



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

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

MONITORING, EVALUATION
AND IMPACT EVALUATION
CONSULTANTS



MONTHLY MONITORING REPORT

APRIL 2022



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



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

APRIL 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 “Monitoring Report for the month of April 2022” comprises of following six chapters:

Chapter-1 describes the detailed introduction of the project. 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. However, as Government of Sindh (GoS) availed funding from World Bank (WB) of the similar project. Therefore, this project covers Punjab, Khyber Pakhtunkhwa (KP), Balochistan and Gilgit Baltistan, Azad Jammu & Kashmir (AJ&K) as well as Islamabad Capital Territory (ICT). The present project is beneficial for the country.

The NPIWC-II comprises of the following 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 elaborates the ME&IE Consultants’ “Scope of Work”. Since the ME&IE Consultants are going to monitor implementation of all criteria set, procedures defined and timeline agreed for implementation of various components. All these are reproduced in this report as ready reference to devise / design M&E strategy, methodology, procedures for monitoring and impact assessments of the project interventions.

The monitoring strategy followed by ME&IE Consultants is briefly described in Table-2.1. The strategy is 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 (MMR). This MMR covers the period from 1st April 2022 to 30th April 2022.

Chapter-4 covers the activities carried out during the reporting period which are summarized below:

- Preparation for the 2nd Phase of 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 for MIS/GIS database
- Dashboard data collection and data entry

Chapter-5 highlights the quarterly work plan for the period of 1st April 2022, to 30th June 2022. The work plan is consisting of following activities:

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

The detail time span for 2nd Quarter of year 2022 is provided in the Tentative Work Plan **Annex-A**.

Chapter-6: Issues / problems faced by the consultants during the reporting period of the assignment are described in this Chapter.

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	Preparation for 2 nd Phase Baseline Survey	Complied	
	1.2	Internal Meetings of ME&IE Consultants	Complied	
	1.3	Training of Field Staff for 2 nd 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-II	Started	
	2.4	Online data entry in android-based application	Complied	
3	ICT Assignment:			
	3.1	Development / Improvement 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	Data cleaning for Dashboard for Project Interventions	Complied	
4	Coordination			
	4.1	Meetings of TL ME&IE Consultants with NPC regarding Project Progress / Issues	Meetings conducted on regular basis	
	4.2	Meeting of DTLs with respective DTL of NWMC	Meetings conducted on regular basis	
	4.3	Internal Meetings of ME&IE Consultants	Weekly meetings conducted on regular basis	
5	Deliverables:			
	5.1	Monthly Monitoring Reports (MMRs)	15 th MMR (Mar. 2022)	Submitted
			16 th MMR (Apr. 2022))	To be submitted in stipulated time
	5.2	Quarterly Monitoring & Evaluation Report (QM&ER)	QM&ER Jan-Mar 2022	Submitted
			QM&ER Apr-June 2022	Will be submitted in stipulated time
	5.3	Baseline Survey Report Ph-II (Draft)	Data collecting in field in progress. Report will be submitted in stipulated time	

CHAPTER-1: PROJECT INTRODUCTION

1.1 PROJECT PROFILE

This section covers the following detail of the project:

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):	Following are different EAs: Federal Project Management Unit (FPMU), i. DGA OFWM Punjab ii. DG OFWM KP iii. DGA OFWM Balochistan iv. Director Irrigation and Small Dams, AJK v. Director WM, GB vi. Director Agriculture Extension Services (AES) ICT
Project Period:	5 Year (2019-2024)
Total Project Cost:	Rs. 154,542.355 million (Umbrella PC-1, including Sindh)
ME&IE Consultancy Period:	4 years
ME&IE Consultant:	JV of G3 Engineering Consultants (Pvt.) Ltd., EASE PAK Engineering services (Pvt.) Ltd., Centre for Social Research and Development (CSR), ADA Consultants Inc. Canada, and S&S Associates.
ME&IE Consultant Mobilized:	November 20, 2020

1.2 PROJECT DESCRIPTION

Project description includes followings i.e., project development objectives, project objectives, project benefits, components, etc.:

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

Following are the project general and 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' Outputs and Impacts:

The quantitative objectives' outputs and impacts 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) , 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. Following are the scope of WUAs:

- 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 adopting the following criteria:

- 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:

The project will construct 14,932 Water Storage Tanks (WSTs). Following will be the benefits of 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.

to farmers / service providers on 50% subsidized rates.

1.2.5 Project Targets

Project aims at achieving the **Water Courses Improvement, WSTs, and LLL Targets** are depicted in **Figure-1.1** for 5 years starting from year 2019-20 to 2023-24. Whereas, the targets for each province/Zone (excluding Sindh) are presented in **Figure-1.2**.

C4: PROVISION OF LASER LAND LEVELING UNITS:

Provision of 11,610 Laser Land Leveling (LLL) units to the farmers; the component is strengthening LLL services in the country through provision of LLL Units

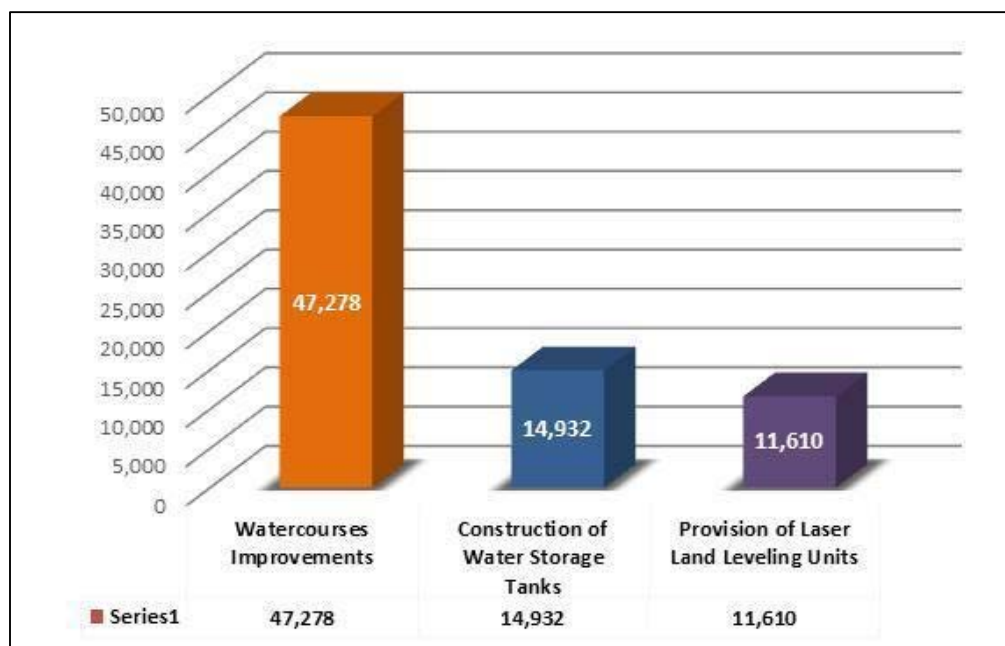


Figure 1.1: NPIWC-II Project WCs Improvement, WSTs, and LLL Targets in Pakistan.

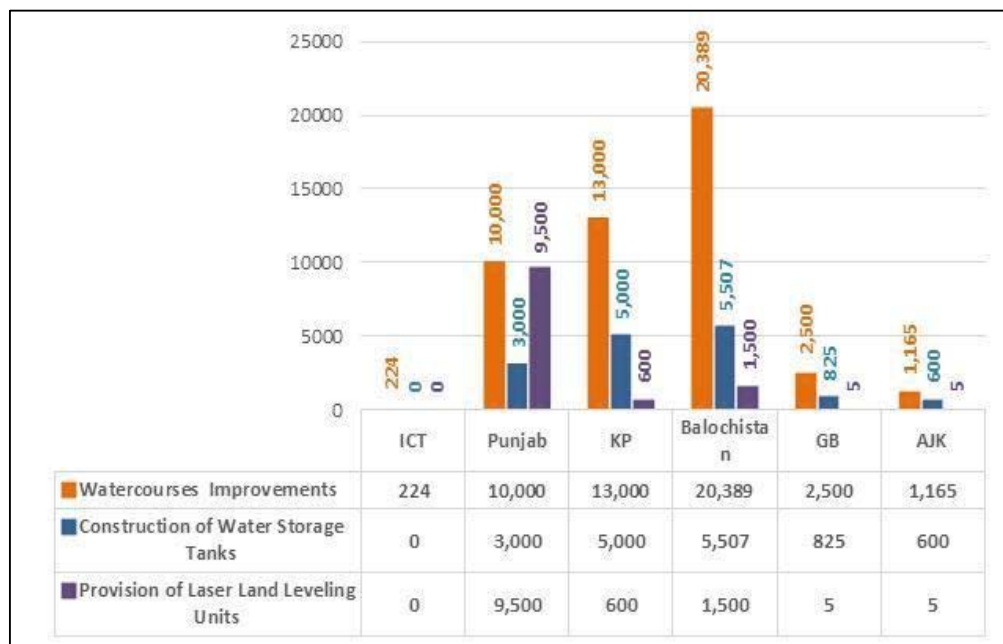


Figure 1.2: Zone-Wise WCs Improvement, WSTs, and LLL Target

CHAPTER 2: SCOPE AND SERVICES OF ME&IE CONSULTANTS

The ME&IE Consultants services are designed 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 (M&E). 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 are developing a "State-of-the-Art Management Information System" (MIS) with "Geographical Information System" (GIS) focused for NPIWC-II to monitor progress on project interventions and to carry out an effective monitoring process. The MIS is helping decision makers to make informed the decisions.

