MINISTRY OF NATIONAL FOOD SECURITY & RESEARCH

NATIONAL PROGRAM FOR ENHANCING THE COMMAND AREA IN BARANI AREAS OF PAKISTAN (NPECA)
PROJECT CONSULTANTS FOR IMPLEMENTATION ASSISTANCE, EXECUTION SUPERVISION AND THIRD-PARTY VALIDATION

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INTRODUCTION

1 INTRODUCTION

In Pakistan, a substantial number of the most impoverished farmers rely on direct rainfall to sustain their precarious livelihoods. Rain-fed agriculture plays a significant role in providing sustenance and livelihoods for an ever-growing population. However, the limited and often unpredictable distribution of rainfall presents formidable challenges to agricultural productivity and the well-being of the people. Approximately 6 million acre-feet (MAF) of water runoff is lost from cultivated rain-fed areas. There is a potential to cultivate 3.37 million hectares (mha) of land in rain-fed areas, promoting sustainable agriculture.

Currently, Pakistan has 772 small dams distributed across all provinces: 619 in Baluchistan, 81 in Sindh, 58 in Punjab, and 14 in Khyber Pakhtunkhwa. These small dams have a total potential command area of 680,420 acres, but only 13.3% of this area is currently being irrigated and developed, while the remaining 86.7% remains undeveloped. Additionally, there are 2,997 mini dams in Punjab and Khyber Pakhtunkhwa, with 1,853 in Punjab and 1,144 in Khyber Pakhtunkhwa. The potential command area under these mini dams is 48,613 acres, but only about 25% of this area has been developed. Consequently, the crop intensity and production in these command areas remain extremely low. Factors contributing to this low productivity include inadequate on-farm water storage capacity, low land, and water productivity, energy unavailability at the farm level, underdeveloped command areas of small dams and water reservoirs, significant culturable waste, a shortage of skilled manpower, limited coordination between departments, and insufficient linkages between federal and provincial research and development departments.

Pakistan is currently moving towards a situation of water shortage, which subsequently poses a threat to food security. According to the National Water Policy approved in 2018, per capita, surface water availability has declined from 5,260 cubic meters per year in 1951 to around 1,000 cubic meters in 2016. It is projected to further decrease to approximately 860 cubic meters by 2025, indicating the country's transition from a "water-stressed" to a "water-scarce" state. The minimum water requirement to avoid food and health implications of water scarcity is 1,000 cubic meters per capita per year. Urgent action is required to rapidly develop and manage the country's water resources.

The water conservation plans outlined in the National Water Policy include adopting rainwater harvesting technology, implementing water conservation techniques and technologies at the farm level, reusing and recycling treated municipal and industrial wastewater effluent, employing technology for sustainable use of drainage water in agriculture, horticulture, and forestry, and developing strategies and action plans to ensure food security for the people of Pakistan. The principle of "More Crop per Drop" will be pursued, and a national plan will be developed for the implementation of improved irrigation methods and practices. Steps will be taken to enact a law banning flood irrigation throughout the country at the earliest opportunity. Extensive research and development efforts will be directed toward developing new crop varieties with high yields, lower water consumption, reduced greenhouse gas emissions, resistance to heat stress, drought tolerance, and enhanced resilience to insects and pests. Moreover, increased attention will be given to rain-fed agriculture, which is more susceptible to seasonal variability. Moisture conservation and rainwater harvesting will be emphasized to reduce reliance on direct rainfall in rain-fed areas where groundwater is available at relatively shallow levels. Incentives and subsidies will be provided where feasible.

The promotion of sustainable agriculture and the improvement of livelihoods in rain-fed areas require an integrated approach. For instance, the development of mini-dams should be accompanied by catchment and command area development of the watershed. Additionally, other interventions such as watercourse and pipeline installation, soil erosion control structures, diversion structures, on-farm water storage tanks, solar pumps, sprinkler and drip irrigation systems, and cultivation of high-value crops need to be pursued simultaneously. Capacity-building initiatives for stakeholders are also essential to encourage the adoption of appropriate technologies at both national and local levels.

Soil, water, and energy conservation technologies are effective tools for reducing rural poverty, but further research is needed to determine the best means of reducing disparities among landowners and between landowners and other groups, without compromising productivity and broader poverty alleviation goals. Conserving available runoff water generated by rains through the development of water storage ponds, tanks, and other interventions, and using it for supplemental irrigation of water-sensitive crops, would be the most suitable measure for increasing water productivity at the farm level. The climatic conditions, soils, and water resources in the project area of Pakistan offer significant opportunities for cultivating high-value and cash crops, such as orchards (citrus, olive, grapes, stone fruits), vegetables (cucumber, capsicum, chilies, onion, tomato, potato, garlic), groundnut, pulses, mustard, sesame, etc. Therefore, the substantial potential exists for the development of irrigated agriculture in rain-fed areas through effective water resource development and efficient management.

Given the challenges posed by climate change and the need for food security in the face of a growing population, it is imperative to adopt productive farming systems that are resilient to risks, shocks, and long-term climatic variations. This requires a paradigm shift in the management of major crop production inputs, such as land and water, to ensure their efficient, intelligent, and sustainable utilization. While the term "climate-smart agriculture" (CSA) has gained traction globally among international communities, national entities, and local institutions, there is no standardized blueprint for CSA, as its precise nature varies depending on various factors such as climate, topography, crop types, available technologies, and farmers' knowledge and skills. CSA represents an approach that guides actions to transform agri-food systems toward sustainable and climate-resilient practices. It aligns with internationally agreed goals such as the Sustainable Development Goals (SDGs) and the Paris Agreement. The key objectives of CSA are to increase agricultural productivity and incomes sustainably, adapt and build resilience to climate change, and reduce or remove greenhouse gas emissions whenever possible.

1.1 Description of the Project

This project is intricately linked to the strategies and development initiatives of the Government of Pakistan. It aligns seamlessly with the Medium-Term Development Framework (MTDF) of the government, which emphasizes the efficient conveyance and application of water through the rehabilitation and improvement of on-farm water infrastructure, as well as the adoption of advanced irrigation techniques such as drip and sprinkler irrigation.

Within the framework of the Pakistan Growth Strategy, irrigation water management is recognized as a crucial component for achieving the targeted agricultural growth. This will be accomplished through farm-level water conservation measures, including the construction of water storage ponds, the development of dug wells, and the enhancement of watercourses in

the command areas of small dams and mini dams in the barani areas of Pakistan. The deployment of solar pumping systems at farm ponds and dug wells, along with the provision of LASER land levelers, further contributes to the objectives of the project.

The National Program for Enhancing Command Area in Barani Areas of Pakistan has a strong relationship with all the strategies and growth development of Government of the Pakistan. It is in line with the Medium-Term Development Framework (MTDF) of the Government of Pakistan, which envisages efficient water conveyance and its application through rehabilitation/ improvement of farm-level water infrastructure and adoption of improved irrigation methods e.g., drip and sprinkler irrigation, etc. The Pakistan Growth Strategy envisages irrigation water management as one of the components for achieving the targeted agricultural growth, which would be achieved through water conservation at the farm level through the construction of water storage ponds, development of dug wells, improvement of watercourses in the command area of small dams/ mini dams of barani areas of Pakistan, installation of solar pumping systems at the farm pond, dug wells, and provision of LASER land levelers.

The project consists of the following districts;

Table 1: Selected Provinces and Districts in Project

Sr. No.	Province	Districts
1.	**Punjab**	Attock, Chakwal, Jhelum, Rawalpindi, Dera Ghazi Khan, Layyah, Rajanpur, Khushab, Bhakkar, Mianwali, Gujrat, Sialkot, Narowal
2.	**Baluchistan**	Quetta, Pishin, Killa Abdullah,Chagai, Nushki, Zhob, Bharkhan, Musa Khail, Killa Saifullah, Duki, Loralai, Sherani, Sibi, Harnai, Ziarat, Kohlu, Naseerabad, Jhal Magsi, Kalat, Surab, Mastung, Khuzdar, Awaran, Kharan, Washuk, Kech, Lasbela, Panjgur, Dera Bugti, Gawadar, Bolan
3.	**Khyber Pakhtunkhwa**	Karak, Kohat, Bannu, Hangu, Haripur, Peshawar, Nowshera, Charsadda, Swabi, Dir, Swat
4.	**Azad Jammu Kashmir**	Neelum, Muzaffarabad, Haitian, Bagh, Haveli, Poonch, Sudhnoti, Lotli, Mirpur, Bhimber
5.	**Gilgit Baltistan**	Gilgit, Skardu, Shigar, Kharmang, Diamer, Astore, Ghanche, Hunza, Nagar
6.	**Islamabad Capital Territory**	Islamabad

1.2 Project Development Objectives

The objective of the proposed project is to promote an environment-friendly, socially sustainable, resource-efficient, and economically profitable irrigated agriculture in rain-fed areas through integrated development and management of available water resources by strengthening small landholders' resilience to climate change. The overall development objective of this component would be to enhance agricultural productivity vis-à-vis water productivity.

