.M (Adjustable Orifice Semi-Module)	
Measured Discharge Before Improvement	**Head**	50 LPS
	Middle	39 LPS
	Tail	27 LPS
Sanctioned Discharge	47 LPS	
Tube well Discharge (if any)	23 LPS	
Designed Discharge	70 LPS	
Gross Command Area	322 Acres	
Culturable Command area	309 Acres	
Total No of water users	10	
Estimated lining Length	702 meters	

Reduction in Water Theft / Litigation	It was about 15/20%
Salinity / Water logging	It was about 5-10%
Main source of irrigation	Non-Perennial Canal + Tube well
Quality of Ground Water	Fit for Irrigation

Figure 4.18: Site Visit to Watercourse

Figure 4.19: ME&IE Team Interviewing Beneficiaries of Watercourse for data Collection

Beneficiaries Interviewed at the Spot

Date	WC No.	Name	Address	Location on WC	Area/Acres				Status
					Owned	Rented In	Rented Out	Operated Area	
22-02-2022	6370-L	Badar Alam	Marh Bashi District and Tehsil Hafizabad	Head	22	-	-	20	FCR
		Muhammad Zaman		Tail	45	-	-	45	
		Daud Hassan		Middle	27	10	-	37	
		Muhammad Afzal		Middle	48	5	-	53	

Observations:

1. Major crops sown were wheat and rice.
2. Reduction of water losses is about 5-10%.
3. Time consumed to irrigate one acre of land has been reduced approximately 50%.
4. Choking of the water courses has been reduced.
5. Increase in land rent by 10%.
6. All farmers were satisfied with OFWM performance. Particularly farmers at the tail of the watercourse.

ii) Basic Profile of Water Storage Tank

WST Owner:	Muhammad Afzal
Name of village:	Marh Bashi
Union council:	25
Tehsil & District:	Hafizabad / Hafizabad
Source of irrigation:	Canal + Tube well
Shape of water storage tank:	Trapezoidal
Size of water storage tank:	42.66m x21.94m
Depth of WST:	5 ft
Quality of Geo membrane	Not good
Maintenance of WST	Not properly maintained
Uses of WST	For drainage and fish farming purposes.
Source of WST	Canal + Tube well +Rainfall (Being low
	among the other fields)
Command area of water storage tank:	12.5 acres
No of beneficiaries:	1

Figure 4.20: ME&IE Team Measuring the Dimensions of Watercourse

Beneficiaries Interviewed at the Spot

Date	Name	Area/Acres				Status
		Owned	Rented In	Rented Out	Owned	
22-02-2022	Muhammad Afzal	Barh Bashi District and Tehsil Hafizabad	-	-	12.5	FCR

Observations:

Trees in WST	The trees in the process of construction of WST were sold to compensate for the construction cost of the beneficiary.
Location of WST	The location of the land where WST was constructed was of very low-quality including mixture of gravels in the soil and it was very shallow.

4.2.3 Regular Monitoring / Field Visits by Zonal Office KP

ME&IE consultants of KP Zone reviewed the Monitoring tools as per direction of the Team Leader and give their comments / observation as per experience gained during the first phase of Baseline Survey. Zonal team of KP collected data from the Director General OFWM KP office for the Dashboard. Teams conducted meetings with District Director DR. Rab Nawaz during the process of data collection.

Data of all completed schemes of Watercourses and Water Storage Tanks for the year "2019-20, 2020-21 and 2021-22" were collected by reviewing the hard copies of data files provided by district Directors of OFWM KP for "Online Dashboard". ME&IE Teams remained engaged in collection of data which was further uploaded to the computer system in close coordination with Mr. Rizwan Saleem, Incharge ICT Team.

Overall data for 1739 completed water courses and 572 water storage tanks was collected till the reporting period and has been transferred to computers systems.

Detail of the data collection of 33 districts of KP for Dashboard is given in Annex D.

4.2.4 Regular Monitoring / Field Visits by Zonal Office Balochistan

The ME&IE Consultants, Balochistan conducted several activities during the reporting month i.e., February 2022. The Balochistan team accomplished the different assignments and submitted all deliverables timely. The activities done by the Balochistan team are listed below:

- Pre-Testing of refined MTs made for Baseline Survey Phase-II and Regular Monitoring.
- Success Story
- Data Collection for MIS-Dashboard
- Meetings with OFWM officials and other stakeholders.
- Baseline Survey Phase-II, (Planning and Schedule).

4.2.3.1 Pre-Testing of Improved MTs for Baseline Survey, Phase-II and Regular Monitoring.

The ME&IE Consultants, National Office conducted several meetings/workshops to discuss the refined MTs made for Baseline Phase-II and Regular Monitoring in the month of February 2022. All Core Team Members, Deputy Team Leaders / Provincial head participated with their field staff and gave their valuable feedback as per agriculture patterns being practiced in their provinces. The DTL Balochistan held 02 days' pre-testing in their zones. All M&E Experts/FTIs give their suggestions to improve the MTs in light of previous experiences. The forum also highlighted the bottlenecks which were faced during the first baseline survey and emphasized to be addressed in Baseline Survey Phase II. All MTs have been revised/refined by the National Office in light of suggestions / comments received from all provinces.

Team Members attended the Pre-testing of refined MTs

The following team members were participated the Pre-Testing of MTs:

i) Mr. Rizwan Ahmed, DTL
ii) Mr. Manzoor Kasi, M&E Expert
iii) Mr. Tariq Khoso, M&E Expert/FTI
iv) Mr. Naseeb Jan, M&E Expert/FTI
v) Mr. Saleem Abro, M&E Expert
vi) Mr. Hamza Qureshi, M&E Officer
vii) Ms. Mahgul Baloch, M&E Officer

Figure 4.21: ME&IE Team in Group Discussion on Improved MTs for Bassline Survey Phase-II

Figure 4.22: Exercise on Improved MTs with field team members with Naseerabad and Zhob Field Teams

4.2.3.2 Baseline Survey Phase-II

A baseline study measures the situation at the beginning of the project. This can then be compared to the situation after the end of the intervention, to establish what change has occurred. The impacts after completion of any intervention can be evaluated through Baseline Surveys.

Pre testing was done through site visits in all of the Zones. Questionnaires / Monitoring tools are refined under the observations perceived during the Pre - testing of the Questionnaires.

The first Baseline Survey was conducted in the month of July 2021. The Balochistan field teams focused on the targets of F.Y. 2020-21 in the first Baseline Survey. As per list given by OFWM, total targets of Watercourses were 141 and Water Storage Tanks were 603. The Balochistan Field Teams selected 09 districts out of 33 (27%) in the first baseline survey. During the first baseline survey 04 districts i.e., Killa Abdullah, Loralai, Killa Saifullah and Pishin selected from the North Zone and 04 districts selected from the south zone i.e., Naseerabad, Sohbatpur, Mastung and Kalat. The Quetta district was additionally considered as Head Quarter.

Baseline was to be conducted on 2% to 5% sample, watercourses and water storage tanks. The total targets of watercourses were less as compared to

water storage tanks due to this reason the size of watercourses was enhanced up to 11% to get authenticity and proper benchmark data. The sample size for the water storage tank was 4%.

The Balochistan team has planned to start Baseline Survey Phase-II from 2nd week of March 2022. In this context the DTL and other Field Team In-charges of ME&IE Consultants are in contact with OFWM staff.