2.1 OBJECTIVES

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

2.2 SCOPE OF THE SERVICES

The ME&IE Consultants are responsible for monitoring, evaluation and impact evaluation (ME&IE), and in this context are carrying 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 **Table-2.1**. However, detailed methodology and procedures to carry out the ME&IE of the project interventions were explained in Chapter 6 of Inception Report..

Table 2.1: Monitoring Strategy for ME&IE Activities

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

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

		Socio-Economic Expert	<p>estimated. It is benefit towards food security</p> <ul style="list-style-type: none"> Project costs and benefits will be compared in economic and financial terms to carry out economic and financial analysis. Parameters like IRR, NPV and BCR will be estimated.
7	Impact evaluation-on the stakeholders	Team Leader, Agricultural Economist and Socio-Economic Expert	<ul style="list-style-type: none"> Analysis as in serial 6 will be carried out with reference to various stakeholders, like community, government, farmers, etc.
8	Spot checking	Team Leader, Deputy Team Leaders & Field teams/Engineers.	During the field visits for WUAs baselines impacts of Watercourses, WSTs and laser units, the interventions will be spot checked for quality of construction, material, functioning and beneficiaries' satisfaction etc.
9	Process monitoring	Field Teams of Agriculture Deptt., Project Consultants, ME&IE Consultants & ICT/Technology Specialist	<ul style="list-style-type: none"> The process data for all the interventions will be fed to the MIS/GIS database. Client's field staff and field teams of consultants will furnish data of their activities. The ME&IE will assist in developing mobile application for this purpose From this data reports will be generated for process monitoring All interventions will be fully (100%) covered.
10	Project website and MIS/GIS dashboard development	ICT / Technology Specialist (Including all other core team staff will also coordinate in completing data for the MIS/GIS	<ul style="list-style-type: none"> The State-of-the-art MIS / Progress Monitoring Model will be developed for NPIWC-II. Customized forms will be developed to collect data from the implementing teams on-site for progress monitoring These forms will be made available to the teams on smart phones through an android application The teams will be adequately trained to use the application Data on physical and financial stages with dates will be fed to the system for process monitoring GIS coordinates for watercourses, WSTs, laser units (if available) and WUAs offices will be uploaded to the system and could be viewed / reached by the management online The system will be maintained on GOOGLE server so that it is accessible by the management from anywhere in Pakistan and abroad Custom reports will be possible as the user demands / desires The results could be displayed on small as well as large screens.
11	Development of Android based application	ICT / Technology Specialist	All the data collection forms / tools will be executed through customized developed Android based applications accessible with smart phones / TABs.

2.4 FRAMEWORK AND RESULTS-BASED MONITORING (RBM) INDICATORS

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

The improvement of indicators are a continue process throughout the project implementation in the light of real and on 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 Sixteenth Monthly Monitoring Report (MMR) covers the period from 1st April 2022 to 30th April 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 following activities related to ME&IE assignment:

4.1 PREPARATION FOR 2ND PHASE BASELINE SURVEY

After refinement of the Monitoring tools consultants conducted training of field monitoring staff. All the provincial offices prepared the field teams for field visits and monitoring of project interventions. Field teams were provided with the android-based application for data collection in field and upload to the MIS / GIS system.

4.2 REGULAR MONITORING / FIELD VISITS BY ME&IE CONSULTANTS

Detail of regular monitoring / field visits by field teams of zonal offices during the monitoring month is given below:

4.2.1 Regular Monitoring / Field Visits by Zonal Office ICT

ICT Zone team prepared for 2nd Phase Baseline Survey. Field Teams was given training on Android Based Application for data collection which was upgraded in the light of improved Monitoring Tools. DTL ICT also conducted meetings with Zonal DTLs to proceed with the Phase-II Baseline Survey.

4.2.2 Regular Monitoring / Field Visits by Zonal Office Punjab

The Monitoring/Baseline survey pertains to the intervention of the project viz of WC improvement, WUAs, construction of WSTs and provision of LLL. These surveys are carried out from time to time as a part of regular monitoring activities of ME&IE Consultants. The activities relate to baseline Survey, regular monitoring and impact of the project interventions wherever it is visible. The overall findings about unit of interventions visited by the field teams are reflected in the form of:

- Field Visits
- Meetings with Field Officers and Staff of OFWM

During the period under review, data were collected on the undermentioned aspects of an intervention.

- Brief profile of the intervention of Improvement of Watercourse
- Interaction with beneficiaries
- ME & IE Consultant's field Teams Observations
- Assessment of impact of improvement of watercourse intervention

Detail of field visits and data collection is given below:

4.2.2.1 Site Visits / Monitoring Punjab

Following are the sites visited during the month of April 2022 in Punjab Zone:

i) Visit of Watercourse No. 6990-R on 23 April 2022 - Punjab

Watercourse No.	6990-R	
Type of Watercourse	Additional	
Chak No/Village	Sundarana	
District and Tehsil	Hafizabad	
Name of Distributary	Udoki 1	
Type of Moga	ASOM	
Measured Discharge Before Improvement	Head	80
	Middle	65
	Tail	40
Sanctioned Discharge	20 LPS	
Tube well Discharge (if any)	-	
Designed Discharge	80 LPS	
Culturable Command area	302 Acre	
Total No of water users	16	
Estimated lining Length	1280 Meter	

Pictorial view of the visit of [Watercourse No. 6990-R on 23 April 2022 - Punjab](#) is given in Picture 4.1. Whereas the list of the farmers, their WC locations and tenure status of beneficiaries of watercourse 6990-R in Punjab is presented at Table 4.1.



Picture 4.1: Discussion with Farmers about benefit of watercourse improvement and water saving perception – Watercourse No. 6990-R Punjab

Table 4.1: Farmers' list, their WC locations & tenure status of Beneficiaries of WC 6990-L-Punjab

Name of Farmer	Location of WC	Area (Acres)				Status
		Owned	Rented	Rented Out	Operated Area	
Akhtar Ali	Tail	10	-	-	10	FCR
Mushtaq	Tail	6	-	-	6	
Azhar Ali	Middle	8	-	-	8	
Manzar Abbas	Tail	6	-	-	6	
Ameer Ali	Tail	4	-	-	4	

Field Observation on Watercourse No 6990-R in Punjab

According to the farmers, following are the benefits of watercourse improvement:

- More than 50% of water losses were reduced due to watercourse improvement.
- Irrigation time reduced up to 35%
- Increase in yield up to 5 to 10%.
- Before Improvement of Watercourse farmers at the tail of watercourse were facing acute shortage of water. After improvement water conveyance has been improved which reduced the shortage of water at tail.
- Equity in water distribution has improved significantly
- Land rent increased by 20 to 30% due to sufficient availability of water due to improvement of watercourse

General Findings during the Field Visit:

- No waterlogging and Salinity were observed at the watercourse area
- Major crops in command area of the watercourse are wheat and rice. No change is observed in major cropping pattern

- No change in land-use intensity observed in the command area of the watercourse.

ii) Visit of W/C No. 655-L on 26 April 2022 - Punjab

Watercourse No	655-L	
Type of Watercourse	Additional	
Chak No/Village	Saroopwala	
District and Tehsil	Hafizabad	
Name of Distributary	Jalalpur	
Type of Moga	Pipe	
Measured Discharge Before Improvement	Head	13 LPS
	Middle	10 LPS
	Tail	8 LPS
Sanctioned Discharge	7 LPS	
Tube well Discharge (if any)	28 LPS	
Designed Discharge	45 LPS	
Culturable Command area (Acres)	127	
Total No of water Users	10	
Estimated lining Length	200	

Pictorial view of the visit of [Watercourse No. 655-L on 26 April 2022 - Punjab](#) is given in Picture 4.2 and 4.3. Whereas, the list of the farmers, their WC locations and tenure status of beneficiaries of

watercourse 655-L in Punjab is presented at Table 4.2



Picture 4.2: Data collection/ field observation at Watercourse No. 655-L Punjab



Picture 4.3: Monitoring of Watercourse No. 655-L Punjab

Table 4.2: Farmers' list, their WC locations & tenure status of Beneficiaries of WC 655-L-Punjab

Name Farmer	Location on WC	Area/Acres				Status
		Owned	Rented In	Rented Out	Operated Area	
Rana Shoukat Ali	Middle	9	1	-	10	FCR
Rana sanaullah	Middle	10	-	-	10	
Omer	Tail	8	-	-	8	
M. Asim Hayat	Tail	5	-	-	5	
Shahid Ali	Tail	20	-	-	20	

Field Observation on Watercourse No 655-L Punjab

According to the farmers at this watercourse, after improvement they are benefitted as under:

- More than 50% of water losses were reduced due to watercourse improvement.
- Irrigation time reduced up to 30%
- Increase in water Quantity up to 25 to 30%.
- Increase in yield up to 20 to 25%.
- Before Improvement of watercourse farmers located at the tail were facing acute Shortage of water now it has been improved.
- Watercourse Cleaning before Improvement of Watercourse was needed 6 to 8 times per Year Now it has been reduced to 3 to 4 times.
- Land Rent Before Improvement of Watercourse was 55k to 65k Now it has been increased to 80kk to 90k.