The key objectives;

i. Development of Command Area of Small and Mini Dams
ii. Improved Land and Water Productivity
iii. Poverty Reduction through Employment Generation
iv. Motivation/Participation of farmers
v. Increase Area under crops and sufficiency in food
vi. Improved Economic Condition of Barani Area Farmers
vii. Build the capacity of farmers to adjust to changing environment and for practicing resource efficient and profitable irrigated agriculture

viii. Enhance crop productivity by developing land and water resources using modern irrigation methods/ techniques
ix. Promote cultivation of high-value cash crops using efficient irrigation systems and agricultural practices for enhancing water productivity to cope with the effects of climate change
x. Increase farm income/profitability of small landholders to improve livelihoods
xi. Create job opportunities in rural areas by introducing high-value irrigated agriculture
xii. Promotion of fruit crops, oilseeds/pulses, and fodder in the Barani areas

1.3 Quantitative Objectives

The proposed project would follow an integrated approach including the development of water sources (farm ponds and dug wells) for assured supply of irrigation water, construction of farm level water distribution network (watercourses) for irrigating crops, promotion of LASER land leveling services, solar pumping systems for irrigation, capacity building of stakeholders for promotion of irrigated agriculture in the rain-fed areas. The component-wise detail of project interventions is given as under.

I. Construction of 2,664 farm ponds for storing rainwater
II. Installation of 2,664 solar pumping systems on farm ponds for the operation of high-efficiency irrigation systems
III. Development of 4,106 dug wells for developing water sources to promote irrigated agriculture
IV. Installation of 4,156 solar pumping systems at dug wells for the operation of high-efficiency irrigation systems (inclusive of 50 Hydro-Ram Pumps for GB Component instead of solar pumping system on dug wells)
V. Development/ improvement of 2,432 watercourses carrying water from various sources for enhancing water conveyance efficiency at the farm level
VI. Provision of 1,106 LASER land levelers to the farmers/service providers for strengthening LASER land leveling services in the Barani areas. Rough Land Levelling will also be done on 34,000 acres in Khyber Pakhtunkhwa
VII. Provision of fruit plants, oilseeds/ pulses crops & fodder/ forage/ range on 45,518, 112,189, and 81,676 acres, respectively, in the command area of small/ mini dams to ensure irrigated agriculture
VIII. To establish demo-cum-training sites at five locations all over Pakistan and undertake need-based research activities as and when required

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DESCRIPTION OF THE PROJECT

2 PROJECT EXECUTION

2.1 Project Components

In this project, the following mentioned components are included for the verification of designs and their implementation;

I. Farm Ponds
II. Development/Rehabilitation of Dug wells
III. Solar system on Farm Ponds/Dug wells
IV. Water Courses Improvements/Lining
V. Provision of LASER land leveling Units
VI. Rough Land Leveling in KPK
VII. Provision of Hydro Ram Pump in GB
VIII. Fruit Plants, Oil Seed/Pulses Crops, Fodder/Forage/Range

2.2 Roles and Responsibilities of Project Consultants

The National Project for Enhancing the Command Area in Barani Areas of Pakistan is currently in its fourth year of operation. To ensure the successful implementation, execution, and third-party validation of completed, ongoing, and new schemes, the esteemed National Project Coordinator (NPC) has engaged the services of CAMOES Engineers, Architects, Planners, Agriculture, Social development & HRD consultants. This contract is aimed at providing valuable assistance and expertise in the efficient management and supervision of the project.

The main responsibilities of the project consultants are;

I. Implementation Assistance
II. Execution supervision
III. Third-party validation

To meet these objectives, the consultants will be responsible for the following activities:

I. Prepare standards, parameters, and specifications for farm ponds, dug wells, LASER Land leveling units, solar pumping systems, hydro ram pumps, watercourses, etc.
II. Inspect/advise on standards, specifications, and criteria for the construction materials/equipment, etc.
III. Provide project management support services to NPC, provincial DGs/Directors, and District Offices on a need basis.
IV. Review and validate plans, designs, and cost estimates of the watercourse, farm ponds, dug wells, solar-powered pumping systems, hydro ram pumps, Laser land levelers, and other project activities.
V. Validation of the quality and the construction of farm ponds dug wells, LASER land leveling units, solar pumping systems, hydro ram pumps, watercourses, and Pulses/oilseed/forage/fodder crop or fruit plants before all payments.
VI. Reporting to NPC, provincial DGs, and Directors on compliance/non-compliance of works with agreed criteria and specifications.
VII. Submit monthly, quarterly, and annual progress reports for Project activities besides other periodic reports as per the requirements of the Client.
VIII. Verification of project interventions completed before the commencement of consultancy services, if any.
IX. Development of a GIS-based information system of all the interventions, and their management.
    a. Develop a website containing information on facilities and services, applications, and procedures including all project activities.

b. Provide technical support for the development of a custom-designed mobile application (Android) to capture on-site project progress, and geo-tagged photos should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management.
c. The application should generate custom-designed reports and analyses as per user-defined requirements.
d. The application should generate alerts (SMS, email, web notifications) to the user on the non-conformance of project key performance indicators, the application should have the provision to custom define Alert levels and desired notifications.

2.3 Project Implementation & Monitoring

The quantum of work in all the provinces/areas is given as under:

Table 2: Quantum of Work in all provinces

Intervention	Unit	Provincial/Agencies' Share							
		Punjab	Sindh	KP	Baloch	GB	AJK	ICT	TOTAL
Farm Pond	Nos	480	985	-	859	150	150	40	**2,664**
Solar Pumping System for Farm Pond (7.5 kW)	Nos	480	985	-	859	150	150	40	**2,664**
Dug Well Development/	Nos	736	1,522	-	1623	50	150	75	**4,156**
Solar Pumping System Dug Wells (5 kW)	Nos	736	1,522	-	1623	50*	150	75	**4,156**
Watercourses Dev./ Rehabilitation	Nos	600	1,000	400	392	-	40	-	**2,432**
Laser Levelling Units	Nos	500	500	-**	91	-	5	10	**1,106**
Fruit Plants	Acres	6,383	13,191	2,130	20,864	1,050	1,000	900	**45,502**
Oilseed/Pulses Crops	Acres	16,538	34,178	5,513	54,023	-	2250	-	**112,189**
Fodder/Forage/Range	Acres	11,562	23,895	1,500	37,769	1,950	2,000	3,000	**81,676**

* Inclusive of **50 Hydro-Ram Pumps** for GB Component instead of solar pumping system on dug wells
** Rough Land Levelling will be done on **34,000** acres in Khyber Pakhtunkhwa

The NPECA (National Program for Enhancing the Command Area in Barani Areas of Pakistan) Project has been implemented since July 2019, and significant field activities have been completed and are currently ongoing over the past two and a half years. To ensure the smooth progress of the project, it was essential to validate and verify the backlog of previously completed works, in addition to the ongoing and new activities, with the assistance of project consultants.

Upon the approvals and the deployment of the field inspection team at the field offices, comprehensive meetings were conducted with the relevant Provincial Department to assess the scope, physical location, and progress of all previous activities. Subsequently, a detailed work plan has been formulated based on the progress given by the departments. It is imperative to collect all relevant materials and documents, including reports such as the WUA (Water User Association) Act, Water Management Manuals, Survey Reports, Design Reports, Feasibility Studies, IEE (Initial Environmental Examination), EIA (Environmental Impact Assessment), EMPs (Environmental Management Plans), and PC-Is (Project Concept-Implementation Plans). The data contained in these reports were thoroughly reviewed and

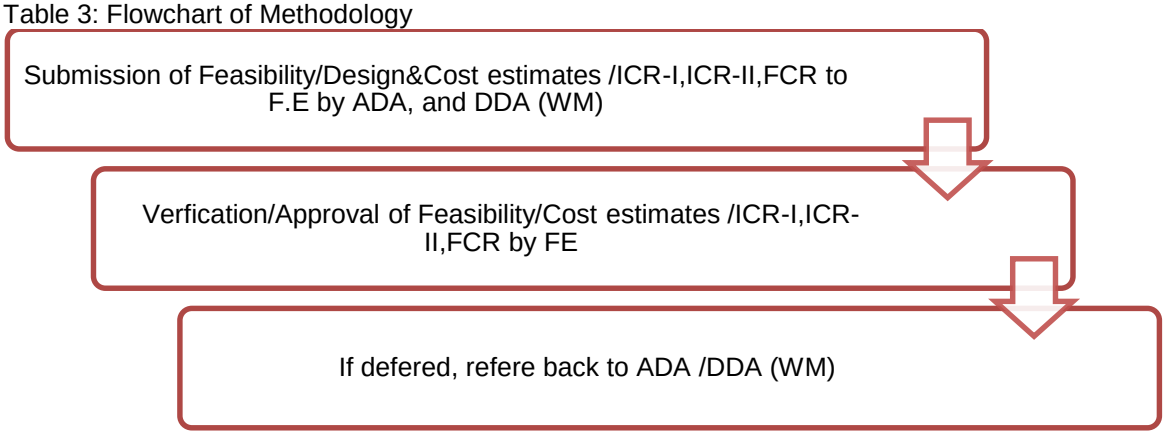
utilized as a baseline for the revalidation of the various stages of ongoing and new interventions.

Furthermore, topo sheets and topographic data have been utilized to demarcate project components and estimate the capacity of project components, such as farm ponds and earthwork requirements. All the relevant information and data were collected from the federal Water Management Cell for the finalization of designs and specifications/standards for all OFWM Components and at the provincial level, the designs standards and specifications have been collected from OFWM directorates. The design Engineer of the consultants has gathered all the relevant data for preparation and finalization of designs, and standards/specifications of all components according to the latest guidelines and practices. Uniformity of designs and applicability is the main considerations for the review of designs and their finalization. These meticulous efforts in data collection, analysis, and validation will provide a solid foundation for the successful implementation, execution, and third-party validation of the National Program for Enhancing the Command Area in the Barani Areas of Pakistan.

2.3.1 Methodology adapted for the Review and the validation of designs of interventions

The methodology and activities for highlighting the verification and validation phase of the project interventions by the design team, field engineers, and field supervisors under this project are depicted in the flowchart below.