Now, the Balochistan team is focusing on the works of F.Y. 2021-22 for Baseline Survey Phase-II, where TS has been issued and work is under progress, so that initial data of the site could be obtained at ground level. However, if work has been completed on visited site, then ME&IE Consultants will take the two types data i.e., Baseline data and Regular Monitoring data. The ME&IE Consultants will also cover the schemes of previous years in Baseline Survey Phase-II as per sample size / sample frame work.

As per given data by OFWM of FY - 2021-22, the Balochistan teams are drawing the sample size / sample framework for Baseline Survey Phase-II.

The district wise targets, physical and financial status is given in **Annex-J**:

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

4.3.1 Meetings of ME&IE Consultants –ICT Zone

4.3.1.1 Meeting with Director Agriculture Extension Services ICT

Date:	February 18 2022
Venue	ME&IE Consultants' National Office Islamabad
Participants	
i) Mr. Waqar Anwar, Director Agriculture Extension ICT ii) Dr. Usman Mustafa, Team Leader ME&IE Consultants iii) Dr. Umar Farooq, Deputy Team Leader, ME&IE Consultants iv) Mr. Muhammad Bilal, Field Team Incharge ICT Zone v) Mr. Shumail Mahmood, ICT Expert	
Meeting Agenda:	
Discussion of Project activities in ICT Zone, and Coordination for Data Collection in the Field.	

Discussion / Decisions

Team Leader ME&IE Consultants welcomed Mr. Waqar Anwar in the Consultants National Office Islamabad and thanked him for visiting consultants' office. Following discussions were held in the meeting.

- Team Leader ME&IE Consultants, Dr. Usman briefed project related of the ME&IE Consultants in ICT Zone.
- Team Leader requested Mr. Waqar Anwar to make available his staff to assist ME&IE field teams during field visits and data collection.
- Team Leader shared a case study of an intervention under the project NPIWC-II in the ICT Zone.
- Director Agri. Extension Mr. Waqar Anwar appreciated the Case Study flyer prepared by the ME&IE Consultants and also gave valuable input in the Case Study.

Figure 4.23: Team Leader ME&IEC Dr. Usman Mustafa in Meeting with D. Agri. Ext. ICT, Mr. Waqar Anwar

Figure 4.24: Team Leader, DTL, FTI, & ICT Expert ME&IE Consultants in Meeting with D. Agri. ICT

4.3.2 Meetings of ME&IE Consultants – Punjab Zone

The following meetings were held with the stakeholders / clients (OFWM) in the Punjab zone.

4.3.2.1 Meeting at DGA (OFWM) Office Lahore held on February 10,2022

Date:	February 10, 2022
Venue	Director-General Agriculture (OFWM) Punjab Zonal Office, Davis Road, Lahore
Participants	
vi) Malik Muhammad Akram, Director General Agriculture (OFWM) vii) Hafiz Qaisar Yasin, Director H.Q D. G office viii) Mr. Asif Iqbal Watto, Deputy Project Director (NPIWC– II) ix) Mr. Muhammad Rafi, System Analyst (D.G Office) x) Mr. Muqadus Badar, Computer Operator, DGA (OFWM) office	
xi) Mr. Muhammad Tariq Khan, Deputy Team Leader NWM Consultants xii) Mr. Muhammad Yousaf Bhatti, Deputy Team Leader, ME&IE Consultants xiii) Mr. Rizwan Saleem, ICT Specialist, ME&IE Consultants xiv) Mr. Irfan Aziz, Technical Staff ME&IE Consultants	
Meeting Agenda:	
Presentation on Dashboard Development and implementation by the ME&IE, Consultants	
Discussion / Decisions • Presentation given by Mr. Rizwan Saleem ICT specialist (ME&IE Consultants) on Dashboard development and implementation. DGA (OFWM) appreciated the Dashboard's application & development. • The Validated data by NWM Consultants as required by ME&IE consultants will be available through DGA (OFWM) office • A proper mechanism for the data collection will be developed by the ME&IE consultants in consultation with the NWM Consultants and the Client (OFWM). • At least a fortnightly meeting should be held between ME&IE consultants and (OFWM) department to keep close coordination and collaboration between the consultant and the client • A letter will be issued by the DGA (OFWM) office to their field offices for cooperation and provision of the basic data as required by the ME&IE consultants during their field visit • Director H.Q, pointed out some minor issues to be covered by the ME&IE consultants. The consultants accepted and showed commitment to make it as a part of their field activities. • The meeting ended with the vote of thanks to the chair.	

Figure 4.25: View of Meeting with DGA (OFWM) on Dashboard Presentation

4.3.2.2 Meeting with ADA OFWM Jaranwala on Feb 21,2022

Date:	Feb 21, 2022
Venue:	Office of the Assistant Director (OFWM) Office Tehsil Jaranwala.

Participants:

i) Maqsood Alam, Assistant Director Agri (OFWM) Jaranwala
ii) Muhammad Ehsan Water Management Supervisor (Agri) OFWM Jaranwala
iii) Awais Jahangeer Field Team In-charge, ME&IE Expert/ Socio Expert-1
iv) Muhammad Zubair Field Team In-charge, ME&IE Expert/ Socio Expert-3
v) Shahid Khalil Rana Field Engineer Technician/ME&IE Officers/Socio Officer-1

Meeting Agenda:

i) Briefing on ME & IE Consultants activities regarding Baseline Survey/Monitoring by Field Team In-charge.
ii) Basic data Collection from ADA Office and field visit.

Figure 4.26: Meeting of ME & IE Consultant with Assistant Director Agriculture (OFWM) Hafizabad.

4.3.2.3 Meeting with DDA and ADA OFWM Faisalabad on Feb 22, 2022

Date:	Feb 22, 2022
Venue:	Deputy Director (OFWM) Office District Faisal Abad

Participants:

i) Muhammad Asim Rafique, Deputy Director Agriculture (DDA) Faisalabad
ii) Abuzar Saleem, Assistant Director Agriculture (ADA) Faisalabad
iii) Awais Jahangeer, Field Team In-charge, ME&IE Expert/ Socio Expert-1

Meeting Agenda:

Briefing regarding the basic data collection of District Faisalabad and discussion on upcoming field visits.

Figure 4.27: Meeting with Deputy Director Agriculture (DDA) Faisalabad Muhammad Asim Rafique and ADA Tehsil Faisalabad Abuzar Saleem Randhawa

4.3.2.4 Meeting with DDA Hafizabad on Feb 22, 2022

Date:	Feb 22, 2022
Venue:	Deputy Director (OFWM) Office District Hafizabad.

Participants:

i) Waheed-uz-Zaman**,** Deputy Director Agriculture (OFWM), District Hafizabad.
ii) Mr. Muhammad Rizwan Suleman, Field Team In-charge (Sub Zone -2) ME&IE Consultants Lahore.
iii) Mr. Muhammad Bilal Sohail, Field Team Engineer (Sub Zone -2) ME&IE Consultants Lahore.
iv) Nauman Rasheed, Field Team Engineer ME&IE Consultants Lahore.
v) Misbah-ur-Rehman, Field Team Engineer ME&IE Consultants Lahore.