General Findings during the Field Visit – Punjab Field Teams:

- No waterlogging and Salinity were found Neither before nor After the Improvement of the Watercourse
- No Change in Cropping patterns was Seen at Site Neither Before nor After.
- No Buffalos wallow/ washing bay was present Neither before nor after.
- No women participation in farming actual was seen at the site neither nor after due to social setup.

iii) Visit of Watercourse No. 8210-L 26 April 2022 - Punjab

Watercourse No	8210-L
Type of Watercourse	Additional
Chak No/Village	Thatha Noor Shah
District and Tehsil	Hafizabad
Name of Distributary	Jalalpur

Type of Moga	Pipe	
Measured Discharge Before Improvement	Head	23 LPS
	Middle	19 LPS
	Tail	18 LPS
Sanctioned Discharge	19 LPS	
Tube well Discharge (if any)	36 LPS	
Designed Discharge	60 LPS	
Culturable Command area	324	
Total No of water users	18	
Estimated lining Length	1636 Meter	



Picture 4.5: Data Collection from the beneficiaries of the Watercourse No. 8210-L Punjab

Pictorial view of the visit of Watercourse No. 2210-L on 26 April 2022 - Punjab is given in Picture 4.4 and 4.5. Whereas, the list of the farmers, their WC locations and tenure status of beneficiaries of watercourse 655-L in Punjab is presented at Table 4.3



Picture 4.4: Discussion / Interview of farmers at WC o. 8210-L Punjab

Table 4.3: Farmers' list, their WC locations & tenure status of Beneficiaries of WC 8210-L-Punjab

Name of Farmer	Location on WC	Area/Acres			Operated Area	Status
		Owned	Rented In	Rented Out		
Rizwan Abbas	Tail	16	-	-	16	FCR
Syed Asghar Ali Hanjra	Head	17	-	-	17	
Syed Taqi Shah	Middle	4	-	-	4	
M. Dania	Tail	60	-	-	60	
Syed Amjad Ali shah	Tail	3	-	-	3	
Syed Rasool Shah	Tail	16	-	-	16	

Field Observation on Watercourse No 8210-L – Punjab

According to the farmers following are the benefits after improvement of watercourse:

- More than 50% of water losses have been reduced due to watercourse improvement.
- Irrigation time reduced up to 30 to 40% per acre.
- Increase in water Quantity up to 25 to 30%
- Increase in yield up to 10 to 15%.

- v) Before improvement, cleaning of the watercourse was required to be done 5 to 6 times per year. Now after improvement is enough for 2 to 3 times a year.
- vi) Land Rent increase up to 20 to 30% due to improvement of watercourse

General Findings during the Field Visit:

Water Logging and salinity was found at a site which was about 2-4% before improvement of the watercourse. However, it has been reduced to less than 1 % after improvement.

4.2.2.2 Impact Assessment of the Interventions in Punjab Zone

ME&IE Consultants Punjab Zone carried out impact assessment of the interventions visited during the current month. Assessment is based on the visit of 3 watercourse interventions interviews of 17 beneficiaries of these watercourses in Tehsil and District Hafizabad (irrigated rice zone area).

As per observations of the Field Monitoring Team information shared by beneficiaries (farmers' point of view /perception), review of OFWM data, consultants' assessment of impact of interventions under NPIWC-II is as under.

Water saving

- About 50% earlier water losses in watercourse have been reduced.
- Time in irrigation of an acre of land has reduced from 4 to 5 hrs. to 2 – 3 hrs. per acre
- At least 20 – 25 % quantum of water supply farmer at the tail has been increased

- **Land-use intensity** – No change has been observed

- Reduction in Water Logging Salinity

Nominal patches of waterlogging and salinity were seen in the area under field visit / monitoring.

- Cropping Intensity

No Major Change observed in Cropping Pattern and Intensity. The main crops grown are wheat rice fodder (kharif & Rabi) and in few cases tobacco and other crop are also seen on small scales.

- Yield of Major crops

Wheat yield per acre has been increased by

5-10 percent (from 40 -45 mund and 45 – 50 mund per acre unfortunately this year wheat yield decrease about percentage mostly due to climate change, suddenly hot weather towards the end of the wheat season to some cases non availability of fertilizer also consumed low productivity additional. Yield per acre of rice has also been increased whereas increased by 5 – 10% (3 to 5% phrase)

- Land Rent

Above all from the farmer's point of view the most important factor, indicating the impact of improvement of a watercourse, is an increase in land rent per acre (naturally due to an increase in land productivity). It has increased by 20 – 25 % in some cases it has been increased by least 10,000 per acre per annum e.g. Rs 55000- Rs 65000 to Rs 70000 – Rs 80000)

- Water User Association Reflection

No doubt awareness among farmer has been created about the utility of the watercourse. Its benefits are in form of increase in the reduction of water theft and litigation to a significant level. The reduction can be reassessed by more than so 80 acre and certain cases nominal.

- Labor Saving in the cleaning of the watercourse

It was a general conclusion that the labor utilization in clearing a watercourse has been reduced by 50% (4 – 6 times has been reduced 2 – 3times per annum)

4.2.2.3 Meetings of ME&IE Consultants Punjab Zone with Stakeholders

ME&IE consultants' Punjab Zone remained in contact with client through regular coordination meetings during the reporting period. Coordination meetings were held with DG OFWM and field staff of the Directorate General OFWM. Detail of meetings held during the reporting month is given below:

i) **Meeting in the Office of DG OFWM Office, Punjab on 27 April 2022**

Date:	27 April 2022
Venue:	Director General Agri. (Water Management) 21, Davis Road Lahore

Participants:

- i) Mr. Hafiz Qasir Yasin, Director (H.Q) OFWM
- ii) Mr. Tahir Mehmood, Assistant Director Agriculture (Technical) OFWM
- iii) Mr. Muhammad Yousaf Bhatti Deputy Team leader, ME&IE Consultants, Punjab zone Lahore
- iv) Mr. M. Rizwan Suleman, Field Team Incharge ME&IE Consultants, Punjab Zone Lahore

Meeting Agenda:

Review of progress on field activities:

Findings relevant to assessment /impact of an intervention based on small number of observations in a particular locality may also be shown.

Impact of water saving (in term of quantum), be highlighted, wherever it is possible)

MMR should contain monthly data/information and should be classified by province/unit. All the data / information on monthly activities relevant to each province will be covered in each respective section

Pictorial view the meeting is given in Picture 4.6 below:



Picture 4.6: Meeting of ME&IE Punjab with Hafiz Qaiser Yasin Director (H.Q) DG Agri. OFWM office Lahore, Punjab

ii) **Meeting with Field Staff of Director General OFWM Hafizabad, Punjab on 23 April 2022**

Date:	23 April 2022
Venue:	Directorate General OFWM Hafizabad

Participants:

- i) Mrs. Sonia Zafar Deputy Director OFWM Hafizabad
- ii) Mr. M. Rizwan Suleman Field Team in charge Punjab Zone
- iii) Mr. Bilal Sohail Field Team Engineer
- iv) Mr. Sohail Ahmad Field Team Engineer

Meeting Agenda:

Review field activities of ME&IE Consultants

During baseline survey and monitoring of field activities all possible assistance should be provided to ME&IE field teams through field teams of client.

Field team of DDA remained very cooperative during the field activities of ME&IE consultants.

ME&IE field team meeting with DD OFWM Hafizabad is depicted in Picture 4.7.



Picture 4.7: Punjab ME&IE Field in Meeting with Ms. Sonia Zafar, Deputy Director OFWM Hafizabad, Punjab

iii) **Meeting with ADA (Agri) OFWM Hafizabad, Punjab on 23 April 2022**

Date:	23 April 2022
Venue:	Assistant Director (Agri) OFWM Hafizabad

Participants:

- i) Zafar Iqbal Assistant Director OFWM Hafizabad
- ii) Mr. M. Rizwan Suleman Field Team in charge of Punjab Zone
- iii) Mr. Bilal Sohail Field Team Engineer
- iv) Mr. Sohail Ahmad Field Team Engineer

Meeting Agenda:

Review field activities of ME&IE Consultants:

ADA provided all possible assistance to ME&IE consultants through her field team during baseline survey and monitoring of field activities.

ME&IE consultants appreciated cooperation of ADA extended during field activities.

Photograph of ME&IE team with DDA during meeting is given below as Picture 4.8.



Picture 4.8: ME&IE Field Team in Meeting with Mr. Zafar Iqbal Assistant Director OFWM Hafizabad, Punjab

4.2.3 Regular Monitoring / Field Visits by Zonal Office KP

ME&IE consultants of KP Zone reviewed the Monitoring tools and gave 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.

ME&IE Consultants KP Zone conducted training of field staff on the revised / refined Monitoring Tools. Field staff was also provided training on the android based application for data collection in the field during field visits and monitoring of project interventions. KP Zonal team also conducted meetings with officials of Directorate of OFWM KP and Deputy Team Leader and other ME&IE staff of

KP Zone also remained in close coordination Dr. Rab Nawaz, Project Coordinator of NPIWC-II, and other District Directors of OFWM department KP, for acquiring the required data.

Zonal team of KP also participated in regular weekly internal zoom meetings of ME&IE consultants being organized through National Office Islamabad.