Table 3: Flowchart of Methodology



Design and cost estimate of various interventions has been carried out by the respective provincial departments according to standardized engineering procedures. Design sheets including basic data sheets have also been prepared. After the formation and registration of WUA (where required), Feasibility, designs, and cost estimates will be checked/Approved according to the Standards and specifications already approved by the Provincial Standards and Specifications Technical Committee. The consultant will recommend releasing 1st installment to WUA, after the deposit of the required farmer share and issuance of TS by the competent authority. Each province has different criteria for designing, using Different materials for civil works, cost sharing, and procedures for the flow of funds. These differences will be taken into account during the feasibility, design and cost estimate validation, and releases of funds process. Any change in designs or specifications would be subject to approval by the Provincial Standards and Specifications Technical Committee prior to their implementation.

The design parameters and tools of the following mentioned Components have been finalized by the Design Engineer at the national office based on the advanced guidelines

Table 4: Design Parameters

Description
Farm Pond in South Punjab & and Baluchistan

Farm Pond in Potohar Region Punjab
Farm Pond in GB
Farm Pond in AJK/ICT
Dug wells All provinces
Solar Pumping System in All Provinces
Watercourse ,Brick,PCPS PCC,Pipe in All Provinces
Ram Pump in GB

For the verification of different project Components, different tools/forms have been prepared by PCs for all provinces. Different tools will be used at different stages of inspection/verification. Each report will be identified as Interim Completion Report (I & II), and Final Completion Report (FCR).

Table 5: Inspection tools for all interventions

Description
Inspection sheet/tool for farm ponds – ICR-I (All Provinces)
Inspection sheet/tool for farm ponds – ICR-II (All Provinces)
Inspection sheet/tool for farm ponds – FCR (Punjab and Balochistan)
Inspection sheet/tool for farm ponds – FCR (AJK/ICT)
Inspection sheet/tool for farm ponds – FCR (GB)
Feasibility tool for the farm ponds
Inspection sheet/tool for Dug Wells – ICR-I (Punjab, Balochistan, AJK/ICT)
Inspection sheet/tool for Dug Wells – ICR-II (Punjab, Balochistan, AJK/ICT)
Inspection sheet/tool for Dug Wells – FCR (Punjab and Balochistan)
Inspection sheet/tool for Dug Wells – FCR (AJK/ICT)
Inspection sheet/tool for Solar pump on farm ponds/dug wells – ICR-I (All Provinces)
Inspection sheet/tool for Solar pump on farm ponds/dug wells – ICR-II (All Provinces)
Inspection sheet/tool for watercourse improvement – ICR-I (Punjab, Balochistan, and AJK/ICT)
Inspection sheet/tool for watercourse improvement – ICR-I (KPK)
Inspection sheet/tool for watercourse improvement – ICR-II (Punjab, Balochistan, and AJK/ICT)
Inspection sheet/tool for watercourse improvement – ICR-II (KPK)
Inspection sheet/tool for watercourse improvement – FCR (Punjab, Balochistan, and AJK/ICT)
Inspection sheet/tool for watercourse improvement – FCR (KPK)
Feasibility tool for the watercourse (KPK)
Inspection sheet/tool for LASER Levelers – FCR (Punjab, Balochistan, and AJK/ICT).
Inspection sheet/tool for Rough Land Leveling – FCR (KPK).
Inspection sheet/tool for Orchards /Oilseeds etc. – FCR (All Provinces)

The datasheets of all interventions (All provinces) for submitting progress by the field offices have been prepared by the field Engineers at the national office and distributed to all field offices. The Field Engineers submit these sheets to the national office for updating and compiling progress reports. Since the parameters for interventions vary slightly across provinces, specific tools have been developed to review the progress in each province. Two types of tools are considered for reporting purposes. Firstly, detailed intervention-wise information and secondly, a comprehensive overview of district-wise project activities. Currently, these reports are generated in hard copy format. However, with the implementation of GIS/MIS (Geographic Information System/Management Information System), all reports will be automatically generated whenever necessary and will be presented graphically on the project dashboard in real time. This digital system will enhance efficiency and provide up-to-date visual representations of the project's status.

2.4 Project Implementation Strategies for all interventions in different Provinces

Table 6: Implementation Strategies in Punjab

Interventions	Punjab
Farm Pond	• Feasibility, Survey & Design by Department & Approved by Consultants. Fixation of Rates By DRC. Arrangements for Execution of work by Farmers and Verification of work done by Consultants • Release of funds to Farmer in three installments ICR-I, ICR-II & FCR (50,40 &10% respectively) by DGA(WM)/PD on the recommendation of Consultants • The 3rd Installment (10%) will be recommended only after the issuance of the work order of HIES at the pond site
Solar Pumping System for Farm Pond	• Survey, Design & BOQ by SSC (Selected by Farmer). • Approval of Design and BOQ by Consultants • Issuance of work order by DGA(WM) • 50% Payment to SSC by DGA(WM) on recommendation of Consultants after supply of material • 40% payment to SSC by DGA(WM) on recommendation of consultants after commissioning /Installation of system.
Dug well Development/Rehabilitation	• Feasibility, Survey & Design by Department & Approved by Consultants • Fixation of Rates By DRC • Arrangements for Execution of work by Farmer • Verification of work done by Consultants • Release of funds to Farmer in three installments ICR-I, ICR-II & FCR (50,40 &10% respectively) by DGA(WM)/PD on the recommendation of Consultants • The 3rd Installment (10%) will be recommended only after the issuance of the work order of HIES at the pond site
LASER Land Leveling Units	• Invitation and scrutiny of Applications by the Department • Balloting and allotment by designated Committee • Issuance of work order to supply LASER to allottee by DGA(WM) • Verification/inspection of LASER unit by Designated committee including consultant headed by DDA(WM) and handover of original Bank Draft to SSC • Payment of Government assistance to SSC by DGA(WM) on the recommendation of the inspection/verification Committee
Water Course Development	• Approval of Design & Cost estimates by Consultants • Issuance of TS by DDA(WM) • Release of 70% funds to WUA by DDA(WM) after deposit of 70% Farmer share, on the recommendation of Consultants (ICR -I) • Release of 20% funds to WUA By DDA(WM) on the completion of 70% of work and deposit of 30% farmer Share on the recommendations of Consultants (ICR-II) • Release of Remaining 10% funds after Completion of work on recommendation of consultants(FCR)

Solar Pumping System on Dug Well	• Survey, Design & BOQ by SSC (Selected by Farmer). • Approval of Design and BOQ by Consultants • Issuance of work order by DGA(WM) • 50% Payment to SSC by DGA(WM) on recommendation of Consultants after supply of material • 40% payment to SSC by DGA(WM) on recommendation of consultants after commissioning /Installation of system.
Fruits/Plants/Oil seeds/Pulses/Fodder/Forage/Range (Acres)	• The beneficiary will purchase input from a reliable source and get verified by the Agriculture Department. • After verification and documented confirmation by DDA(Ext) DGA(WM) will make payment through bank draft or cheque to the beneficiary.

Table 7: Implementation strategy in AJK

Interventions	AJK
Farm Pond	• Feasibility, Survey & Design by Department & Approved by Consultants. • Issuance of TS by DG (Irrigation) • Issuance of work order by DD • Arrangements for Execution of work by WUA • Verification of work done by Consultants • Release of funds to WUA in three installments(40%,30%&30%) on a work-done basis by DG (Irri) on the recommendation of Consultants.
Solar Pumping System for Farm Pond	• Survey, Design & BOQ by SSC (Selected by WUA). • Approval of Design and BOQ by Consultants • Issuance of work order by DDA. • Release of funds to WUA on a work-done basis by DDA. • 50% Payment to SSC by WUA on the recommendation of Consultants after the supply of material • 40% payment to SSC by WUA on recommendation of consultants after commissioning /Installation of system. • Retention money @ 10% remains in WUA account for two year.
Dug well Development/Rehabilitation	• Feasibility, Survey & Design by Department & Approved by Consultants. • Issuance of TS by DG (Irri). • Arrangements for Execution of work by WUA • Verification of work done by Consultants • Release of funds to WUA in three(40%,30%&30%) installments on a work-done basis by DG(Irri)on the recommendation of Consultants.
LASER Land Leveling Units	• Invitation and scrutiny of Applications by Department. • Allotment by designated Committee • Issuance of work order to supply LASER to SSC by WUA. • Verification/inspection of LASER unit by Designated committee including consultant headed by DDA(WM) and handover of original Bank Draft to SSC • Payment of Government assistance to SSC by DG(Irri) on the recommendation of inspection/verification

Water Course Development	• Feasibility, Survey & Design by Department & Approved by Consultants. • Issuance of TS by DG(Irri). • Issuance of work order by DD • Arrangements for Execution of work by WUA • Verification of work done by Consultants • Release of funds to WUA in three installments(40%,30%&30%) on a work-done basis by DG(Irri)on the recommendation of Consultants.
Solar Pumping System on Dug Well	• Survey, Design & BOQ by SSC (Selected by WUA). • Approval of Design and BOQ by Consultants • Issuance of work order by DDA. • Release of funds to WUA on a work-done basis by DDA. • 50% Payment to SSC by WUA on the recommendation of Consultants after the supply of material • 40% payment to SSC by WUA on recommendation of consultants after commissioning /Installation of system. • Retention money @ 10% remains in WUA account for two year.
Fruits/Plants/Oil seeds/Pulses/Fodder/Forage/Range (Acres)	• Not yet been implemented as the project is being executed by the irrigation and water management department. The agriculture department is not included in PC-I