Meeting Agenda:

i) Briefing on ME & IE Consultants activities by Field Team In-charge.

ii) Review of the other OFWM activities performed by Deputy Director OFWM, Hafizabad and discussed future activities of the department and other relevant issues.
iii) The Deputy Director informed that improvement of water course activities in Hafizabad particularly rice area, are on peak in between the period "after the harvesting of rice and sowing of wheat". He advised that for the purpose of measurement of water flow in water courses ME&IE consultants should consider the schedule of closure of canals.
iv) The Deputy Director from OFWM Department and Field Team In-charge from ME&IE consultants assured each other full cooperation in future for smooth working of the field activities.

Figure 4.28: Meeting of ME & IE Consultant with Waheed-uz-zaman Deputy Director OFWM Hafizabad

4.3.2.5 Meeting with ADA Hafizabad on Feb 22, 2022

Date:	Feb 22, 2022
Venue:	Assistant Director (OFWM) Office District & Tehsil Hafizabad.
Participants:	
i) Zafar Iqbal, Assistant Director Agriculture (OFWM), District & Tehsil Hafizabad. ii) Mr. Muhammad Rizwan Suleman, Field Team In-charge (Sub Zone -2) ME&IE Consultants Lahore. iii) Mr. Muhammad Bilal Sohail, Field Team Engineer (Sub Zone -2) ME&IE Consultants Lahore. iv) Nauman Rasheed, Field Team Engineer ME&IE Consultants Lahore. v) Misbah-ur-Rehman, Field Team Engineer ME&IE Consultants Lahore.	
Meeting Agenda:	
i) Briefing on ME & IE Consultants activities regarding Baseline Survey/Monitoring by Field Team In-charge. ii) Other Issues faced by the department. iii) Basic data Collection from ADA Office.	

Figure 4.29: Meeting of ME & IE Consultant with Zafar Iqbal Assistant Director Agriculture (OFWM) Hafizabad.

4.3.3 Meetings of ME&IE Consultants – KP Zone

4.3.3.1 Meeting in the office of DG OFWM Peshawar

Date	February 20, 2022
Venue	Office of the Director General On Farm Water Management, Peshawar
Participants	
i) Mr. Kifayat Zaman, Fed. DG OFWM, Islamabad ii) Naseebur-ur-Rehman Khattak, Director OFWM KP iii) Dr. Saiful Islam, Deputy Project Coordinator, Islamabad iv) Dr. Humayun Khan, Deputy Team Leader (G3 Consultants) v) Engg Ilyas, DTL NESPAK, TPV consultants-NPIWC-II vi) Muhammad Afzal, Director PMU, Peshawar vii) Abdul Wajid, WMO, OFWM Dept Peshawar viii) Qazi Shefa, Asstt Director Planning, OFWM Department KP ix) Ali Raza Naqvi, I A, FWMC Islamabad x) Fawad Ahmad, ICT/Technology Specialist (G3 Consultants)	
Meeting Title	Discussion/presentation on the progress of ME/IE Consultants KP Zone
Agenda of the Meeting/Points Discussed	
Meeting was chaired by Mr. Kifayat Zaman, Fed. DG OFWM, Islamabad. The meeting was started with the greeting note by Director H Q, Mr. Naseeb ur	

Rehman. He welcomed all the participants of the meeting.

Mr. Kifayat Zaman Fed. DG OFWM Islamabad enquired about the progress made so for by the OFWM Department, ME/IE Consultants G-3, and NES PAK Consultants regarding WCs and WSTs Schemes completed under NPIWC-II.

Following discussions held at the meeting.

- Director H Q, Mr. Naseeb ur Rehman made presentation on the schemes (WCs and WSTs) of 2019-2020, 2020-2021 and 2021-22 (Physical and Financial).
- Dr. Humayun Khan DTL KP Zone presented the progress achieved so for by the M&E consultants. The focus was confined to the data collected for the Dash Board till date.
- Engr. Ilyas presented the progress made by the NES PAK consultants regarding their activities of NPIWC-II.

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

Figure 4.30: Meeting of the DTL KP Zone with Mr. Kifat Zaman, DG Fed ONWM cell Islamabad, Dr. Saiful Islam Dy. Project Coordinator, Islamabad and Director HQ OFWM Peshawar

4.3.4 Meetings of ME&IE Consultants – Balochistan Zone

4.3.4.1 Meeting with DG OFWM Rani Bagh Quetta

Date	07th February 2022
Venue	Director General, OFWM, Agriculture Office, Rani Bagh, Quetta
Participants	
i) Mr. Ali Raza Jamali, Director General, OFWM, Agriculture Department, GoB, Quetta. ii) Mr. Wali Muhammad, Deputy Director, Technical, OFWM, GoB, Quetta iii) Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan, Quetta.	
Meeting Agenda/Points discussed:	
i) A Meeting held with DG, OFWM, Balochistan regarding data collection of F.Y. 2019-20 and F.Y. 2020-21 for MIS, Database, Dashboard, Balochistan. ii) The DTL also requested the DG, OFWM, Balochistan to provide beneficiaries list of F.Y. 2021-22, so that ME&IE Consultants would be able to plan Baseline Survey Phase-II iii) The DG, OFWM, Balochistan took immediate action and asked the Deputy Director, Technical to do the needful.	

4.3.4.2 Meeting with DG OFWM Rani Bagh Quetta

Date	11th February 2022
Venue	Director General, OFWM, Agriculture Office, Rani Bagh, Quetta
Participants	
I. Mr. Wali Muhammad, Deputy Director, Technical, OFWM, GoB, Quetta II. Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan, Quetta.	
Meeting Agenda/Points discussed:	
iv) A meeting held with Mr. Wali Muhammad, Deputy Director (Technical), OFWM, Balochistan regarding data collection for Dashboard, Balochistan. v) DG office shared updated progress of F.Y. 2021-22 which is focused for Baseline Phase-II vi) It was decided in the meeting that DTL, Balochistan will be added in the official WhatsApp group of National Program,	

OFWM, Balochistan for smooth working and timely response / information at the DDs, district level.

Figure 4.31: Meeting with Mr. Wali Muhammad, DD, Technical, OFWM, Quetta.

4.3.4.3 Meeting with DDA, OFWM Jaffarabad

Date	25th February 2022
Venue	Office of the DDA, OFWM Jaffarabad
Participants	
i) Mr. Lateef Qaisrani, Deputy Director, OFWM, Jaffarabad. ii) Mr. Tariq Khoso, M&E Expert/FTI, ME&IE Consultants, Naseerabad Zone.	
Meeting Agenda/Points discussed:	
i) A meeting was held with DDA, OFWM, Jaffarabad to discuss the Beneficiaries list (F.Y 2021-22) for sampling and site selection, Baseline Survey Phase-II. ii) The DD ensured to	
	
	
Figure 4.32: Meeting with DDA, OFWM, Jaffarabad and his staff at District Jaffarabad.	

4.4 INTERNAL MEETINGS OF ME&IE CONSULTANTS

Date	07th February 2022
Venue	Zoom Meeting
Participants	
i) Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan, Quetta. ii) Mr. Rizwan Saleem, ICT / Technology Specialist, HO, Islamabad iii) Mr. Shumail, Data Analyst, HO, Islamabad	
Meeting Agenda/Points discussed:	
i) A zoom meeting was held regarding missing data required for Dashboard, Balochistan. ii) The DTL, Balochistan and ICT/Technology Specialist discussed the format made for data collection in detail. The irrelevant information which is not being practiced in Balochistan. iii) The DTL, Balochistan shared the bottleneck regarding data collection. The ICT Technology Specialist informed DTL, Balochistan that the ICT team is ready to initiate the Dashboard activity for Balochistan and training for OFWM Staff, just waiting for the required data from the OFWM Department.	