4.2.4 Regular Monitoring / Field Visits by Zonal Office Balochistan

During the reporting month, ME&IE Consultants, Balochistan carried out several activities related to the ME&IE assignment. The activities carried out by the Balochistan ME&IE team are listed below:

- Updated Progress of ME&IE Consultants, Balochistan Zone by 30th April 2022.
- Detail / General Profile of Regular / Spot Check Monitoring
- Graphical Impact Evaluation Data
- Collection of Impact Evaluation Data (Before / After)
- Collection of detailed data of Regular / Spot Check Monitoring
- Conducted Coordination Meetings
- Prepared Quarterly Work Plan (1st April 2022 to 30th June 2022) of Balochistan Zone.

4.2.4.1 Balochistan Zone Updated Progress by March 2022

Overall Progress:

The ME&IE Consultants, Balochistan has monitored 13 Watercourses and 39 Water Storage Tanks in Baseline Survey activities. Total benchmarked sites in Baseline Survey are 53 by 31st March 2022. The Baseline is being conducted in phase-wise and the 2nd Baseline Survey is in progress and will continue in the upcoming quarter. The Balochistan team are committed to achieve the targets as per PC-1 subject to targets of each Financial Year should be according to the PC-1.

The Balochistan field teams are also conducting regular monitoring of on-going / completed sites covering all financial years on a monthly basis along with the Baseline Surveys. The Balochistan field team has so far monitored 70 watercourses and 53 Water Storage Tanks. Total 115 sites have been monitored by 31st March 2022.

The table 4.4 shows the overall progress of Balochistan Zone by 31st March 2022.

Table 4.4: Balochistan Progress Data Table

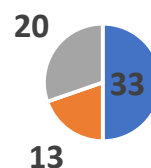
Sr. #	District	Baseline / Bench Marked		Regular Monitoring		Total
		WC	WST	WC	WST	
1	Quetta	-	4	10	9	23
2	Pishin	-	4	3	9	16
3	Killa Abdullah	1	1	3	2	7
4	Ziarat	-	-	2	1	3
5	Mastung	1	2	6	4	13
6	Nushki	-	-	2	1	3
7	Sibi	-	-	1	3	4
8	Jhal Magsi	1	4	1	2	8
9	Kachhi	-	8	1	2	11
10	Naseerabad	2	4	12	5	23
11	Jaffarabad	-	-	4	1	5
12	Sohbatpur	3	-	7	-	10
13	Loralai	1	2	1	2	6
14	Duki	-	-	2	1	3
15	Zhob	-	-	3	2	5
16	Kila-Saifullah	2	1	4	1	8
17	Musa khel	-	-	1	1	2
18	Sherani	-	-	2	2	4
19	Khuzdar	1	6	1	1	9
20	Kalat	1	3	4	4	12
Total		13	39	70	53	175

Districts Coverage

There are 33 districts in Balochistan, 02 more districts have been notified but their administrative setup yet to be functional. The Balochistan Team has planned to cover all Balochistan as each district has different agriculture setup. All districts have different crops, vegetable, fruits based on their different climate and soil types. Some districts i.e., Quetta, Ziarat, Kalat, Muslim Bagh have extreme cold weather while some districts i.e., Sibi, Naseerabad, Jaffarabad, Sohbatpur, Lasbella lies in extreme hot weather. Due to this reason ME&IEC, Balochistan have planned to cover all Balochistan to give a complete picture of cropping pattern and its intensity, social and gender data, water situation, cost production etc. to make more authentic data.

Balochistan has monitored the sites of 20 districts of 33, the remaining 13 districts to be covered in upcoming months (**Figure 4.1**).

**No. of Districts Covered by ME&IEC
- Balochistan by March 2022**



■ Total Districts
■ Districts yet to be covered
■ Covered / Monitored Districts

Figure 4.1: Monitoring Progress in Balochistan Zone

4.2.4.2 Detail of Site visits / Monitoring Activities in Balochistan

Detail of field visits and Regular Monitoring / spot Checking by Balochistan field teams is give below:

Team -1 Balochistan: Manzoor Ahmed Kasi, FTI / M&E Expert, Mah Gul Noor, M&E Officer and Hamza H. Qureshi, M&E Officer

i) Field Visit of Ghulam Watercourse, Balochistan on 18th April 2022

Scheme:	Watercourse
Nature of Scheme:	New
Name of Farmer:	Ghulam Farooq
Province:	Baluchistan
District:	Quetta
Tehsil:	Shadezai
Union council:	Kirani
Coordinates:	N 30.1510, E 66.9543
Source of irrigation:	Tube Well
Total length of Watercourse:	2995.88 rft.
Estimated length of lining:	2000 rft.
Financial Year:	2019-2020
The view of the visit of WC is show in Picture 4.9	



Picture 4.9: Field Team Measuring the Watercourse Ghulam Farooq in Balochistan, and visiting the Command Area

ii) Visit of Water Storage Tank Abdul Quddus, Balochistan on 18th April 2022

Scheme:	Water Storage Tank
Name of Farmer:	Abdul Quddus
Province:	Balochistan
District:	Quetta
Tehsil:	Quetta
Union council:	Shamozai
Coordinates:	N 30.1138, E 66.9414
Source of Irrigation:	Tube Well
Shape of Water Storage Tank:	Square
Size of Water Storage Tank:	60x60 ft.
Depth of WST:	4.5 ft.
Financial Year:	2019-2020

Pictorial view of the visit of WST Abdul Quddus is given in Picture 4.10



Picture 4.10: View of Abdul Quddus Water Storage Tank in Balochistan

iii) Visit of Watercourse Muhammad Siddique, Balochistan on 19th April 2022

Scheme:	Watercourse
Nature of Scheme:	New
Name of Farmer:	Muhammad Siddique
Province:	Balochistan
District:	Quetta
Tehsil:	Quetta
Union council:	Samungli
Coordinates:	N 30.2527, E 66.9146
Source of irrigation:	Tube Well
Total length of Watercourse:	1408.20 rft.
Estimated length of lining:	1346.85 rft.
Financial Year:	2019-2020

View of WC and source of water is shown in Picture 4.11 below.



Picture 4.11: View of Mogha and Command Area of and Watercourse Muhammad Siddique in Balochistan

iv) Visit of Water Storage Tank Faqeer Muhammad, Balochistan on 19th April 2022

Scheme:	Water Storage Tank
Name of Farmer:	Faqeer Muhammad
Province:	Baluchistan
District:	Quetta
Tehsil:	Kuchlak
Union council:	Kuchlak
Coordinates:	N 30.3041, E 66.9370
Source of Irrigation:	Tube Well
Shape of Water Storage Tank:	Square
Size of Water Storage Tank:	40x40 ft.
Depth of WST:	4.5 ft.
Financial Year:	2019-2020

View of field visit of WST Faqeer Ahmed is give in Picture 4.12.



Picture 4.12: Field Team taking Measurements of Water Storage Tank Faqeer Muhammad in Balochistan

Team – 2 Balochistan: Monitored by Muhammad Tariq, M&E Expert and Saleem, M&E Officer

v) Visit of Watercourse Muhammad Ali, Balochistan on 19th April 2022

Scheme:	Watercourse
Nature of Scheme:	New
Name of Farmer:	Mohammad Ali
Province:	Balochistan
District:	Naseerabad
Tehsil:	Dera Murad Jamali
Union council:	Quba Sher Khan Sharqi
Coordinates:	28.62679 68.32737
Source of irrigation:	Rabi Canal
Total length of Watercourse:	387.4 meter

Estimated length of lining:	427 meter
Financial Year:	2020-21

Field team's visit of WC Muhammad Ali is shown in Picture 4.13 below.



Picture 4.13: Field Team Balochistan at Watercourse Muhammad Ali, collecting data for BLS Data from Farmer and DDA

Team – 1: Monitored by Muhammad Tariq, M&E Expert and Saleem, M&E Officer, Balochistan

vi) Visit of Watercourse Muhammad Yunas, Balochista on 19th April 2022

Scheme:	Watercourse
Nature of Scheme:	Mohammad Younas
Name of Farmer:	Mohammad Younas
Province:	Balochistan
District:	Naseerabad
Tehsil:	Dera Murad Jamali
Union council:	Quba Sher Khan Sharqi
Coordinates:	28.64958 68.22892
Source of irrigation:	Rabi Canal Left with Tube well
Total length of Watercourse:	387.4 meter
Estimated length of lining:	427 meter
Financial Year:	2020-21

ME&IE Field Team's visit of WC Muhammad Younas is shown in Picture 4.14.



Picture 4.14: Field Team Balochistan Measuring Watercourse Muhammad Ali, Balochistan for BLS, in presence of Farmer & DDA

Team – 3 Balochistan: Monitored by M Tariq, M&E Expert and Saleem, M&E Officer

vii) Visit of Watercourse Nadir Ali, Balochistan on 20th April 2022

Scheme:	Watercourse
Nature of Scheme:	New
Name of Farmer:	Nadir Ali
Province:	Balochistan
District:	Naseerabad
Tehsil:	Tambo
Union council:	Kharoos wah
Coordinates:	28.38761 68.02686
Source of irrigation:	Ropa Shakh Canal
Total length of Watercourse:	350 meter
Estimated length of lining:	350 meter
Financial Year:	2019-20

Pictorial view of field visit by ME&IE Team to the WC Nadir Ali is given in Picture 4.15.