Table 8: Implementation strategy in KPK

Interventions	KPK
Water Course Development	• Feasibility Survey & Design prepared by Department. • Approval of Design & Cost estimates by Consultants • Issuance of TS by DDA(WM)/Project Director. • Spot-checking by OFWM staff and Consultants • Certification of completed works and recommendation for transfer of funds to WUA by Consultants. • Submission of certified FCR and Takmeli (Handing/Taking) and recommendation for final payment by the consultant.
Rough Land Leveling	• Scrutiny of Applications by Department. • Approval by the Director of Agriculture Engineering • Payment to the beneficiary on verification and recommendation by Consultants.
Fruits/Plants/Oil Seeds/Pulses/Fodder/Forage (Acres)	• Plants are being provided by the Agriculture Department and the payment is made to Agriculture Department

Table 9: Implementation strategy in ICT

Interventions	ICT
Farm Pond	• Recommendation and approval for project subsidies by a committee constituted for approval and recommendation • Issuance of TS by Director AES • Issuance of work order to the beneficiary by DD AES as per standard and specification approved in PC-I • Spot Checking by Department • Preparation of completion report by the Department • Release of funds (One Time Payment) to Beneficiary by Director AES

Solar Pumping System for Farm Pond	• Recommendation and approval for project subsidies by the committee constituted for approval and recommendation • Issuance of TS by Director AES • Issuance of work order to the beneficiary by DD AES as per standard and specification approved in PC-I • Spot Checking by Department • Preparation of completion report by the Department • Release of funds (One Time Payment) to Beneficiary by Director AES
Dug well Development/Rehabilitation	• Recommendation and approval for project subsidies by a committee constituted for approval and recommendation • Issuance of TS by Director AES • Issuance of work order to the beneficiary by DD AES as per standard and specification approved in PC-I • Spot Checking by Department • Preparation of completion report by the Department • Release of funds (One Time Payment) to Beneficiary by Director AES
LASER Land Leveling Units	• No procedure is mentioned in PC-I.
Solar Pumping System on Dug Well	• Recommendation and approval for project subsidies by the committee constituted for approval and recommendation • Issuance of TS by Director AES • Issuance of work order to the beneficiary by DD AES as per standard and specification approved in PC-I • Spot Checking by Department • Preparation of completion report by the Department • Release of funds (One Time Payment) to Beneficiary by Director AES
Fruits/Plants/Fodder/Forage/Range (Acres)	• Plants are being provided by the Agriculture Department and the payment is made to Agriculture Department.

Table 10: Implementation strategy in GB

Interventions	GB
Farm Pond	• Formation and registration of WUA is done by department.Feasibility, design &cost estimate prepare by department and approved consultants. • Cost estimates of all interventions,Farm Pond,Solar pumping System on Farm Pond ,Provision of fruit plants and seeds sumup on one page & 20 % of the total cost estimates of all interventions deposited in Account of WUA and 20% of total amount transferred to the account of WUA as mobalization advance. • Second and third installment is transferred to WUA on work done basis on the verification. • For installation of solar pumping system PD (WM) shortlists the solar pumping firms and award the contract. • The payment is made by WUA to the concerned firms ,Suppliers and benificiaries • The retention money @10% in case of solar pumping system remain in WUA account for a period of two years.
Solar Pumping System on Farm Pond	
Fruits/Plants/Fodder/Forage/Range (Acres)	
Hydro Ram Pump	

Table 11: Implementation Strategies in Balochistan

Interventions	Balochistan
Farm Pond	• Feasibility, Survey & Design by Department & Consultants • TS issuance by Director General Agriculture(WM) • Award of Contract to Contractors by DGA(WM) • Approval and TS Conveyed to DDA(WM)before Starting Work by DGA(WM) • Department issue the cheque to a contractor with out of 10 % security • Payment is mostly made to contractor on work done basis
Solar Pumping System on Farm Pond	• Feasibility, Survey & Design –by Department & Consultants • TS issuance by Director General Agriculture(WM) • Award of Contract to Contractors by DGA(WM) • Approval and TS Conveyed to DDA(WM)before Starting Work by DGA(WM) • Department issue the cheque to a contractor with out of 10 % security
Dug well Development and Rehabilitation	• Feasibility, Survey & Design –by Department & Consultants • TS issuance by Director General Agriculture(WM) • Award of Contract to Contractors by DGA(WM) • Approval and TS Conveyed to DDA(WM)before Starting Work by DGA(WM) • Department issue the cheque to a contractor with out of 10 % security
LASER Land Leveling Units	• LLL machines are being provided on subsidy basis.On one unit cost of machine, Rs. 250,000/- is fixed subsidy (60/40 share GoB/GoP) and rest of the amount will be paid by beneficiary through draft for the service provider. • The OFWM Balochitan has short listed service providers for LLL in NPIWC-II which are also applicable for NPECA, however, no single unit has been provided in NPECA project due to price hiking of LLL
Water Course Development	• Feasibility, Survey & Design –by Department & Consultants • TS issuance by Director General Agriculture(WM) • Award of Contract to Contractors by DGA(WM) • Approval and TS Conveyed to DDA(WM)before Starting Work by DGA(WM) • Department issue the cheque to a contractor with out of 10 % security
Solar Pumping System on Dug Well	• Feasibility, Survey & Design –by Department & Consultants • TS issuance by Director General Agriculture(WM) • Award of Contract to Contractors by DGA(WM) • Approval and TS Conveyed to DDA(WM)before Starting Work by DGA(WM) • Department issue the cheque to a contractor with out of 10 % security
Ext. & AR	Application invited by Agriculture department screened and recommendation of technically feasible cases by consultants and PMU.

3

WORK PLAN

3 Quantified Work Plan

Field Engineers of the national office have proposed a detailed work plan till the completion of the project (June 2025). This proposed work plan has been designed based on three categories; backlog targets, targets Reported by the department or as per PC-I, and targets for a year (work plan for 2023, 24, and 25) of all interventions for all provinces. This detailed work plan has been distributed to all field offices to initiate the field activities.

Table 12: Quantified Work Plan

Province	Interventions	Completed till une 2023	Total Checked	Verified sites 2022-23	Deffered	Balance/Backlog	New Targets 23-24/AWP 2023 24	Work plan 23-24
Punjab	Farm Pond	169	23	22	1	147	160	307
	Solar (FP)	64	8	6	2	58	160	218
	Dug wells	190	50	47	3	143	200	343
	Solar (DW)	52	29	28	1	24	200	224
	Water Courses	420	189	179	10	241	150	391
	LASER Units	276	76	73	3	203	100	303
	Fruits/Plants (Ac)	1345	0	0	0	1345	1670	3015
	Oil seeds (Ac)	2918	0	0	0	2918	4325	7243
	Fodder/Range/Forage (Ac)	2317	0	0	0	2317	2880	5197
Baluchistan	Farm Pond	399	53	0	53	399	93	492
	Solar (FP)	355	51	0	51	355	93	448
	Dug wells	571	100	0	100	571	186	757
	Solar (DW)	497	84	0	84	497	186	683
	Water Courses	372	103	0	103	372	0	372
	LASER Units	0	0	0	0	0	8	8
	Fruits/Plants (Ac)	5609	124	0	124	5609	4500	10109
	Oil seeds (Ac)	11829	200	0	200	11829	9,480	21309
	Fodder/Range/Forage (Ac)	8927	151	0	151	8927	7500	16427
AJK	Farm Pond	5	0	0	0	5	30	35
	Solar (FP)	29	0	0	0	29	30	59
	Dug wells	30	0	0	0	30	30	60
	Solar (DW)	7	0	0	0	7	30	37
	Water Courses	19	0	0	0	19	8	27
	LASER Units	5	0	0	0	5	0	5
	Fruits/Plants (Ac)	0	0	0	0	0	200	200
	Oil seeds (Ac)	0	0	0	0	0	525	525
	Fodder/Forage/Range (Ac)	0	0	0	0	0	400	400
ICT	Farm Pond	24	0	0	0	24	7	31
	Solar (FP)	12	0	0	0	12	7	19
	Dug wells	30	0	0	0	30	14	44

	Solar (DW)	15	0	0	0	15	14	29
	LASER Units	0	0	0	0	0	1	1
	Fruits/Plants (Ac)	0	0	0	0	0	181	181
	Fodder/Range/Forage (Ac)	0	0	0	0	0	601	601
KPK	**lining of WC**	165	55	55	0	110	100	210
	Rough leveling	4766	712	712	0	4054	7100	11154
	Fruits/Plants (Ac)	915	0	0	0	915	500	1415
	Oil seeds (Ac)	677	0	0	0	677	1250	1927
	Fodder/Forage/Range (Ac)	163	0	0	0	163	300	463
GB	**Farm Pond**	15	5	0	5	15	33	48
	Solar (FP)	16	7	0	7	16	33	49
	Ram Pump	0	0	0	0	0	11	11
	Fruits/Plants (Ac)	123	0	0	0	123	211	334
	Fodder/Forage/Range (Ac)	116	0	0	0	116	390	506

4

Milestones/Achievements

4 MILESTONES/ACHIEVEMENTS

The National Program for Enhancing Command Area in Barani Areas was initiated in the fiscal year 2019-20. However, field activities only commenced from the year 2020-21 onwards. The contract for Project Consultants was signed on **20-09-2022**, and subsequently, the Program Manager/Team Leader joined on **21-09-2022**, followed by the appointment of Provincial Coordinators and a few support staff in November and December 2022.