Date	17th February 2022
Venue	Zoom Meeting hosted in ICT Zonal Office
Participants	
i) Dr. Usman Mustafa, Team Leader, ME&IE Consultants, National Office, Islamabad. ii) Dr. Muhammad Abdul Quddus, Agriculture Economist, Lahore Office. iii) Dr. Umar Farooq, Deputy Team Leader, ME&IE Consultants, Islamabad. iv) Dr. Humayun, Deputy Team Leader, ME&IE Consultants, KPK. v) Mr. Yousaf Bhatti, Deputy Team Leader, ME&IE Consultants, Punjab. vi) Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan. vii) Mr. Rizwan Saleem, ICT / Technology Specialist, HO, Islamabad viii) Field Staff of all provinces	
Participants	
i) A zoom meeting was held among all provinces to discuss the refined MTs made for Baseline Survey Phase-II and Regular Monitoring	

ii) All DTL give their feedback from the province's perspective.
iii) The field staff also shared their previous field experiences and gave their feedback for further improvements in MTs.
iv) The Team Leader and Deputy Team Leader, Islamabad shared the methodology and sampling techniques with all members.

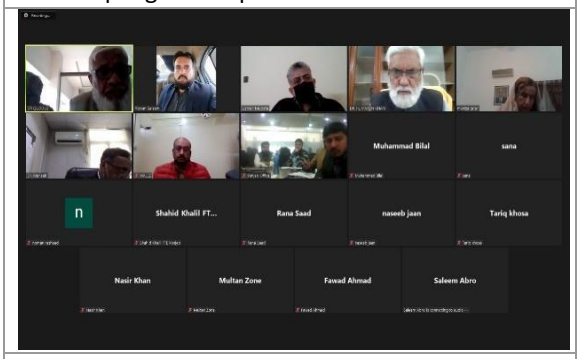


Figure 4.33: ME&IE Consultants & core Team in Zoom Meeting Lead by Team Leader

4.1 ICT ASSIGNMENT

ICT Team remained engaged in different activities related to the ME&IE assignment including development of Android based application, data collection for Dashboard and training of client staff on Dashboard / MIS for the project. ICT Specialist also conducted with Technical Staff of DG OFWM Punjab. ICT Expert also conducted training meetings in Water Management office Islamabad.

4.1.1 Development of Customized Android Based Applications

The ICT Technology Team of ME&IE Consultants NPIWC-II has developed Customized Android Based Applications for data collection. Data entry in this application is done directly by the field monitoring teams of all the zonal offices and is uploaded in the MIS system. The data is being observed and monitored by the ICT team of ME&IE Consultants.

In this regard, customized Android Based Applications have been developed, tested, and installed to Small Dams and Irrigation staff of AJK and Water Management Staff of ICT zone. Except for installation the development and testing phases has been completed in KP zone as well.

4.1.2 Data collection of interventions in MIS/GIS database

The activity regarding data collection of Interventions in MIS/GIS database was completed in KP Zone in December 2021. Following activities have been carried out in this regard during the reporting month.

- Data cleaning and validation has been completed. Missing data has been communicated to concerned DDs of OFWM department. The ICT representative in KP zone is in touch with said DDs for acquiring missing data. This process is expected to complete in the 3rd week of February 2022.
- The data collection for the dashboard is in progress in Balochistan. The ICT team is facing problems in data collection because a lot of data is missing which was required by the ICT team for Implementation of MIS Dashboard.
- The ICT team of the National Office Islamabad under the supervision of ICT Technology Specialist is planned to visit the Balochistan zone to conduct meetings with department officials to resolve the issues and fill the gaps.
- Meeting has been conducted with Technical Team of OFWM department Punjab chaired by the system analyst OFWM department Punjab (Annex-1). During the meeting ICT Technology Specialist has briefed them on development of Monitoring Tools, Implementation methodology, Development of customized Android based Application, Development, and Implementation of MIS Dashboard of Dashboard. Later, MIS Dashboard and customized Android based application has been demonstrated to the Technical Team.
- The Technical Team showed their satisfaction on the briefing given by ICT Technology Specialist of ME&IE Consultants and showed intention to cooperate in the future.

4.1.3 Implementation of MIS Dashboard

The Dashboard has been implemented in AJK, and the progress of Interventions is live on the Dashboard application since the 4th of November 2021.

In AJK, ICT team led by ICT Specialist held meeting during the reporting month with PD NPWIC-II AJK Unit regarding the progress on data submission on MIS Dashboard. ICT team presented the three months review report having a great deficiencies in

data submissions. During this meeting ICT team of ME&IE agreed with PD NPIWC-II AJK Unit that ICT team will submit a fortnightly progress report, PD NPIWC-II AJK Unit nominated Deputy Directors of all divisions as the MIS Dashboard focal persons and issued a letter along with progress deficiencies.

ICT team held meeting with all three Assistant Directors of Muzaffarabad division and showed discrepancies and deficiencies in their submitted data and spent three days over there in Muzaffarabad division for the sake of data correction. In the continuation of data correction, ICT team paid 2 days visit at Poonch division, where meet with Deputy Director, all Assistant Directors, Water Management officers and Field Engineers. During this visit ICT team lead toward the correction and fulfillment of data deficiencies.

ICT team is planning to visit Mirpur division in the 3rd week of March for data correction.

The ICT team is continuously in process of cleaning and validating the received data and communicating mistakes to the concerned ADs for correction. Implementation phase of MIS Dashboard in ICT and KP Zones is progressing positively towards completion.

4.1.4 Training and Capacity Building

A training workshop was held in ICT zone on 14 January 2022 in Agriculture Complex Islamabad (Figures 4.31 & 4.32). The nominated staff by the department has been trained on use of customized Android Based Data Collection Application. MIS Dashboard presentation is planned in the second week of February 2022.

Figure 4.34: ME&IE ICT Expert Giving Training to Staff of Islamabad Water Management Staff

Figure 4.35: ME&IE ICT Expert Giving Training to Staff of Islamabad Water Management Staff

The implementation phase of MIS Dashboard in KP Zone was initiated during last year. The ICT team has completed the digitization of all components data of KP Zone. After consultation with DPC FPMU & DG OFWM KP, capacity building of district teams has been planned during the first and second week of March 2022. Three training sessions are planned while distributing all districts respectively.

4.2 MONITORING / DATA COLLECTION ON SOCIAL AND GENDER COMPONENT

Gender and social analysis is critical in completing preferred development outcomes of increased production, improved outcomes for poverty alleviation, increased well-being for all, and a fairer distribution of burdens and benefits in agriculture among women and men.

In developing countries, men and women make up 43 percent of the agricultural labor force. Many of them are smallholder farmers, and from paid employment to trade and marketing, women participate in all aspects of rural life. They raise crops and animals, collect water and wood for fuel, and care for family member.

In NPICW-II now impact studies are showing increase in income which is assisting GOP to achieve the targets and now teams in fields are also going to gather field observations to further improve the project components which will help to pen down recommendations for: -

i) Making changes in policy mandates.
ii) Having senior management and leadership support and involvement.
iii) Implementing gender-explicit evaluation and monitoring mechanism.
iv) Having sufficient professional staff with gender expertise.