Picture 4.15: ME&IE Team Balochistan Measuring Watercourse for BLS data in presence of Farmer & DDA

viii) Visit of Water Storage Tank Sanaullah, Balochistan on 19th April 2022

Scheme:	Water Storage Tank
Name of Farmer:	Sanaullah
Province:	Balochistan
District:	Naseerabd
Tehsil:	Tambo
Union council:	Kharos Wah
Coordinates:	28.42769 67.98272
Source of Irrigation:	Ropa shakh Canal left with Tube well
Shape of Water Storage Tank:	Rectangular
Size of Water Storage Tank:	38x38 / 48x48
Depth of WST:	8 ft
Financial Year:	2020-21

Field visit of ME&IE Team to WST Sanaullah is given depicted in Picture 4.16 below.



Picture 4.16: Field Team Balochistan, Measuring WST for BLS Data in presence of Farmer & DDA

4.2.4.3 Impact of Project Interventions in Balochistan

Impact evaluation is an assessment of how the intervention, being evaluated, affects the project outcomes, whether these effects are intended or unintended.

There are two main interventions carried out in the NPIWC Phase-II i.e. Watercourses and Water Storage Tanks.

In the month of April 2022, ME&IEC monitored different schemes of watercourses and water storage tanks in two districts i.e. Quetta and Naseerabad. The Impact of different interventions observed by ME&IE consultants is presented below in graphic form.

Total 08 sites were monitored and total cultivated area of these sites was compared before and after the intervention. It was noticed that 41% cultivated area (acres) have been increased due to the project intervention (**Figure 4.2**).

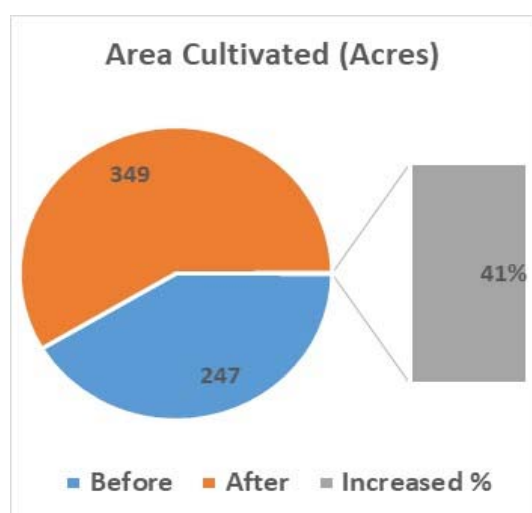


Figure 4.2: Increase in Cultivated area under NPIWC-II

It is also found that after NPIWC-II interventions 65% waste land have been decreased (**Figure 4.3**).

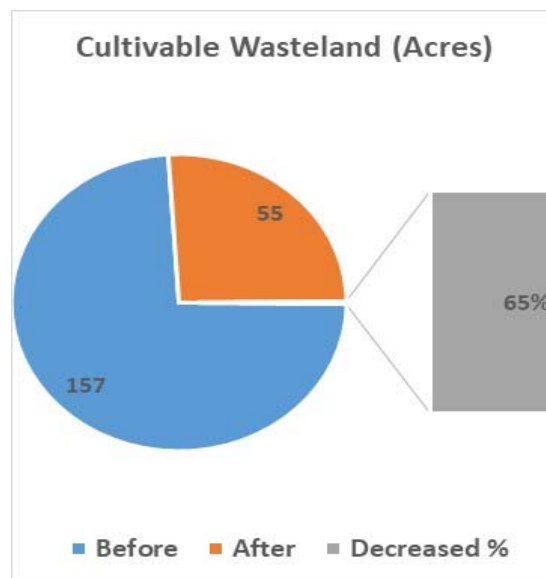


Figure 4.3: Reduction in Wasteland

Similarly, impact on livestock was also evaluated which revealed that there is 64% increase in livestock in the sites monitored by the ME&IE Consultants (**Figure 4.4**). This increase in livestock shows a good achievement of the project objectives.

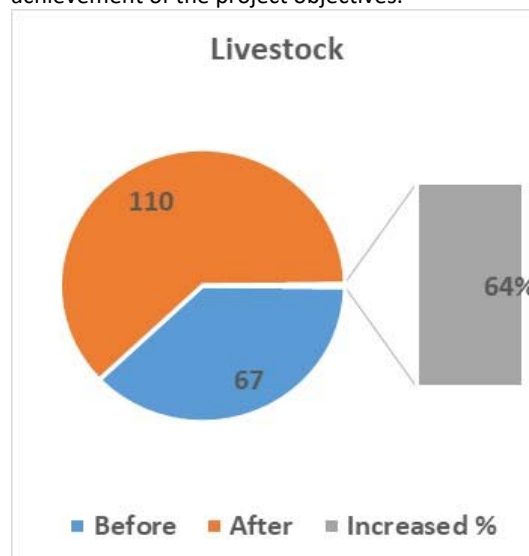


Figure 4.4: Increase in Livestock Due to Project Interventions

After improvement of watercourses there is a considerable reduction in conveyance time. It is estimated that about 47% time is reduced for irrigating the land, which ultimately resulted in saving of electricity (**Figure 4.5**), as about 80% area of

Balochistan's agriculture depends upon the Tube wells as source of water.

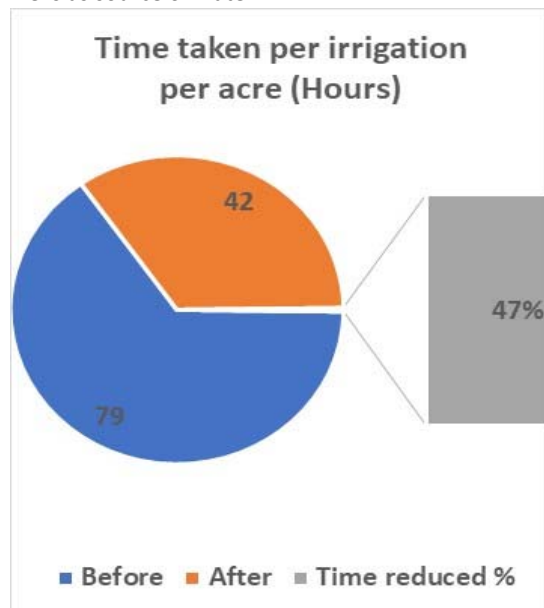


Figure 4.5: Reduction in Conveyance time

During survey and interviewing the farmers it is also noticed that there also increase in employment in the form of permanent hired labour in the areas under NPIWC-II. There is about 31% in the permanent hire labour due to the increased culturable land after project interventions (Figure 4.6).

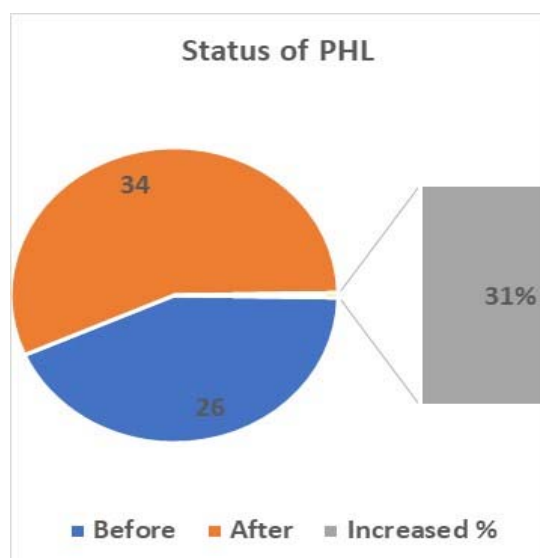


Figure 4.6: Increase in Permanent Hired Labour

No water logging and salinity was observed in the area under monitoring by the ME&IE consultants. It is also estimated that overall 10% water flow has been increased due to the improvement of watercourses.

Detailed data on Impact analysis is given as **Annex-E**.

4.2.4.4 Meetings of ME&IE Consultants Balochistan with Client & Stakeholders

Date	18 th April, 2022
Venue	Office of the DDA OFWM, Quetta
Participants	
I.	Noor Ahmed, DDA OFWM Quetta
II.	Manzoor Ahmed Kasi, FTI/M&EE
III.	Mah Gul Noor, M&EO
IV.	Hamza H. Qureshi, M&EO
Meeting Agenda/Points discussed:	
<ul style="list-style-type: none"> Discussed the Beneficiaries Lists Shared the ME&IECs Team Visits Plan 	
View of the meeting is shown in Picture 4.17.	



Picture 4.17: Balochistan ME&IE Team in Meeting at the Office of DDA OFWM, Quetta, Balochista

Date	19 th April, 2022
Venue	Office of the DDA OFWM, Naseerabad
Participants	
I.	Mr. Ali Mardan, Sub Engineer, OFWM, Naseerabad District
II.	Mr. Hadi Baksh, Assistant OFWM, Naseerabad District
III.	Mr. Tariq Khosa, FTI/M&E Expert, ME&IEC, NPIWC-II, Naseerabad Zone
IV.	Mr. Saleem Abro, M&E Officer, ME&IEC, NPIWC-II, Naseerabad Zone.
Meeting Agenda/Points discussed:	
<ul style="list-style-type: none"> The ME&IEC Field Team shared the visit plan with the OFWM staff 	

- The file works of ongoing works were discussed.

Pictorial view of the meeting is given in Picture 4.18.