A camp office was established adjacent to the CAMEOS Consultants office at E11, Islamabad for the duration of 4 months, while temporary accommodation for the Team Leader was arranged at a local hotel. The contract duration is set for 36 months, until the completion of the project. The Consultants' Assignment entails the physical inspection/verifications and validation of previously completed works and installations, as well as monitoring ongoing and new activities.

4.1 Mobilization of Staff & Establishment of Offices

Owing to unforeseen circumstances, the disbursement of the Mobilization Advance, which was originally scheduled for the first month upon contract signing, experienced significant delays. A partial payment of the mobilization advance was eventually made on 21st December 2022 and the remaining amount is yet to be delivered in June 2023.

Immediately, following the signing of the contract, the process of staff mobilization was initiated. The recruitment of support staff commenced in December 2022, and at present, all the required support staff positions have been successfully filled. Approvals for the support staff positions were obtained in January 2023. Similarly, the approvals for the field staff (non-key positions) were obtained in February 2023, and specifically for the Baluchistan province, the approvals of the field staff were acquired in March 2023.

Promptly upon receiving the necessary approvals for the field staff, the field activities were initiated. The staff deployed at their assigned provinces and commenced preliminary activities including meeting with stakeholders, and collection of data such as designs, specifications, and progress reports by the departments. The mobilization of key staff comprising, Design Engineer, GIS Specialist, Horticulturist, and Solar Energy Expert, was delayed till the placement of field staff. As these personnel were contracted for a limited time (3 man-months to 18 man-months), it was decided that the most optimum use of their expertise can be acquired when field activities commenced. The Design Engineer and GIS Specialist were engaged at the end of March 2023 for providing necessary input in the amended Inception Report and initiating the scope of work for the GIS/IT component under this project.

Initially, the National Program for Enhancing Command Area in Barani Areas **(NPECA)** established its National Office as a Camp office located adjacent to the head office of Cameos Consultants in E11/3, Islamabad. Ultimately, the national office was relocated after granting approval by FPMU on 8th February 2023 at Ghouri Town, Expressway Islamabad. Likewise, the field offices of Punjab, Baluchistan, GB, AJK, and KPK were granted approvals and established in March, and April 2023. The field offices of Punjab, KPK, Baluchistan, GB, and AJK have been established in Lahore, Peshawar, Quetta, Gilgit, and Muzafarabad respectively (The correspondence details and addresses of all offices under NPECA have already been informed to the honorable FPMU).

The procurement of office furniture, vehicles, office equipment, and other logistics for some field offices (GB, AJK, Baluchistan, and Punjab) is in progress, however, the national office is now fully furnished.

4.2 Staff Orientation Meeting at the National Office

The first meeting of the Project Consultant was held on 01-03-2023 of the national program for enhancing the command area of Pakistan (NPECA) at the national office in Islamabad under the chairmanship of the Team Leader and provincial Coordinator. All the newly appointed staff of Punjab, KPK, GB, and AJK/ICT attended the meeting. The chairman welcomed all the participants and gave a brief presentation on the objective, key roles, and responsibilities of project consultants in this project. The Field staff was instructed on Project parameters and standards to accomplish their responsibilities at their allotted field stations i.e., Lahore, Peshawar, Muzaffarabad, and Gilgit.

Figure 1: Staff Orientation Meeting at National Office

4.3 Data collection

The primary tools for carrying out the verification/validation activities of the project components are the forms and data sheets. The Consultants undertook a detailed exercise in the development of various forms/tools for use in the field for data collection at different stages of development activities.

Table 9: Documents for approval and verification of interventions

Sr. No.	Interventions	Form type/Tool
1	Irrigation Schemes	Design Sheet Cost Estimate ICR-I ICR-II FCR
2	Dug Wells	Cost Estimate ICR-I ICR-II FCR

3	Farm Ponds	Design Sheet Cost Estimate ICR-I ICR-II FCR
4	Solar Pumping System	Solar Proposal Material Inspection ICR-I Test Run Report ICR-II FCR
5	Laser Land Levelers	Inspection Report
6	Ramp Pump	Design Sheet

Table 10: Tools for Re-verification of interventions

Sr. No.	Interventions	Form type/Tool
1	Irrigation Schemes	Re-verification
2	Dug Wells	Re-verification
3	Farm Ponds	Re-verification
4	Solar Pumping System	Re-verification
5	LASER LandLleveler Units	Re-verification
6	Rough Land Leveling	Re-verification
7	Ram Pump	Re-verification

Table 11: Tools for Solar Pumping System Verification

Sr. No.	Interventions	Form type/Tool
1	Solar Pumping System	Material specifications
		Foundation & PV array structure and designs

Two sets of data collection and inspection forms have been developed. One set pertains to already completed works that require re-validation by Project Consultants. The other set is for ongoing works and new schemes undertaken by the Departments. All forms/tools have been circulated to field staff to maintain uniformity of inspections and reports. All the design forms, verification tools/forms, and data sheets/progress reports for getting monthly, quarterly, and annual progress from the field offices for all interventions have been prepared and already shared with all field offices as well as with FPMU.

4.4 Development of Dashboard, Website, and Android Application

The meeting was held on 11 April 2023 under the chairmanship of the Team Leader for developing Dashboard, Website, and Android Application. IT specialist, GIS specialist, and FE of the national office participated in the meeting. In the meeting, different tools and data required for developing a dashboard, website, and Android application were discussed. These applications will be used to collect data linked to project activity. In addition to this effort, many GIS-related activities will be mapped by the GIS professionals and incorporated into the GIS dashboard by IT specialists. The web GIS dashboard will also include GIS maps with bar graphs and bar charts displaying construction activity and financial progress for project activities. It was decided that GIS and IT specialists will collaborate and coordinate closely. Further, another meeting on GIS/IT progress was held on 31 May 2023 in which all the team members finalized the timelines for the MIS/GIS deliverables under this project. The final product of the Dashboard, website, and Android app is decided to be displayed to the client on 30th June 2023.

Table 12: Timeline for GIS/MIS Working

Task	Start Date	End Date
GIS system (beta version)	1st April 2023	30th June 2023
GIS system (Final version)	1st July 2023	30th September 2023
Dashboard (beta version)	1st April 2023	30th June 2023
Dashboard (Final version)	1st July 2023	30th September 2023
Android App (beta)	1st April 2023	30th June 2023
Android App (Final)	1st July 2023	30th September 2023
Website (beta)	1st April 2023	30th June 2023
Website (Final)	1st July 2023	30th September 2023

4.5 IT-BASED GIS MONITORING SYSTEM

4.5.1 Finalization of GIS/MIS tools for the Dash Board, Website, and Android App development

The following mentioned tool was decided to use for It based monitoring system;

(i) GIS tools for data collection
(ii) XY tools in GIS
(iii) Mapping and visualization tools
(iv) Graph tools in GIS

All the above tools were discussed in summarized form for application in project work. All the forms and templates that were prepared and presented for this project are being used to develop GIS tools for data collection in this project. The XY tools in GIS were used to import GPS locations for all the construction sites. These locations were saved in Microsoft Excel files in a specific format. These files were utilized to import the locations and associated attribute data for the construction sites. ArcGIS Desktop includes two applications that were used for mapping and visualization: ArcMap and ArcGIS Pro. ArcMap was used for mapping, editing, and analysis in a 2D environment, as well as data management, in ArcGIS Desktop. ArcGIS Pro is being used for mapping and visualization of completed tasks for the project. Different project layers were produced, and these were displayed and visualized using the mapping and visualization tools of ArcGIS Pro. Graph Tools in ArcGIS software were used to visualize and explore data connected to project progress. The graphs were used to present information about map features and the relationship between them in a visual, easy-to-understand manner for project activities. Graphs were created for non-spatial tabular data, and these were used to show either additional information about the features on the map or the same information in a different way.

4.5.2 Meetings & Framework

Several meetings were held among the team leader, GIS specialist, IT expert, and other staff. During these meetings, plans were discussed and prepared for the work of GIS, apps, and the Web GIS dashboard. Frameworks were developed for GIS and IT work. Activity plans were prepared to complete all GIS tasks each month. These meetings provided a way forward to complete GIS mapping and work effectively and efficiently on project work.

4.5.3 Data Sorting and Compilation

The field collected data/Progress Reports for the Re-verification/Validation of the project components was obtained in Excel format of KPK, Baluchistan, and Punjab provinces since the initiation of the project field activities during FY 2022-23.

Each Excel sheet provided the data for the following indicators of the site:

- Locations of sites
- Profile of each owner
- Design of construction
- Work progress
- Financial progress

The data for all these construction sites was compiled and organized in Microsoft Excel. This data was adjusted for the input of GIS software. These files were used to prepare GIS maps

4.5.4 GIS Mapping for Construction Activities

GIS maps were developed for all the construction schemes for which data was available and provided. The GIS maps were generated to show construction site locations with information about the owner profile and the progress of construction. Each map displays the construction activity information along with the boundaries of the district, tehsil, and union councils. The tables, symbols, and graphs were shown to provide the required data in the best possible professional manner. The maps were generated to track the progress of construction activities in five districts of Punjab and KPK.

4.5.5 GIS Mapping for the Financial Activities

GIS maps were developed to show the financial spending progress for all the construction schemes for which data was available and provided. The GIS maps were generated to show construction site locations with information on the owner profile and financial progress of construction sites. Each map displays the financial progress of all sites along with the boundaries of district, tehsil, and union councils. The tables, symbols, and graphs were shown to provide the required financial data in the best possible professional manner. The financial progress maps were generated for the progress of construction activities in five districts of Punjab and KPK.