4.3 Case Study of Intervention in Punjab

Conversion of Wasteland into Water Storage Tank for Commercial Purposes

A farmer named Muhammad Afzal had a piece of land of 12.5 acres in tehsil and district Hafizabad. His farm land was uneven and having waterlogged area in mid of his farm, being shallow. Generally, rainfall reaches there during rainy seasons and crops sown were badly damaged to the excessive water supply. On the other hand, a part of area was unable to get water supply due to shortage of water sometimes.

On the advice of OFWM department he constructed a water storage tank in this shallow land, ultimately to reduce water logging and saving water for hard times. No doubt he has to spent extra money on pumping of water for the tank to other corps. In addition to rainy water flow, he used canal water as well as tube well water for storage purposes.

Figure 4.36: View of WST

Figure 4.37: ME&IE Field Team INTERVIEWING Owner of WST for gathering information / data

This has resulted in reduction of water logging, increase in crop yields. He has also started fish farming now a day in water tank. He also intends to use some chemical to mitigate the salinity effects of saline water. The commercial activity is still at initial stages and will yield good results naturally.

The impact of intervention is highlighted as under:

Without Tank	With Tank Intervention
• Trees from the land about 20-25 were cut.	• Trees sold price was compensated in construction of WST.
• Water logging in this area due to poor drainage.	• Water Logging reduced significantly having proper drainage.
• Excessive rainwater standing in cropped area, resulted in poor yields.	• Excessive rainwater drained out, resulted in good yield of crops.
• No water availability during shortage of water.	• Availability from WST through pumpage.

The benefits are not quantifiable yet, as commercialization of WST is at initial stage. Naturally these are expected to be significant.

4.4 Case Study of Intervention in Balochistan

Success Story on immense impact of Watercourse at village Archar Khan, District Jaffarabad, Division Naseerabad.

The water shortage issue and the need for effective water management is a quagmire situation and it needs to be addressed on a war footing basis in Pakistan.

It has been a momentous challenge since the creation of the country as fresh water resources have drastically dwindled during the last decade and continue at an alarming rate. It is becoming evident that application of efficient water management techniques i.e., Pakka Watercourses, Construction of Water Storage Tanks, etc., are the need of the hour as more than 90 percent water is being used for irrigation.

A watercourse is a community channel used for sharing water among shareholders through a weekly rotation system called “warabandi”. Community watercourses are connected to farmers’ fields through a complex system of channels and ditches. Water losses in watercourses are estimated

at 40 percent, mainly through spillage, seepage, side leakage, evaporation etc. which result in significant shortage of irrigation water at the farm level, particularly in tail reaches that compel the farmers to use groundwater for irrigation purpose.

As a matter of fact, the groundwater is not fit for irrigating crops in most areas of Balochistan and causing degradation of productive/fertile soils. To minimize the water loss and improve the conveyance efficiency at the farm level, watercourse lining becomes the most feasible solution as it helps to improve conveyance efficiency up to 80 percent along with other benefits.

The OFWM wing of the Agriculture Department, Balochistan has initiated the NPIWC-II activities in 2019 and completed the targets of two financial years i.e., 2019-20 and 2020-21 successfully till to-date. The schemes of F.Y. 2021-22 are under progress. The staff of OFWM, Balochistan are working hard to complete all interventions under the supervision of the worthy Director General, OFWM, Balochistan in stipulated time period.

The improvement of watercourses is a community driven activity that is being undertaken through participatory approach with active involvement of Water Users Associations (WUAs), organized and registered on each watercourse. This community-based development model is helping the poor and small landholders to improve their living standards.

Figure 4.38: The members of WUAs and other Community Peoples Sharing their Point of View on benefits / impacts of Watercourse under NPIWC-II.

The community of village Archer khan, district Jaffarabad were facing huge water losses due to seepage, side leakage and spillage for a long time and experiencing acute water shortage at their farms as they were unable to use groundwater because of its extremely poor quality for irrigation.

In this scenario farmers of Archar Khan village were demanding Watercourse under NPIWC-II to address this issue. There were 7 shareholders and irrigating the command area of about 50 acres. The problem was aggravated due to heavy losses of water due to kacha watercourses. It was extremely difficult to irrigate all fields as per the need.

While searching for a solution, the community learnt about the government facility for watercourse improvement and approached the OFWM staff for rescue. The OFWM staff suggested the farmers construct a watercourse for smooth flow of water to all the fields in the entire command area.

The OFWM, Balochistan approved a Watercourse under F.Y. 2019-20 under National Program for Improvement of Watercourses in Pakistan, Phase-II in the name of Dost Ali as per their demand / need after feasibility of the scheme. Given the severity of the issue, the community availed the facility being provided by the Balochistan Government which has made their lives better.

"Before the improvement of watercourse, only two (2) acres out of twelve (12) acres were irrigated but now five (5) to six (6) acres are being irrigated easily with same warabandi time",

Figure 4.39: Mr. Dost Ali (Chairman WUA) and the Shareholders of the WC sharing benefits of improved watercourse. He added that "conflicts/disputes have also been reduced significantly".

Other members of the Water Users Association, shared excitedly that "*before improvement, majority of the farmers of this village used to irrigate their lands by lifting the canal water with kacha water course; they had to spend a lot of time irrigating their crops. now their input cost has been reduced and they are getting more net profit per acre*".

Figure 4.40: The M&E Team member taking interview / information from Famers and Shareholders

Mr. Dost Ali said that improved watercourse enabled us to irrigate about 50 % more land with the same quantity of water. It also helped us to save labor expenses as 10-15 workers were required for irrigation before improvement of the watercourse. Now one worker is enough for the purpose. He further shared that "another major benefit is better crops with canal water as groundwater is not fit for the growth of crops and causes lower yields. Before water- course improvement, the shareholders quit growing rice due to water shortage and the land of some farmers had become almost barren owing to shortage of water but now they have not only started to grow Rice, but their wheat and other crops' yield has also been doubled.

Work done by:

Mr. Tariq Khoso, M&E Expert / FTI
Mr. Saleem Abro, M&E Officer

CHAPTER 5: WORK PLAN-ACTIVITIES OF THE CURRENT QUARTER

The ME&IE Consultants' activities initiating during the first Quarter of year 2022 (January 1, 2022 to March 31, 2022) are listed below. A tentative Work Plan for 1st Quarter of the year 2022 (January 1, 2022 to March 31 2022) showing time span detail is given as **Annex-A.**

Pre Field Activities

i) Review and Update Monitoring Tools for 2nd Phase of Baseline Survey
ii) Preparation for Baseline Survey 2nd Phase field visit
iii) Training of Field Teams for 2nd Phase of Baseline Survey

Field Activities

iv) Data collection from OFWM Department /NWMC for Baseline survey/regular monitoring
v) Data acquisition from Client for Dashboard
vi) Data entry of Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System
vii) Training of Measurement of water Flow-Pygmy current meter
viii) Data entry, Data cleaning, Data processing & data Analysis
ix) Regular Monitoring

ICT Assignment

i) Development of Android based Mobile Application.
ii) Data collection of interventions in MIS/GIS database.
iii) Designing of dashboard of Project Interventions.
iv) Data cleaning for Dashboard
v) Training of Client staff for Dashboard