Picture 4.18: Balochistan ME&IE Team in meeting with OFWM Staff in the office of DDA Naseerabad, Balochistan

Date	25 th April, 2022
Venue	Director General, OFWM, Agriculture Office, Rani Bagh, Quetta

Participants

- Mr. Umaid Ali Khokhar, Worthy Secretary, Agriculture Department, Govt. of Balochistan, Quetta.
- Mr. Abdul Wahab, Director General, OFWM, Agriculture Department, Balochistan.
- Mr. Bashir Agha, Director, Water Management, Agriculture Department, Balochistan
- Mr. Abdul Wali, Deputy Director, OFWM, Agriculture Department, Quetta
- All Deputy Directors, OFWM, Balochistan
- Mr. Khalid Mehmood, Deputy Team Leader, NWMC, Balochistan
- Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan

Meeting Agenda/Points discussed:

- A progress review meeting was held at DG, OFWM Office, chaired by Secretary Agriculture Department, GoB. Quetta.
- All Deputy Directors presented updated progress.
- The Secretary, Agriculture took immediate measures in response to the solution of technical issues raised by DDs.
- The Secretary, Agriculture and DG, OFWM advised all DDs to expedite the progress and complete the works as soon as possible.
- The Secretary, Agriculture and DG, OFWM expressed their satisfaction on overall progress of the works.

Pictorial view of the participants of meeting is given in Picture 4.19.



Picture 4.19: The views of Progress Review Meeting chaired by the worthy Secretary Agriculture, GoB, held in the OFWM Office, Sariab Road, Quetta, Balochistan

4.3 INTERNAL MEETINGS OF ME&IE CONSULTANTS

Date	04 th April 2022
Venue	Zoom Meeting

Participants

- Dr. Usman Mustafa, Team Leader, ME&IE Consultants, National Office, Islamabad.
- Dr. Muhammad Abdul Quddus, Agricultural Economist, Lahore Office.
- Dr. Umar Farooq, Deputy Team Leader, ME&IE Consultants, Islamabad.
- Dr. Humayun, Deputy Team Leader, ME&IE Consultants, KPK.
- Mr. Yousaf Bhatti, Deputy Team Leader, ME&IE Consultants, Punjab.
- Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan.
- Mr. Rizwan Saleem, IT Specialist

Meeting Agenda/Points discussed:

- Sharing updated progress in tangible form by all DTLs
- Contents of MMR of March 2022 and QMR (Jan to Mar 2022)
- "District-wise Yearly Monitoring Progress" desired by NPC
- Status of uploading MTs in ODK.
- Quarterly Work Plan (Apr. to June 2022)
- Budgeting for Quarterly Work Plan (Apr. to June 2022)

Date	11th April 2022
Venue	Zoom Meeting
Participants	
i.	Dr. Usman Mustafa, Team Leader, ME&IE Consultants, National Office, Islamabad.
ii.	Dr. Muhammad Abdul Quddus, Agricultural 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, IT Specialist
Meeting Agenda/Points discussed:	
<ul style="list-style-type: none"> All DTLs shared the updated progress of last week The Team Leader fixed the submission dates of MMR and QMR for Provincial Heads. The DTLs shared their Field Visits Programme for the remaining three weeks of April 2022. The Budget for next Quarter (Apr. to Jun 2022) discussed Mr. Rizwan Saleem, IT Specialist shared the training schedule of ODK. The DTLs shared the lack of resources availability at their respective zones which effecting the office works / efficiency. The Team Leader shared the updates on financial status. Meeting will wrap-up by Team Leader with concluding remarks. 	

viii.	Ms. Muniza Bashir Tarar, Gender Specialist, NPIWC-II, Lahore, Punjab
ix.	Mr. Sami, Office Manager, Lahore Office
Meeting Agenda/Points discussed:	
<ul style="list-style-type: none"> Updated progress of last week Field Visits Plan for the month of April 2022. Budget Status for current Quarter (Apr. to Jun 2022) Provision of Android System to field staff Issues regarding refined MTs on ODK Non-provision of Female Social and Gender Specialist at Province Level. Provision of Pygmy Meter or relevant equipment for Water Flow Measurement. Updated financial status. 	

4.4 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.

4.4.1 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, Water Management Staff of ICT zone and OFWM staff KP zone.

4.4.2 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.

- Data cleaning and validation has been completed in KP Zone.
- 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

Date	18th April 2022
Venue	Zoom Meeting
Participants	
i.	Dr. Usman Mustafa, Team Leader, ME&IE Consultants, National Office, Islamabad.
ii.	Dr. Muhammad Abdul Quddus, Agricultural Economist, Lahore Office.
iii.	Mr. Waseem Ahmad Chaudhry, Financial Manager & Project Coordinator, NPIWC-II, Isb
iv.	Dr. Umar Farooq, Deputy Team Leader, ME&IE Consultants, Islamabad.
v.	Dr. Humayun, Deputy Team Leader, ME&IE Consultants, KPK.
vi.	Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Balochistan.
vii.	Mr. Rizwan Saleem, IT Specialist

is missing which was required by the ICT team for Implementation of MIS Dashboard.

4.4.3 Implementation of MIS Dashboard

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

AJK Zone - Watercourses Data Summary				
Division	2019-20	2020-21	2021-22	Overall
Muzaffarabad	31	92	51	174
Poonch	33	33	65	131
Mirpur	37	97	97	231
Overall	101	222	213	536

So far, Total 536 Watercourses data from AJK zone has been received and available live on Dashboard by which 249 Watercourse has been completed & 287 watercourses are under progress. Detailed summary attached as (Annex-F).

AJK Zone - Water Storage Tank Data Summary				
Division	2019-20	2020-21	2021-22	Overall
Muzaffarabad	36	62	40	138
Poonch	15	43	100	158
Mirpur	2	15	49	66
Overall	53	120	189	362

362 Water Storage Tank data received from AJK zone and is available live on Dashboard by which 167 Water Storage Tank has been completed and 195 are under progress. Detailed summary attached as (Annex-G).

The Dashboard has also been implemented in KP Zone and progress of completed schemes is live on the Dashboard since 11th March 2022.

KP Zone Watercourses Data Summary				
Division	2019-20	2020-21	2021-22	Overall
Bajaur Agency	3	17	14	34
Bannu	74	40		114

Dera Ismail Khan	431	11	52	494
Hazara	83	57	7	147
Khyber Agency	6	13	0	19
Kohat	98	41	25	164
Kurram Agency	1	5	2	8
Malakand	177	169	31	377
Mardan	105	64	9	178
Mohmand Agency	4	26	13	43
Orakzai Agency	0	1	0	1
Peshawar	141	85	3	229
S.W Agency	3	12	0	15
Overall	1126	541	156	1823

KP zone currently 1823 total watercourses data live on Dashboard and by which 1769 schemes have been completed and 54 schemes are under progress. Detailed Summary attached as (Annex-H).

KP Zone - Water Storage Tank Data Summary				
Division	2019-20	2020-21	2021-22	Overall
Bajaur Agency	1	9	1	11
Bannu	12	18	0	30
Dera Ismail Khan	81	6	5	92
Hazara	28	43	4	75
Khyber Agency	1	9	0	10
Kohat	29	17	1	47
Kurram Agency	1	1	0	2
Malakand	75	92	15	182
Mardan	16	9	4	29
Mohmand Agency	1	36	4	41
Orakzai Agency	0	2	0	2
Peshawar	36	25	4	65
S.W Agency	0	15	0	15
Overall	281	282	38	601

KP zone currently 601 total watercourses data live on Dashboard and by which 583 schemes have been completed and 18 WSTs are under progress. Detailed Summary attached as **(Annex-I)**.

ICT Watercourse Data Summary	
Division	2020-21
ICT	20
Grand Total	20

ICT zone so far only 20 watercourse schemes have completed, and their data is live on Dashboard. Furthermore, there is no scheme is under progress.

The ICT team is continuously in process of cleaning and validating the received data and communicating mistakes to the concerned ADs for correction.

CHAPTER 5: WORK PLAN-ACTIVITIES OF THE CURRENT QUARTER (APR 2022 TO JUNE 2022)

The ME&IE Consultants' activities initiating during the 2nd Quarter of year 2022 (April 1, 2022 to June 30, 2022) are listed below. A tentative Work Plan for 2nd Quarter of the year 2022 (April 1, 2022 to June 30, 2022) showing time span detail is given as **Annex-A**.