4.5.6 Development of Android Apps

The data collected using Android apps will be integrated into GIS software.

4.5.7 Development of Web GIS Dashboard

The maps generated using GIS software will be integrated into the Web GIS dashboard. The Web GIS dashboard will provide information to all users with simple clicks.

4.5.8 Front-End Development of the Android App

The front end of the Android App has been developed for collecting information on-site as shown in mentioned Figure 3. The input fields provided in the app are as per the data forms developed for the same purpose (The dataform for the farm pond is shown in Figure 02). The features of the Android app are discussed next in detail.

DATA ENTRY FORM

Intervention:	**FARM POND**	**Province**	**PUNJAB**
Form:	**ICR-I**		**BALOCHISTAN**
Year of Construction			**AJK/ICT**
Date of Inspection			**GB**

Identification of Scheme

Name of beneficiary farmer		Tehsil	
CNIC No.		District	
Father's Name		GPS Coordinates	
Village		Fiscal year	
Area to be Irrigated		Contact #	

Cost Break-up of Scheme

Estimated Approved Cost (Rs.)	Upper Celling Cost (Rs.)	Government share @60% (Rs.)	Farmer share @40% (Rs.)

Detail of Completed Works

S.No.	Nature of works	Unit	Quantities	Rate/Unit (Rs.)	Amount (Rs.)
1	Embankment work with compaction and dressing, with lead	m^3			
2	Earth work Excavation ashes, sand and soft soil or silt clearence	m^2			
Total Cost					
Contactor Profit @ 20%					
Net Verified Amount after deduction of contactor profit (20%)					
50% cost of completed work/ Govt. Share					

Figure 2: Interface of the front-end of the Android App

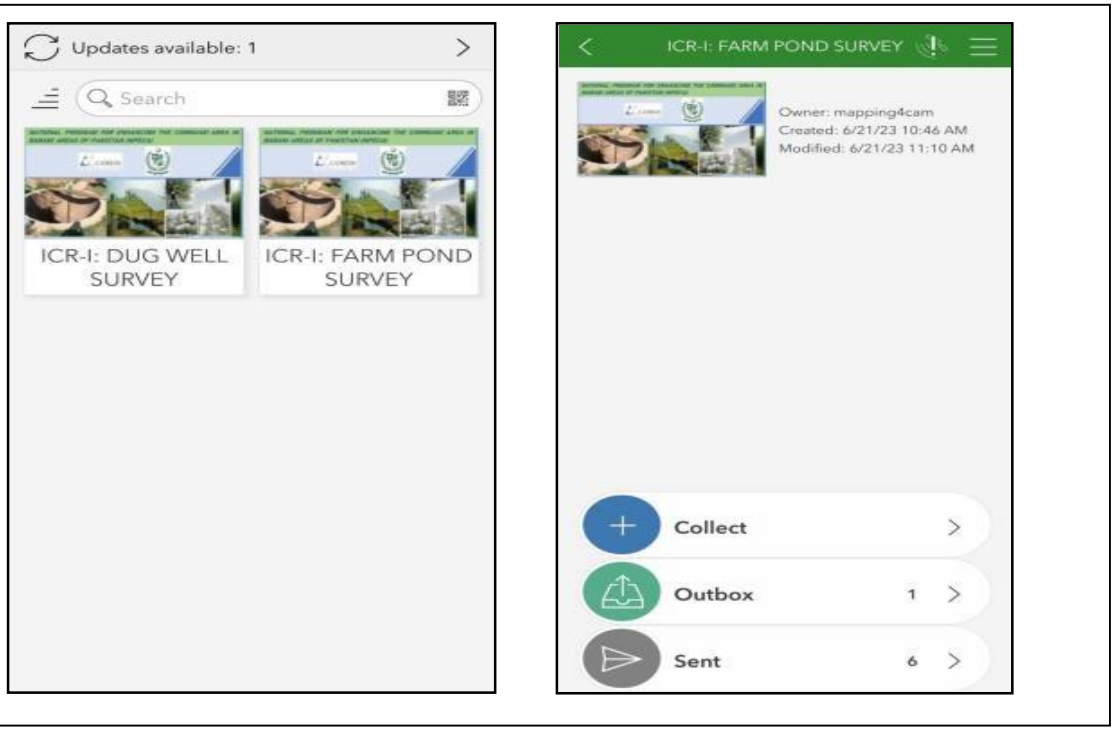


Figure 3: Date entry form for Farm Pond

4.5.9 Collection of Information

- By clicking on the **Collect** Button, the Android App will open the input fields for data entry.
- All the input fields are user-friendly, requiring minimal effort from the field engineer when filling them out.
- All the calculations have been automated and the fields will be updated automatically once the required data fields are filled.
- A facility for taking pictures has been provided. Pictures can be taken directly on-site using the camera of the mobile phone as well as they can be uploaded from the mobile phone if needed.
- A facility for recording voice messages/notes have been provided in the Android app.
- A facility for automatic recording of the coordinates, using the GPS of the mobile has been provided.
- The snapshots of all the above-mentioned features are shown in Figure 4.

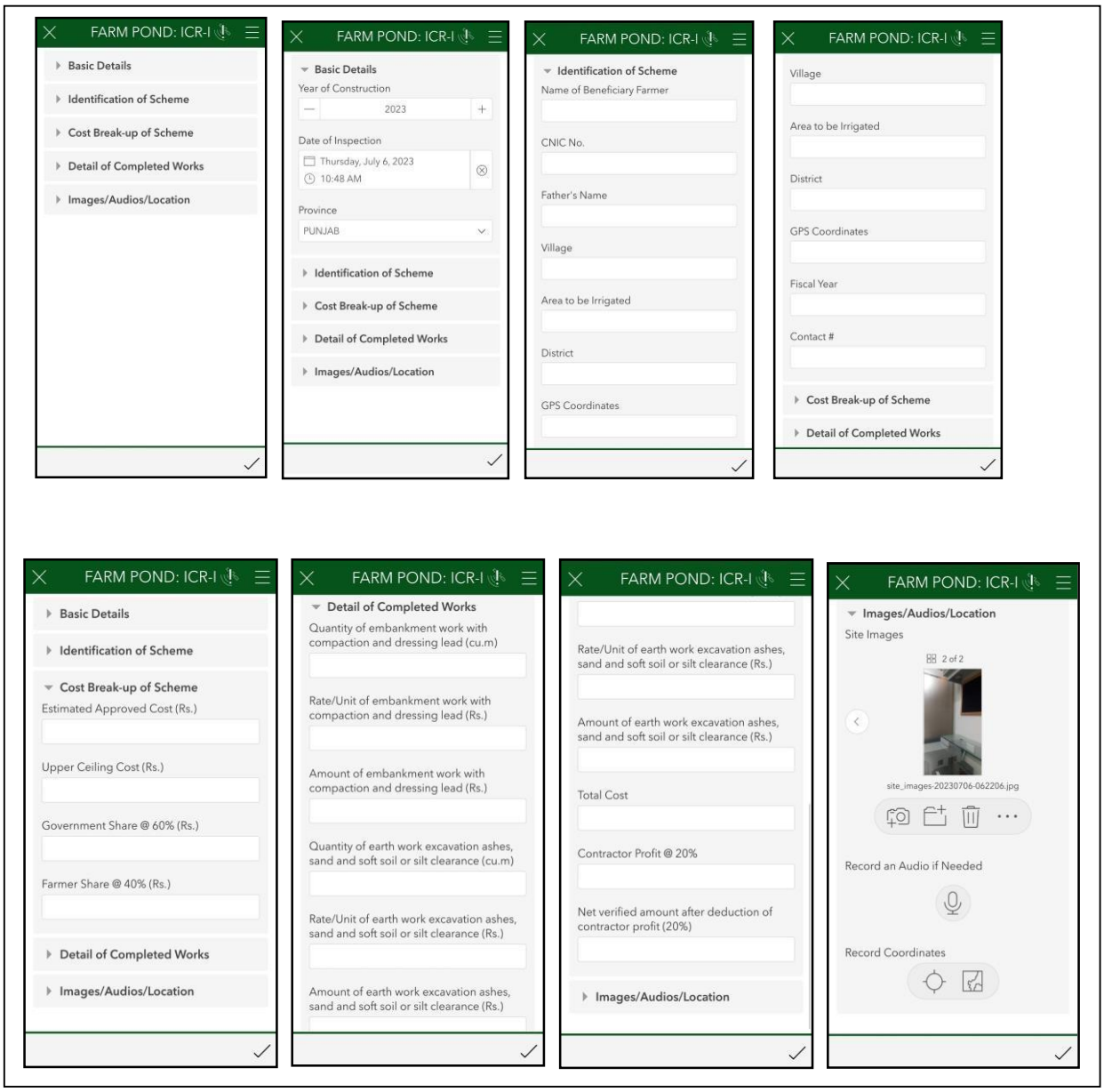


Figure 3: Snapshots of the entry fields, photo capturing, voice recording and capturing GPS coordinates

4.6.0 Sending / Saving the Collected Information

Once the data collection is completed, the user is provided with options of storing it on the local device or sending it to the GIS database, depending on the availability of the internet as shown in Figure 5. The "Send Now" option is visible only when the mobile phone is connected to the internet otherwise only the Save in the "Outbox button" will be visible to the user.