Coordination

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

Deliverables

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

Document	Status
Draft Inception Report	Submitted
Final Inception Report	Submitted
Monthly Monitoring Report-First (DEC 2020-JAN 2021)	Submitted
Monthly Monitoring Report-Second (FEB 2021)	Submitted
Monthly Monitoring Report-Third (MAR 2021)	Submitted
Quarterly Monitoring & Evaluation Report-First (JAN-MAR 2021)	Submitted
Monthly Monitoring Report-Fourth (APR 2021)	Submitted
Monthly Monitoring Report-Fifth (MAY 2021)	Submitted
Monthly Monitoring Report-Sixth (JUNE 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Second (APR-JUN 2021)	Submitted
Monthly Monitoring Report-Seventh (JULY)	Submitted
Monthly Monitoring Report-Eighth (AUGUST 2021)	Submitted
Annual Monitoring & Evaluation Report	Submitted
Baseline Survey Report (Final Draft)	Submitted
Monthly Monitoring Report-Ninth (SEPTEMBER 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Third (JULY - SEPTEMBER 2021)	Submitted
Special Reports submitted: 1) Monitoring Tools 2) Survey Manual 3) PAM 4) Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard.	Submitted
Monthly Monitoring Report-Tenth (OCTOBER 2021)	Submitted
Monthly Monitoring Report-Eleventh (NOVEMBER 2021)	Submitted
Monthly Monitoring Report-Twelfth (DECEMBER 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Fourth Quarter year 2021	Submitted

(OCTOBER – DECEMBER 2021)	
Monthly Monitoring Report-Thirteenth (JANUARY 2022)	submitted within stipulated time
Monthly Monitoring Report-Fourteenth (FEBRUARY 2022)	To be submitted within stipulated time
Quarterly Monitoring & Evaluation Report-First Quarter year 2022 (JANUARY – MARCH 2022)	To be submitted within stipulated time

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

Matrix of Responsibilities

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

CHAPTER 6: ISSUES / BOTTLENECKS

The ME&IE Consultants are continuously following constraints for timely initiating the activities:

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

ANNEXES A to J

ANNEX-A:
TENTATIVE WORK PLAN

ANNEX - A: TENTATIVE QUARTERLY WORK PLAN (JAN. TO MAR 2022)

TENTATIVE WORK PLANNED FOR th QUARTER
(January 2022 To March 2022)

Legend
- Activity starts
- Activity Ends
- Activity Span

No.	ACTIVITIES	3 Months-Year 2022 (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	Preparation for 2nd-Phase Baseline Survey												
1.2	Improvement of Questionnaires in the light of experience of 1st-Baseline Survey												
1.3	Training of Field Staff for 2nd-Phase Baseline Survey												
2	**Field Activities**												
2.1	Regular Monitoring of Interventions in the Field												
2.2	Data collection of the interventions in the field												
2.3	Baseline Survey stage - 2												
2.4	Online data entry in android based applciation												
3	**ICT Assignment**												
3.1	Development / Improvement of website of NPIWC-II												
3.2	Monitoring online data collection and Data entry												
3.3	Monitoring Android based Mobile Application under implementation by field staff.												
3.4	Data collection of interventions in MIS/GIS database												
3.5	Dashboard for interventions												
4	**Coordination**												
4.1	Meetings of TL with NPC and OFWM Departments regarding Project Progress / Issues												
4.2	Meeting of DTLs with respective DTL of PC & concerned OFWM Departments												
5	**Deliverable**												
5.1	Monthly Monitoring Report												
5.2	Quarterly Monitoring Report (Oct-Dec 2021)												
5.3	Baseline Survey Report 2nd-Phase												

ANNEX - B: MATRIX OF RESPONSIBILITIES

MATRIX OF RESPONSIBILITIES

LEGEND

- ● Primery Responsibility
- ⊙ Secondry Responsibility
- ○ Assistance

SR. NO.	DELIVERABLE / ACTIVITIES	NPC-FPMU	Agriculture Dept. (OFWM)	Project Consultants	ME&IE Consultants
1	**Provision of Pre-requisite data of project components for starting of Field Activities:** • Organization of Water Users Associations, • Watercourses Improvement, • Water Storage Tanks, • Laser Land Levelers,	○	●	-	-
2	**Certification of operational documents of the project,** • Design, cost estimates, completion reports of watercourses, • Design, cost estimates, completion reports of water storage tanks,	○	⊙	●	-
3	Undertake baseline, midline and endline surveys of the project activities/interventions in all the project areas.	-	-	-	●
4	Develop monitoring strategy, framework and Result Based Monitoring (RBM) indicators,	-	-	-	●
5	Assessing the water saving per annum on watercourse and water storage tanks as well as aggregate due to the project interventions.	-	-	-	●
6	Assessing the improvement in water availability due to provision of conveyance system.	-	-	-	●
7	Assessing the economic benefits to the agriculture in terms of increase in yield, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks.	-	-	-	●
8	Assessing the extent of community mobilization, financial and administrative sustainability of Water Users' Associations and ensuring the maintenance of watercourses, water storage tanks and laser land levelers.	-	-	-	●
9	Economic Impact of project interventions.	-	-	-	●
10	Carryout impact evaluation of the project investment on the economy and stakeholders.	-	-	-	●
11	Preparation of Monthly, Quarterly and Annual Monitoring, Evaluation and Validation Reports of the project activities.	-	-	-	●
12	Develop a website containing information of facilities and services, applications, procedures, watercourses, water storage tanks, and laser levelers database etc. (Maintaining website should be the responsibility of project staff).	-	-	-	●
13	Provide technical support for the development of a custom-designed mobile application (Android) to capture on-site project progress, geo tagged photos; should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the	-	-	-	●

ANNEX - C: MONITORING LOG-FRAME

Annex-C: Monitoring Log-frame

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

C2: Watercourses Improvements	Improvement of 47,278 watercourses on 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 watercourses either by: ● Precast concrete parabolic lining (PCPL) segments, or ● Rectangular brick masonry, or any other method as approved by the project	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: ● Cropping pattern before and after the improvement; ● Cropping intensities before and after improvement; ● Before and after crop yields;

							● Before and after employment; d) The difference between before and after will be considered the result of the intervention after netting out the contribution of the growth pattern of the crop sector otherwise.
C3: Construction of Water Storage Tanks (WSTs)	a) Construction of 14,932 water storage tanks	a) 14,932 small farmers mobilized to construct water storage tanks for irrigation b) They agree to contribute 40% of the cost c) Agree to first construct the tank with his/her own funds and then	a) 14,932 WSTs constructed b) 14,932 WSTs operated and maintained	a) Water which was otherwise largely going to be wasted is saved b) Irrigation provided at critical stages of the crops c) Flexibility achieved for irrigation	a) More area irrigated b) Increased cropping intensities	a) Increased crop yields b) Increased total crop output quantum c) Increased farm income d) Increased farm employment	a) 2-5% sample of WSTs will be surveyed b) A data collection form will be designed to measure water saving due to WSTs c) The forms used for baseline and impact surveys in case of

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

							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 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	10th 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	10th 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: DATA COLLECTED FOR KP DASHBOARD