Pre Field Activities

- i) Preparation for 2nd-Phase Baseline Survey (Finalization of MTs)
- ii) Internal Meetings of ME&IE Consultants' Zonal Offices for development of Methodology for 2nd Phase Baseline Survey
- iii) Training of Field Teams for 2nd Phase of Baseline Survey

Field Activities

- iv) Regular monitoring of Interventions in the field
- v) Data collection of the intervention in the field
- vi) Baseline Survey Stage-II
- vii) Online data entry I android based application

ICT Assignment

- i) Development/improvement of website of NPIWC-II
- ii) Monitoring Android based Mobile Application under implementation by field staff
- iii) Data collection of interventions in MIS/GIS database
- iv) Data Cleaning, Development & Launching of Dashboard for Client Offices

Coordination

- i) Meeting of TL with NPC and OFWM Department regarding Progress / Issues
- ii) Meetings of DTLs with respective DTL of PC & concerned OFWM Department
- iii) ME&IE Consultants' Internal Meeting

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 (OCTOBER – DECEMBER 2021)	Submitted

Monthly Monitoring Report- Thirteenth (JANUARY 2022)	submitted within stipulated time
Monthly Monitoring Report- Fourteenth (FEBRUARY 2022)	submitted within stipulated time
Monthly Monitoring Report- Fifteen (MARCH 2022)	submitted within stipulated time
Quarterly Monitoring & Evaluation Report-First Quarter year 2022 (JANUARY – MARCH 2022)	submitted within stipulated time
Monthly Monitoring Report- Fifteen (APRIL 2022)	Report in hand 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 I

ANNEX-A: TENTATIVE WORK PLAN

ANNEX - A: TENTATIVE QUARTERLY WORK PLAN (APRIL TO JUNE 2022)

TENTATIVE WORK PLANNED FOR THE QUARTER (April 2022 To June 2022)												Legend				
													Activity starts			
													Activity Ends			
													Activity Span			
No.	ACTIVITIES				3 Months-Year 2022 (Weeks)											
					April				May				June			
					WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4
1	Pre-Field Activities															
	1.1	Preparation for 2nd-Phase Baseline Survey (Finalization of MTs)														
		Internal Meetings of ME&IE Consultants' Zonal Offices for development of Methodology for 2nd Phase Baseline Survey														
	1.2	Methodology for 2nd Phase 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 application														
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	Data Cleaning, Development & Launching of Dashboard for Client Offices														
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														
	4.3	ME&IE Consultants Internal Meetings														
5	Deliverable															
	5.1	Monthly Monitoring Report														
	5.2	Quarterly Monitoring Report (January-March 2022)														
	5.3	Preparation of Baseline Survey Report 2nd-Phase														

ANNEX - B: MATRIX OF RESPONSIBILITIES

MATRIX OF RESPONSIBILITIES

SR. NO.	DELIVERABLE / ACTIVITIES	LEGEND			
		● Primary Responsibility	○ Secondary Responsibility	○ Assistance	
		NPC-FPMU	Agriculture Dept. (FPMU)	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.	<p>a) Establishment of 47,278 Water users' associations (WUAs);</p> <p>b) Registration of 47,278 WUAs;</p> <p>c) Improvement and realignment of earthen section of 47,278 watercourses;</p> <p>d) Lining of up to 50% length of 47,278 watercourses either by:</p> <ul style="list-style-type: none"> ● Precast concrete parabolic lining (PCPL) segments, or ● Rectangular brick masonry, or any other method as approved by the project 	<p>a) 47,278 WCAs established;</p> <p>b) 47,278 WCAs registered;</p> <p>c) 47,278 watercourses improved and lined;</p>	<p>a) Conveyance losses for improved watercourses decreased by about 15 percentage points.</p> <p>b) 1.654 million households benefited from the activity;</p> <p>c) 11.347 million acres served with improved watercourses</p>	<p>a) Increase in cropping intensity on improved watercourses by 5-24%;</p> <p>b) Increase in crop yields.</p> <p>c) Increase in irrigated area</p> <p>d) Increase in agriculture output per unit of water by about 37%</p>	<p>a) Increase in farm income;</p> <p>b) Increase in employment for farm labour;</p> <p>c) Reduction in poverty;</p> <p>d) Enhanced food security for the country.</p>	<p>a) The water flow measurements will be carried out at before and after watercourse improvement on 2-5% sample basis;</p> <p>b) Agriculture survey before and after watercourse improvement on 2-5% sample basis;</p> <p>c) The survey will determine:</p> <ul style="list-style-type: none"> ● Cropping pattern before and after the improvement; ● Cropping intensities before and after improvement; ● Before and after crop yields;
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							<ul style="list-style-type: none"> • 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

							<p>teams after one years of delivery</p> <p>c) The unit will be verified</p> <p>d) Area treated during the year will be collected</p> <p>e) Farmers' feedback collected on quality of the unit, quality of the after-sale service, etc.</p>
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ANNEX - D: DELIVERABLES/REPORTING REQUIREMENTS

Deliverables/Reporting Requirements

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

ANNEX - E: IMPACT EVALUATION DATA OF BALOCHISTAN ZONE

IMPACT EVALUATION DATA (BEFORE / AFTER)

Sr. #	District	Beneficiary Name	Type/Nature of Scheme	Source of Water	Area Cultivated (Acres)		Area not Cultivable due to permanent structures (Acres)		Cultivable Wasteland (Acres)		Area planted in Both Seasons (Acres)		Waterlogging/ Salinity		Theft of Water		Change in Water Flow (%age Increased)
					Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	
	Quetta	Ghulam Farooq	WC/New	Tubewell	10	15	3	3	5	0	0	0	not in this area	not in this site	not in this site	not in this site	15%
2	Quetta	Muhammad Siddique	WC/New	Tubewell	13	25	3	3	24	12	0	0	not in this area	not in this site	not in this site	not in this site	5%
3	Quetta	Faqeer Muhammad	WST	Tubewell	25	40	6	6	39	24	7	7	not in this area	not in this site	not in this site	not in this site	-
4	Quetta	Abdul Quddus	WST	Tubewell	4	8	3	3	15	11	0	0	not in this area	not in this site	not in this site	not in this site	-
5	Naseerabad	Mohammad Ali	WC/New	Canal	52	78	36	10	26	0	52	78	not in this area	not in this site	not in this site	not in this site	10%
6	Naseerabad	Mohammad Younas	WC/New	Canal	60	80	32	12	28	8	60	80	not in this area	not in this site	not in this site	not in this site	10%
7	Naseerabad	Nadir Ali	WC/New	Canal	78	88	8	8	10	0	78	88	not in this area	not in this site	not in this site	not in this site	10%
8	Naseerabad	Sanaullah	WST	Canal	5	15	5	5	10	0	5	15	not in this area	not in this site	not in this site	not in this site	-

Sr. #	District	Beneficiary Name	Type/Nature of Scheme	Source of Water	Pumping Cost – Tubewell (PKR per Month)		Time taken per irrigation per acre (Hours)		Hired Labor		PHL		Livestock		Trees Cut Down
					Before	After	Before	After	Before	After	Before	After	Before	After	
1	Quetta	Ghulam Farooq	WC/New	Tubewell	0,000	10,000	8	4	Yes	Yes	4	4	0	0	0
2	Quetta	Muhammad Siddique	WC/New	Tubewell	10,000	10,000	5	2	Yes	Yes	2	3	0	2	0
3	Quetta	Faqeer Muhammad	WST	Tubewell	10,000	10,000	10	5	Yes	Yes	4	6	11	21	0
4	Quetta	Abdul Quddus	WST	Tubewell	10,000	10,000	7	5	Yes	Yes	3	3	0	24	0
5	Naseerabad	Mohammad Ali	WC/New	Canal	Source of water is Canal in Naseerabad District		10	7	Yes	Yes	3	5	12	16	0
6	Naseerabad	Mohammad Younas	WC/New	Canal			14	8	Yes	Yes	4	5	22	25	0
7	Naseerabad	Nadir Ali	WC/New	Canal			13	6	Yes	Yes	5	6	10	10	0
8	Naseerabad	Sanaullah	WST	Canal			12	5	Yes	Yes	1	2	12	12	0

DETAILED ATA OF REGULAR / SPOT CHECK MONITORING:

Watercourses:

District	Beneficiary Name	Removal of vegetation from watercourse properly?	Aligning according to design?	Thickness of wall is as per design?	Depth of watercourse is as per design?	Width of watercourse is as per design?	Thickness of plaster at wall is adequate?
Quetta	Ghulam Farooq	Yes	Yes	Yes	Yes	Yes	Yes
Quetta	Muhammad Siddique	Yes	Yes	Yes	Yes	Yes	Yes
Naseerabad	Mohammad Ali	Yes	Yes	Yes	Yes	Yes	Yes
Naseerabad	Mohammad Younas	Yes	Yes	Yes	Yes	Yes	Yes
Naseerabad	Nadir Ali	Yes	Yes	Yes	Yes	Yes	Yes

District	Beneficiary Name	Thickness of bed is adequate?	Thickness of mortar at wall is adequate?	Free board height is as per design?	Back collar mortar is adequate?	Quality of Plaster?	Back filling of the lining portion?
Quetta	Ghulam Farooq	Yes	Yes	Yes	Yes	Satisfactory	Good
Quetta	Muhammad Siddique	Yes	Yes	Yes	Yes	Satisfactory	Not Satisfactory
Naseerabad	Mohammad Ali	Yes	Yes	Yes	No	Satisfactory	Not Satisfactory
Naseerabad	Mohammad Younas	Yes	Yes	Yes	No	Satisfactory	Not Satisfactory
Naseerabad	Nadir Ali	Yes	Yes	Yes	Yes	Satisfactory	Satisfactory

Water Storage Tanks:

District	Beneficiary Name	The WST was completed as per approved standards and specifications?	Excavation was done as per standard engineering practices?	Before filling the WST, the OFWM staff prepared the completion report?	Any variations in specifications and material used?	Backfilling done properly?	Quality of WST
Quetta	Abdul Quddus	Yes	Yes	No	No	Yes	Good
Quetta	Faqeer Muhammad	Yes	Yes	No	No	No	Good
Naseerabad	Sanallah	Yes	Yes	Yes	No	Yes	Satisfactory