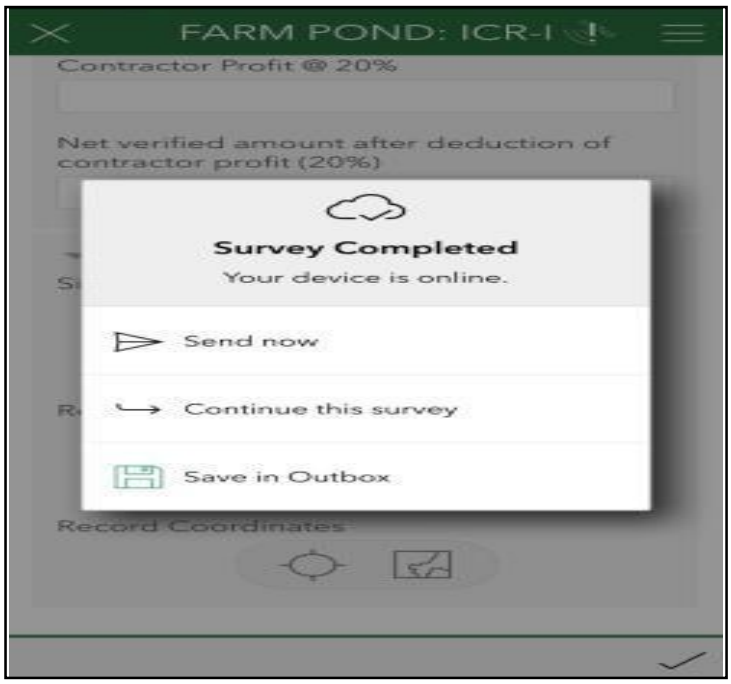


Figure 4: Snapshots of the sending/saving data feature of the Android App

4.6.1 Back-End Development of the Android App:

The front end of the Android app has been successfully executed by developing its back end which has been connected to a temporary GIS platform. However, for real-time execution of the Android application, a **cloud server** is required to be **purchased** for storing all the collected information through the Android app.

4.6.2 Dashboard Development

A beta version of the dashboard has been developed for displaying the information collected through the Android application. The dashboard has been connected through the back-end programming with the Android app and gets updated automatically once the survey is sent. The dashboard geotags all the collected information including photographs, voice recordings, etc. to its real-time location on the map. The information can be displayed in the form of a pop-up on the dashboard once the required survey location is clicked on the map. The full functionality of the dashboard is also subject to the purchase of the relevant cloud server which will serve as a database for the mobile application as well as the dashboard. A snapshot of the dashboard is shown in Figure 6.

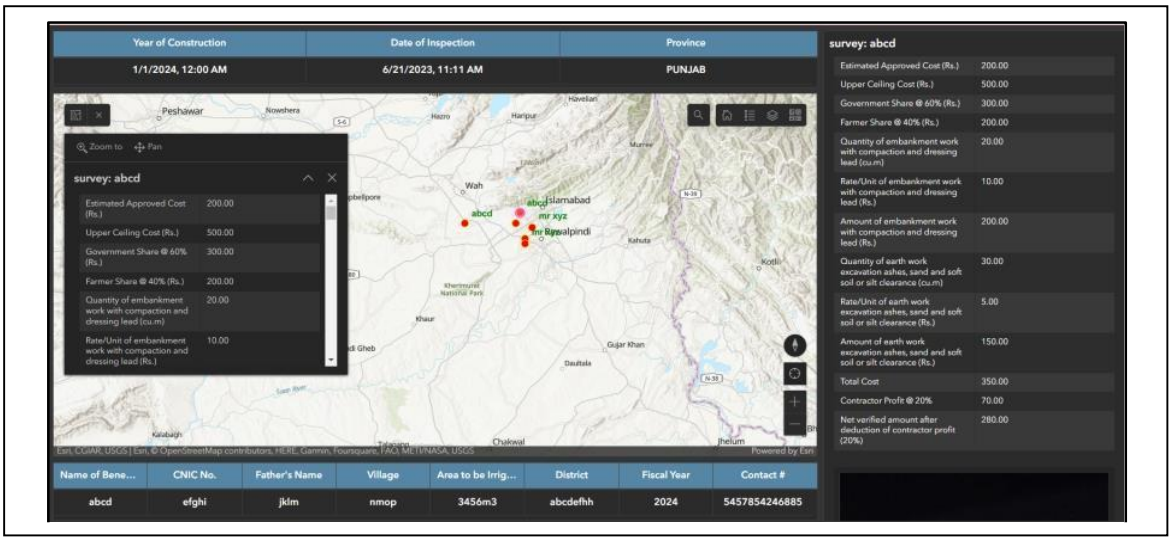
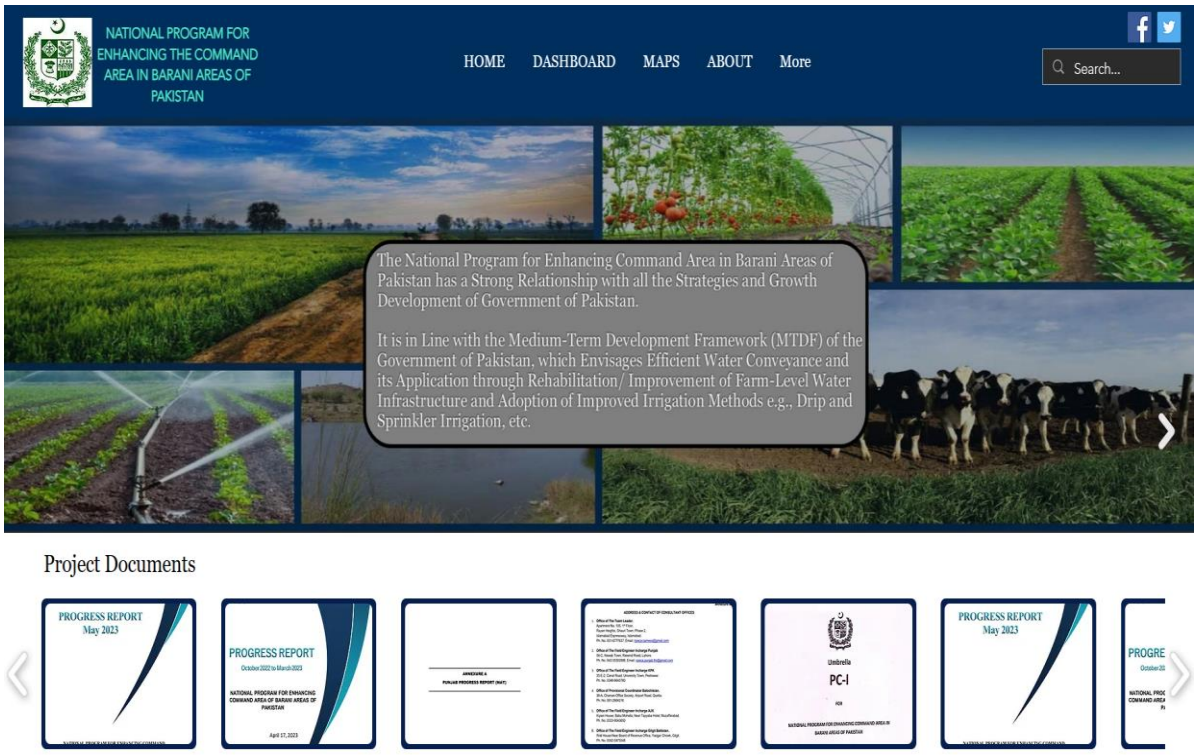
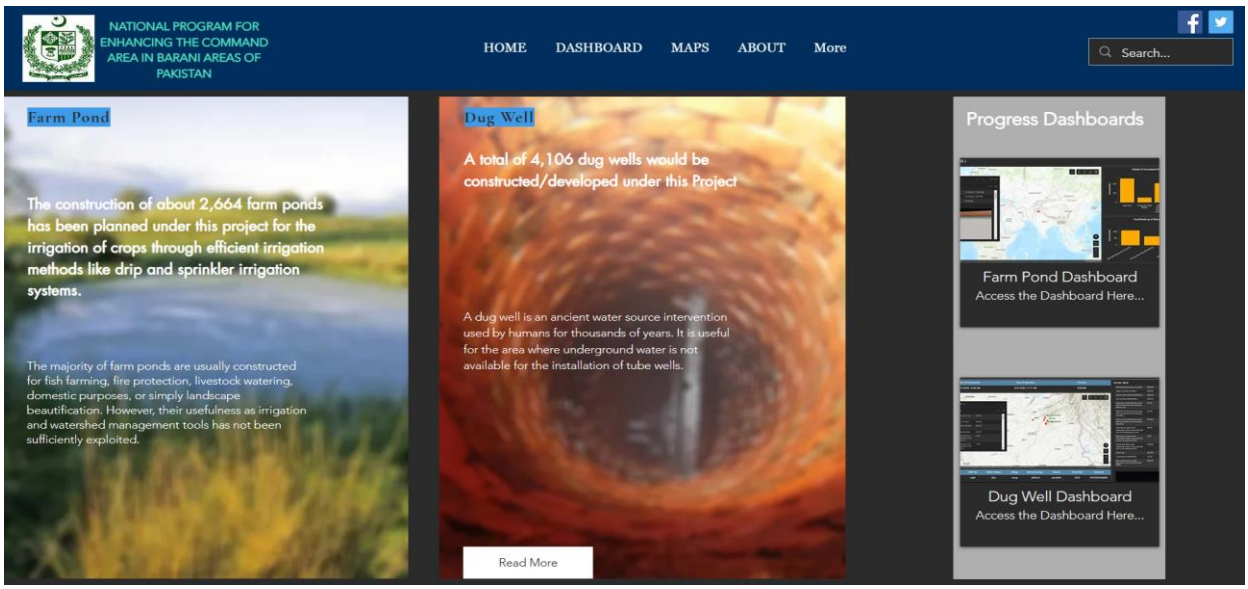