Data Collected for the Year 2019-20, 2020-2021 & 2021-22

Districts	2019-20		2020-21		2021-22		Grand Total
	WC	WST	WC	WST	WC	WST	
Abbottabad	7	4	9	5			25
Bajaur	3	1	17	9			30
Bannu	38	2	15	2			57
Battagram	15	6	10	16			47
Buner	16	4	14	12			46
Charsadda	70	13	26				109
Chitral	12	4	29	2			47
Dera Ismail Khan	419	71			36	5	531
Dir Lower	21	3	24	4			52
Dir Upper	15	6	12	8			41
Hangu	30	14	3				47
Haripur	17	7	12	6			42
Karak	17	13	19	16			65
Khyber	6	1	13	9			29
Kohat	52	2	18	1			73
Kohistan	8	3	10	6			27
Kurram	3	1	5	1			10
Lakki Marwat	34	10	22	8			74
Malakand	27	7	18	5			57
Mansehra	35	5	13	8			61
Mardan	40	9	50	7			106
Mohmand	4	1	39	40			84
North Waziristan	2		3	8			13
Nowshera	28	13	43	18			102
Orakzai			1	2			3
Peshawar	43	9	16	8			76
Shangla	19	8	6	6	5	3	47
South Waziristan	5		10	15			30
Swabi	65	7	14	2	1		89
Swat	67	42	58	51			218
Tank	29	10	10	6			55
Torghar	2	3	3	2	6	2	18
Grand Total	**1149**	**279**	**542**	**283**	**48**	**10**	**2311**

ANNEX - F: SAMPLE SIZE ADDITIONAL LINING WORCURSE PUNJAB

PUNJAB ZONE: SAMPLE SIZE FOR BASELINE SURVEY STAGE-2 AND REGULAR MONITORING

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WCs (20 %) 2
1	PARTIAL BARANI	Bhakkar	113	38	37	07	07
Sub Total			113	38	37	07	07
2	IRRIGATED (RICE ZONE)	Sheikhupura	93	54	43	09	09
		Hafizabad	90	48	36	08	07
Sub Total			183	102	79	17	16
3	IRRIGATED (MIX ZONE)	Faisalabad	126	59	61	10	12
		Sargodha	128	64	54	11	11
Sub Total			254	123	115	21	23
4	IRRIGATED (COTTON ZONE)	B. Nagar	216	185	166	32	33
		R.Y. Khan	241	291	174	51	34
		D.G. Khan	88	34	31	07	07
Sub Total			545	510	371	90	74

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WCs (20 %) 2
Total			1,095	773	602	135	120

Source: NWM Consultants – Report (Dated September 1, 2021) and ME&IE Consultants, Inception Report of the project.

NOTE:

1 $\boldsymbol{Sample\ size\ for\ a\ district}$/Zone

$$= \frac{Total\ \ \boldsymbol{sample\ size\ for\ baseline\ survey\ II}}{Total\ Technical\ sanction\ issued} \times Technical\ sanction\ issue\ in\ respective\ District/\text{Zone}$$

2 sample Regular Monitoring completed watercourses (20%)

$$\frac{Total\ \ \boldsymbol{Monitoring\ Target}}{Total\ completed} \times Completed\ respective\ district\ zone$$

ANNEX - G: SAMPLE SIZE REGULAR WATER WORCURSE PUNJAB

PUNJAB ZONE: SAMPLE SIZE FOR BASELINE SURVEY STAGE-2 AND REGULAR MONITORING

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WCs (20 %) 2
1	PARTIAL BARANI	Bhakkar	48	09	08	04	02
	Sub Total		48	09	08	04	02
2	IRRIGATED (RICE ZONE)	Sheikhupura	25	09	05	04	—
		Hafizabad	32	08	08	04	02
Sub Total			57	17	13	8	2
3	IRRIGATED (MIX ZONE)	Faisalabad	01	02	01	–	—
		Sargodha	54	16	14	08	04
Sub Total			55	18	15	8	4
4	IRRIGATED (COTTON ZONE)	1.B. Nagar	29	19	14	08	02
		2.R.Y. Khan	42	23	17	10	04
		3.D.G. Khan	38	15	13	07	02
Sub Total			109	57	44	25	8

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WCs (20 %) 2
Total			269	101	80	45	16

Source: NWM Consultants – Report (Dated September 1, 2021) and ME&IE Consultants, Inception Report of the project.

NOTE:

1 $\boldsymbol{Sample\ size\ for\ a\ district}$/Zone

$$= \frac{Total\ \ \boldsymbol{sample\ size\ for\ baseline\ survey\ II}}{Total\ Technical\ sanction\ issue} \times Technical\ sanction\ issue\ in\ respective\ District/\text{Zone}$$

2 sample Regular Monitoring completed watercourses (20%)

$$\frac{Total\ \ \boldsymbol{Monitoring\ Target}}{Target\ completed} \times Completed\ respective\ district\ zone$$

ANNEX - H: SAMPLE SIZE WATER STORAGE TANKS PUNJAB

PUNJAB ZONE: SAMPLE SIZE FOR BASELINE SURVEY STAGE-2 AND REGULAR MONITORING

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WSTs (20 %) 2
1	BARANI Zone	Chakwal	116	30	30	07	06
Sub Total			116	30	30	07	06
2	PARTIAL BARANI	Bhakkar	17	13	19	04	04
Sub Total			17	13	19	04	04
3	IRRIGATED (RICE ZONE)	Sheikhupura	07	02	02	01	01
		Hafizabad	14	08	07	02	01
Sub Total			21	10	9	3	2
4	IRRIGATED (MIX ZONE)	Faisalabad	50	21	20	05	04
		Sargodha	47	20	20	05	04
Sub Total			97	41	40	10	8
5	IRRIGATED	B. Nagar	83	19	18	05	04

S. No	Cropping Zone	Sample Districts	Target	TS	Completed	Sample Baseline Stage-2 As per the Inception Report 1	Sample Regular Monitoring Completed WSTs (20 %) 2
	(COTTON ZONE)	R.Y. Khan	107	28	28	06	05
		3.D.G. Khan	31	20	19	05	04
Sub Total			221	67	65	16	13
Grand Total			472	161	163	40	33

Source: NWM Consultants – Report (Dated September 1, 2021) and ME&IE Consultants, Inception Report of the project.

NOTE:

1 $\boldsymbol{Sample\ size\ for\ a\ district}$**/Zone**

$$= \frac{Total\ \ sample\ size\ for\ baseline\ survey\ II}{Total\ Technical\ sanction\ issue} \times Technical\ sanction\ issue\ in\ respective\ District/\text{Zone}$$

2 sample Regular Monitoring completed watercourses (20%)

$$\frac{Total\ \ Monitoring\ Target}{Target\ completed} \times Completed\ respective\ district\ zone$$

ANNEX - I: SAMPLE SIZE LASER LEVELLERS PUNJAB

PUNJAB: LASER LAND LEVELERS (LLLs) -SAMPLE SIZE FOR BASELINE SURVEY STAGE-2 AND REGULAR MONITORING

For laser land leveling a sample survey will be carried out one year after the delivery of the unit.