ANNEX - F: AJK ZONE - WATERCOURSE DATA COLLECTION SUMMARY

AJK Zone - Watercourses Data Collection Summary											
Division	District	2019-20		2019-20 Total	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall Total
		Completed	Under Progress		Completed	Under Progress		Completed	Under Progress		
Muzaffarabad	Muzaffarabad	20	8	28	12	30	42	0	31	31	101
	Jhelum	1	1	2	12	6	18	0	11	11	31
	Neelum	0	1	1	7	25	32	1	8	9	42
Muzaffarabad Total		21	10	31	31	61	92	1	50	51	174
Poonch	Poonch	11	1	12	11	1	12	4	19	23	47
	Bagh	12	1	13	5	2	7	0	10	10	30
	Haveli	1	1	2	3	1	4	0	11	11	17
	Sudhnoti	6	0	6	7	3	10	0	21	21	37
Poonch Total		30	3	33	26	7	33	4	61	65	131
Mirpur	Mirpur	15	0	15	35	0	35	4	34	38	88
	Bhimber	8	3	11	46	2	48	11	31	42	101
	Kotli	10	1	11	7	7	14	0	17	17	42
Mirpur Total		33	4	37	88	9	97	15	82	97	231
Overall		84	17	101	145	77	222	20	193	213	536

ANNEX - G: AJK ZONE – WATER STORAGE TANK DATA SUMMARY

AJK Zone - Water Storage Tank Data Summary											
Division	District	2019-20		2019-20 Total	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Under Progress		Completed	Under Progress		Completed	Under Progress		
Muzaffarabad	Muzaffarabad	35	0	35	40	15	55	3	29	32	122
	Jhelum	1	0	1	4	3	7	0	8	8	16
Muzaffarabad Total		36	0	36	44	18	62	3	37	40	138
Poonch	Poonch	8	0	8	19	0	19	12	24	36	63
	Bagh	3	0	3	14	0	14	1	15	16	33
	Haveli	0	0	0	2	0	2	0	32	32	34
	Sudhnoti	2	2	4	6	2	8	0	16	16	28
Poonch Total		13	2	15	41	2	43	13	87	100	158
Mirpur	Mirpur	0	0	0	1	0	1	1	15	16	17
	Bhimber	1	0	1	2	0	2	0	25	25	28
	Kotli	1	0	1	11	1	12	0	8	8	21
Mirpur Total		2	0	2	14	1	15	1	48	49	66
Overall		51	2	53	99	21	120	17	172	189	362

ANNEX - H: KP ZONE – WATERCOURSE DATA SUMMARY

KP Zone - Watercourses Data Summary									
Division	District	2019-20	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Completed	Under Progress		Completed	Under Progress		
Bajaur Agency	Bajaur	3	17	0	17	2	12	14	34
Bajaur Agency Total		3	17	0	17	2	12	14	34
Bannu	Bannu	38	15	0	15	0	0	0	53
	Lakki Marwat	34	22	0	22	0	0	0	56
	N.W Agency	2	3	0	3	0	0	0	5
Bannu Total		74	74	40	0	40	0	0	0
Dera Ismail Khan	Dera Ismail Khan	419	0	0	0	22	14	36	455
	Tank	12	11	0	11	16	0	16	39
Dera Ismail Khan Total		431	11	0	11	38	14	52	494
Hazara	Abbottabad	7	9	0	9	0	0	0	16
	Battagram	15	10	0	10	0	0	0	25
	Haripur	17	12	0	12	0	0	0	29
	Kohistan	8	10	0	10	0	0	0	18
	Mansehra	34	12	1	13	1	0	1	48
	Torghar	2	3	0	3	6	0	6	11
Hazara Total		83	56	1	57	7	0	7	147
Khyber Agency	Khyber	6	13	0	13	0	0	0	19

KP Zone - Watercourses Data Summary									
Division	District	2019-20	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Completed	Under Progress		Completed	Under Progress		
Khyber Agency Total		6	13	0	13	0	0	0	19
Kohat	Hangu	29	4	0	4	9	0	9	42
	Karak	17	19	0	19	0	0	0	36
	Kohat	52	18	0	18	16	0	16	86
Kohat Total		98	41	0	41	25	0	25	164
Kurram Agency	Kurram	1	5	0	5	2	0	2	8
Kurram Agency Total		1	5	0	5	2	0	2	8
Malakand	Buner	16	14	0	14	21	0	21	51
	Chitral	12	29	0	29	0	1	1	42
	Lower Dir	21	24	0	24	0	1	1	46
	Malakand	27	18	0	18	0	2	2	47
	Shangla	19	6	0	6	4	1	5	30
	Swat	67	58	8	66	0	1	1	134
	Upper Dir	15	12	0	12	0	0	0	27
Malakand Total		177	161	8	169	25	6	31	377
Mardan	Mardan	37	50	0	50	0	0	0	87
	Swabi	68	14	0	14	0	9	9	91
Mardan Total		105	64	0	64	0	9	9	178

KP Zone - Watercourses Data Summary									
Division	District	2019-20	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Completed	Under Progress		Completed	Under Progress		
Mohmand Agency	Mohmand	4	26	0	26	13	0	13	43
Mohmand Agency Total		4	26	0	26	13	0	13	43
Orakzai Agency	Orakzai	0	1	0	1	0	0	0	1
Orakzai Agency Total		0	1	0	1	0	0	0	1
Peshawar	Charsadda	70	26	0	26	0	0	0	96
	Nowshera	28	42	1	43	0	1	1	72
	Peshawar	43	16	0	16	0	2	2	61
Peshawar Total		141	84	1	85	0	3	3	229
S.W Agency	S.W Agency	3	12	0	12	0	0	0	15
South Waziristan Agency Total		3	12	0	12	0	0	0	15
Overall		1126	531	10	541	112	44	156	1823

ANNEX - I: KP ZONE – WATER STORAGE TANK DATA SUMMARY

KP Zone - Water Storage Tank Data Summary											
Division	District	2019-20		2019-20 Total	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Under Progress		Completed	Under Progress		Completed	Under Progress		
Bajaur Agency Total		1	0	1	9	0	9	1	0	1	11
Bannu	Bannu	2	0	2	2	0	2	0	0	0	4
	Lakki Marwat	10	0	10	8	0	8	0	0	0	18
	North Waziristan	0	0	0	8	0	8	0	0	0	8
Bannu Total		12	0	12	18	0	18	0	0	0	30
Dera Ismail Khan	Dera Ismail Khan	71	0	71	0	0	0	5	0	5	76
	Tank	10	0	10	6	0	6	0	0	0	16
Dera Ismail Khan Total		81	0	81	6	0	6	5	0	5	92
Hazara	Abbottabad	0	0	0	0	0	0	0	1	1	1
	Abottabad	4	0	4	5	0	5	0	0	0	9
	Battagram	6	0	6	16	0	16	0	0	0	22
	Haripur	7	0	7	6	0	6	0	1	1	14
	Kohistan	3	0	3	6	0	6	0	0	0	9
	Mansehra	5	0	5	8	0	8	0	0	0	13
	Torghar	3	0	3	2	0	2	2	0	2	7

KP Zone - Water Storage Tank Data Summary											
Division	District	2019-20		2019-20 Total	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Under Progress		Completed	Under Progress		Completed	Under Progress		
Hazara Total		28	0	28	43	0	43	2	2	4	75
Khyber Agency	Khyber	1	0	1	9	0	9	0	0	0	10
Khyber Agency Total		1	0	1	9	0	9	0	0	0	10
Kohat	Hangu	14	0	14	0	0	0	0	0	0	14
	Karak	13	0	13	16	0	16	0	0	0	29
	Kohat	2	0	2	1	0	1	1	0	1	4
Kohat Total		29	0	29	17	0	17	1	0	1	47
Kurram Agency	Kurram	1	0	1	1	0	1	0	0	0	2
Kurram Agency Total		1	0	1	1	0	1	0	0	0	2
Malakand	Buner	4	0	4	12	0	12	9	1	10	26
	Chitral	4	0	4	2	0	2	0	0	0	6
	Dir Lower	3	0	3	4	0	4	0	0	0	7
	Dir Upper	6	0	6	8	0	8	0	0	0	14
	Malakand	7	1	8	5	0	5	0	2	2	15
	Shangla	8	0	8	6	0	6	3	0	3	17
	Swat	42	0	42	51	4	55	0	0	0	97
Malakand Total		74	1	75	88	4	92	12	3	15	182
Mardan	Mardan	9	0	9	7	0	7	0	1	1	17

KP Zone - Water Storage Tank Data Summary											
Division	District	2019-20		2019-20 Total	2020-21		2020-21 Total	2021-22		2021-22 Total	Overall
		Completed	Under Progress		Completed	Under Progress		Completed	Under Progress		
	Swabi	7	0	7	2	0	2	0	3	3	12
Mardan Total		16	0	16	9	0	9	0	4	4	29
Mohmand Agency	Mohmand	1	0	1	36	0	36	4	0	4	41
Mohmand Agency Total		1	0	1	36	0	36	4	0	4	41
Orakzai Agency	Orakzai	0	0	0	2	0	2	0	0	0	2
Orakzai Agency Total		0	0	0	2	0	2	0	0	0	2
Peshawar	Charsadda	13	0	13	0	0	0	0	0	0	13
	Nowshera	14	0	14	17	0	17	0	0	0	31
	Peshawar	9	0	9	8	0	8	0	4	4	21
Peshawar Total		36	0	36	25	0	25	0	4	4	65
South Waziristan Agency	South Waziristan	0	0	0	15	0	15	0	0	0	15
South Waziristan Agency Total		0	0	0	15	0	15	0	0	0	15
Overall		280	1	281	278	4	282	25	13	38	601