S. No	Cropping Zone	Sample Districts	Target	Booking	Delivery	Sample Baseline Stage-2 As per the Inception Report 1
1	PARTIAL BARANI	Bhakkar	181	97	97	23
	Sub Total		181	97	97	23
2	IRRIGATED (RICE ZONE)	Sheikhupura	221	111	111	26
		Hafizabad	177	87	87	21
	Sub Total		398	198	198	47
3	IRRIGATED (MIX ZONE)	Faisalabad	246	121	121	29
		Sargodha	188	117	117	28
	Sub Total		434	238	238	57

S. No	Cropping Zone	Sample Districts	Target	Booking	Delivery	Sample Baseline Stage-2 As per the Inception Report 1
4	IRRIGATED (COTTON ZONE)	B. Nagar	265	131	131	32
		R.Y.Khan	286	136	136	32
		D.G. Khan	128	38	38	09
	Sub Total		679	305	305	73
		Total	1692	838	838	200

Source: NWM Consultants – Report (Dated September 1, 2021) and ME&IE Consultants, Inception Report of the project.

NOTE:

1 $\boldsymbol{Sample\ size\ for\ a\ district}$**/Zone**

$$= \frac{Total\ \ sample\ size\ for\ baseline\ survey\ II}{Total\ number\ of\ booked\ unit} \times Total\ number\ of\ booked\ unit\ in\ respective\ District/\text{Zo}$$

ANNEX - J: PHYSICAL AND FINANCIAL TARGETS BALOCHISTAN ZONE

BALOCHISTAN ZONE: DISTRICT-WISE PHYSICAL & FINANCIAL TARGETS FOR THE FY 2021-22 (3rd YEAR TARGETS)

S#	Name of Districts	WC BARANI (2000 Rft Each Scheme)			WC CANAL (1150 Rft Each Scheme)			RCC Pipe (3800 Rft Each Scheme)			Water Storage Tanks												Total WST	TOTAL (Farmer's share + GoB share +GoP Share)	75% (Gob+GoP Share) In millions
											60'x60'			50'x50'			40'x40'			30'x30'					
		Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:			
1	Kalat	7	3	4646091	0	0	0	0	0	0	18	11	17534044	24	0	0	17	10	9294390	0	0	0	21	31474525	23.606
2	Mastung	6	0	0	0	0	0	4	4	7520000	17	5	7970020	21	6	7441422	16	4	3717756	0	0	0	15	26649198	19.987
3	Khuzdar	6	1	1548697	0	0	0	0	0	0	18	4	6376016	22	3	3720711	17	3	2788317	1	1	709896	11	15143637	11.358
4	Pishin	6	0	0	0	0	0	0	0	0	18	0	0	22	0	0	17	0	0	1	0	0	0	0	0.000
5	Loralai	7	0	0	0	0	0	0	0	0	18	0	0	23	0	0	17	0	0	1	0	0	0	0	0.000
6	Killa Saifullah	6	0	0	0	0	0	0	0	0	17	8	12752032	22	2	2480474	17	6	5576634	0	0	0	16	20809140	15.607
7	Killa Abdullah	7	0	0	0	0	0	0	0	0	19	0	0	24	0	0	17	0	0	0	0	0	0	0	0.000
8	Barkhan	3	0	0	0	0	0	0	0	0	12	0	0	15	0	0	12	0	0	0	0	0	0	0	0.000
9	Zhob	5	0	0	0	0	0	0	0	0	14	0	0	17	0	0	13	0	0	2	0	0	0	0	0.000
10	Kachhi	3	2	3097394	0	0	0	0	0	0	12	5	7970020	15	5	6201185	12	5	4647195	1	1	709896	16	22625690	16.969
11	Lasbela	5	0	0	3	0	0	0	0	0	14	0	0	17	0	0	13	0	0	2	0	0	0	0	0.000
12	Kech	5	0	0	0	0	0	0	0	0	13	0	0	16	0	0	12	0	0	1	0	0	0	0	0.000
13	Panjgur	5	0	0	0	0	0	0	0	0	13	6	9564024	15	7	8681659	13	6	5576634	4	6	4259376	25	28081693	21.061
14	Awaran	5	0	0	0	0	0	0	0	0	14	0	0	11	0	0	13	0	0	1	0	0	0	0	0.000
15	Chagai	3	2	3097394	0	0	0	6	1	1880000	10	5	7970020	11	4	4960948	8	4	3717756	1	1	709896	14	22336014	16.752
16	Nushki	3	0	0	0	0	0	6	0	0	10	0	0	11	0	0	8	0	0	1	0	0	0	0	0.000
17	Musa Khail	2	0	0	0	0	0	0	0	0	9	4	6376016	10	3	3720711	6	4	3717756	1	1	709896	12	14524379	10.893

S#	Name of Districts	WC BARANI (2000 Rft Each Scheme)			WC CANAL (1150 Rft Each Scheme)			RCC Pipe (3800 Rft Each Scheme)			Water Storage Tanks												Total WST	TOTAL (Farmer's share + GoB share +GoP Share)	75% (Gob+GoP Share) In millions
											60'x60'			50'x50'			40'x40'			30'x30'					
		Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:	Tar-gets	Phy	Fin:			
18	Quetta	3	2	3097394	0	0	0	0	0	0	9	2	3188008	11	4	4960948	8	2	1858878	2	2	1419792	10	14525020	10.894
19	Kohlu	3	0	0	0	0	0	0	0	0	9	0	0	11	0	0	8	0	0	1	0	0	0	0	0.000
20	Jhal Magsi	3	2	3097394	2	0	0	0	0	0	6	0	0	7	4	4960948	5	4	3717756	1	0	0	8	11776098	8.832
21	Kharan	1	0	0	0	0	0	1	0	0	3	0	0	5	0	0	5	0	0	1	0	0	0	0	0.000
22	Washuk	1	0	0	0	0	0	1	0	0	3	0	0	5	0	0	5	0	0	1	0	0	0	0	0.000
23	Surab	1	1	1548697	0	0	0	0	0	0	4	2	3188008	5	4	4960948	5	4	3717756	0	0	0	10	13415409	10.062
24	Duki	1	0	0	0	0	0	0	0	0	3	0	0	5	0	0	5	0	0	0	0	0	0	0	0.000
25	Sherani	1	0	0	0	0	0	0	0	0	3	0	0	5	0	0	5	0	0	2	0	0	0	0	0.000
26	Ziarat	0	0	0	0	0	0	0	0	0	3	0	0	4	0	0	2	0	0	2	0	0	0	0	0.000
27	Sibi	1	0	0	0	0	0	0	0	0	3	0	0	4	0	0	3	0	0	0	0	0	0	0	0.000
28	Harnai	1	0	0	0	0	0	0	0	0	3	0	0	4	0	0	3	0	0	2	0	0	0	0	0.000
29	Gwadar	1	0	0	0	0	0	0	0	0	3	1	1594004	4	2	2480474	3	1	929439	0	0	0	4	5003917	3.753
30	Naseerabad	0	0	0	52	13	36735595	0	0	0	4	4	6376016	5	5	6201185	0	0	0	0	0	0	9	49312796	36.985
31	Jaffarabad	0	0	0	56	6	16954890	0	0	0	4	1	1594004	5.08	3	3720711	0	0	0	0	0	0	4	22269605	16.702
32	Sohbat Pur	0	0	0	54	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0.000
33	Dera Bugti	4	2	3097394	4	2	5651630	2	1	1880000	9	3	4782012	11	2	2480474	8	2	1858878	0	0	0	7	19750388	14.813
		105	**15**	**23230455**	**171**	**21**	**5.9E+07**	**20**	**6**	**1.1E+07**	**315**	**61**	**97234244**	**389**	**54**	**66972798**	**293**	**55**	**51119145**	**29**	**12**	**8518752**	**182**	**3.18E+08**	**238**