Figure 5: Snapshots of the beta version of the dashboard

4.6.3 Website Development





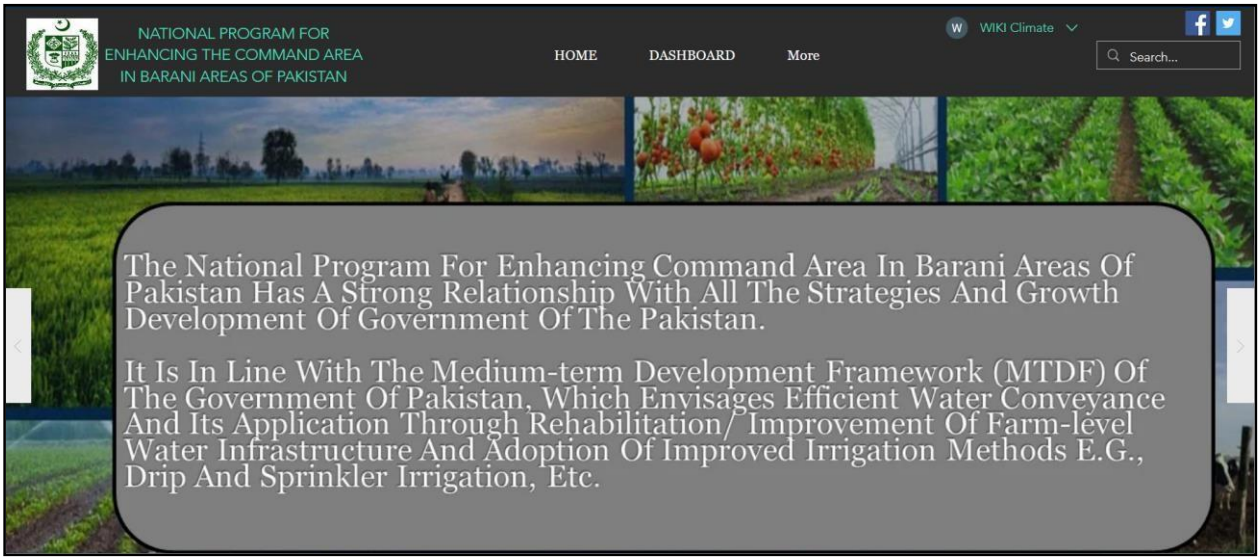


Figure 6: Snapshot of the beta version of the website

A beta-version of the website is shown in Figure 7. The basic architecture of the website has been developed. The server will be purchased after taking consent from the relevant client representative. The website will be made available on the Internet after incorporating any changes suggested by the client in thenext scheduled meeting in July 2023.

4.6 MEETING OF THE BOARD OF MEMBERS AT FPMU

A meeting of the Project Board of Management was held on 29th May 2023 in the office of NPC, FPMU under the chairmanship of the National Project Coordinator. The following agenda items were discussed.

- Status of Draft Inception Report
- Status of Project Administrative Manual
- Status of Progress Reports
- Status of financial Progress including payment of salaries to the project staff
- Status of complete recruitment and procurement under the project
- Status of interventions-wise/province-wise work plan of ongoing, and new schemes.

Necessary actions have been undertaken in light of the Minutes of the meeting of PBoM.

4.7 MEETINGS OF FIELD STAFF DURING FY 2022-23

Following the approvals of the field Engineer/officers and the building of the field office, the field activities were promptly initiated. The PCs & field engineer proactively conducted meetings with relevant departments and commenced field visits to facilitate the re-verification of interventions provided by the department. With utmost dedication, the field engineers diligently gathered progress reports since the initiation of the field activities from their respective provinces or entities.

Throughout the fiscal year 2022-23, the field staff meticulously carried out visits to various departments across all the provinces. These visits included key meetings with esteemed individuals such as DDA's (Deputy-Director Agriculture) and Directors OFWM, Water Management and irrigation experts, stakeholders, and progressive farmers. These communications were centered around the project sites, aiming to re-verify and validate the project components. Additionally, comprehensive discussions were held to assess different sites under this project, fostering a collaborative approach to ensure its success.

Overall, these field activities epitomize the commitment to professionalism and excellence displayed by the field engineer and the team, as they actively engage with stakeholders and meticulously verify the project's interventions.

4.7.1 Pictorial Display of Field Staff Meetings during FY 2022-23

Figure 7: Meeting with Secretary WM&I GB,Gilgit

Figure 8: Staff Orientation Meeting Baluchistan

Figure 9: Meeting with Director OFWM, Punjab Rwp

Figure 10: Meeting with DDA's at Baluchistan, Quetta

Figure 11: Meeting with DG Agri, Tarnab at KPK Peshawar

4.7.2 Meeting of National Project Coordinator with NPECA team at Field Office (KPK)

The National Project Coordinator NPC (FPMU) visited the field office KPK Peshawar on **5th May 2023** along with Team Leader to review the progress/performance of the project consultants and field activities. The NPC noted the non-availability of staff records, lack of furniture, and other office logistics in the field office. The Field Engineer explained that the approvals for the staff and building have been made by FPMU and the transfer of funds is under process. The Team Leader stated that all the facilities will be made available within two weeks. NPC directed to ensure the provision of all necessary items for the smooth operation and working of the project activities.

Figure 12: Meeting with NPC and Team Leader NPECA at KPK, Peshawar

4.8 FIELD VISITS BY THE FIELD INSPECTION TEAM DURING FY 2022-23

In parallel with the mobilization of staff and the establishment of field offices, the field team has successfully commenced their field visits. Initially, the Field Inspection team utilized their own and departmental resources to visit the project sites. However, the subsequent approvals for the hiring of the vehicles have been obtained from the FPMU for all field offices including the national office.

Currently, the process of hiring vehicles for all field offices has been completed. It is important to acknowledge that while initial visits were organized using available resources, the subsequent approval and procurement of dedicated vehicles will enhance the efficiency and effectiveness of the field visits. This proactive step demonstrates the project's commitment to providing the necessary resources to facilitate comprehensive site inspections and further reinforces the professionalism of the field team.

4.8.1 Pictorial Display of Field Visits during FY 2022-23

Below mentioned figures show the field visits of provinces (Punjab, Baluchistan, KPK & GB) during the fiscal year 2022-23 for the re-verifications of the project components. No field visit has been made in the AJK/ICT due to a delay in the mobilization of field staff.


فاصلہ : 0 کلومیٹر
محکمہ زراعت
حکومتِ پنجاب
ON FARM WATER MANAGEMENT
نیشنل پروگرام برائے بارانی ایریا میں کمانڈ ایریا بڑھانے کا منصوبہ
سکیم نمبر :- 329
نام کاشتکار :- سجاد حسین
موضع :- گگڑ کلاں
تحصیل :- دینہ
سال :- 2022-23
ٹیم انچارج :- اسسٹنٹ ڈائریکٹر ایگریکلچر واٹر مینجمنٹ دینہ
0315-3689007
رابطہ :- 0300-5407464


2021-22
NPIW, Phase2ndbarani


بہاول انجینئرنگ
محکمہ زراعت آبپاشی حکومت پنجاب


بارانی علاقہ جات میں نظام آبپاشی زراعت کا منصوبہ
بارانی اریگیشن پراجیکٹ
نیشنل پروگرام برائے اصلاح کھالاجات II (N.P.I.W.)
اریگیشن سکیم نمبر: 17/27
سال تعمیر: 2021-22
چیئرمین: حاجی اختر عباس خان
خزانچی: حاجی قیصر عباس خان
سب انجینئر: ملک عطر گل
زیر نگرانی: اسسٹنٹ ڈائریکٹر ایگریکلچر واٹر مینجمنٹ بھکر

Figure 13: Field sites of the Punjab Components

Figure 14: Field site of the KPK Components


GPS Map
Camera Lite
Loralai, Balochistan, Pakistan
Latitude
30.446818333333333°
Longitude
68.85072°
Local 03:58:16 PM
GMT 10:58:16 AM
Altitude 1287 meters
Wednesday, 17.05.2023


Latitude: 29.910938
Longitude: 67.087237
Elevation: 1795.39±12 m
Accuracy: 7.5 m
Time: 10-06-2023 09:25
Note: Gull badeen
Powered by NoteCam


Latitude: 29.832722
Longitude: 66.824595
Elevation: 1670.32±4 m
Accuracy: 1.2 m
Time: 23-05-2023 16:42
Powered by NoteCam


NE


Latitude: 29.910901
Longitude: 67.08726
Altitude: 1776.73±64 m
Accuracy: 54.7 m
Time: 10-06-2023 09:24
Note: Gull badeen
Powered by NoteCam

Figure 15: Field sites of the Balochistan Component

Figure 16: Field visits of the GB Components

Figure 17: Field visits of the AJK Components

4.9 PROGRESS OF ALL PROVINCES DURING THE FY 2022-23

4.9.1 Physical Progress

During the fiscal year 2022-23, the project consultants visited 375 project sites, encompassing all interventions, in the province of Punjab. As part of this process, certain interventions were identified as deferred, and the reasons for deferral components were documented in the progress reports.

Similarly, in the Baluchistan province, the project consultants visited a total of 866 project sites. However, all the visited sites in the province were marked as deferred due to various reasons, such as missing files (TS and FCRs), broken or missing sign boards, collapsed or non-operational interventions, etc.

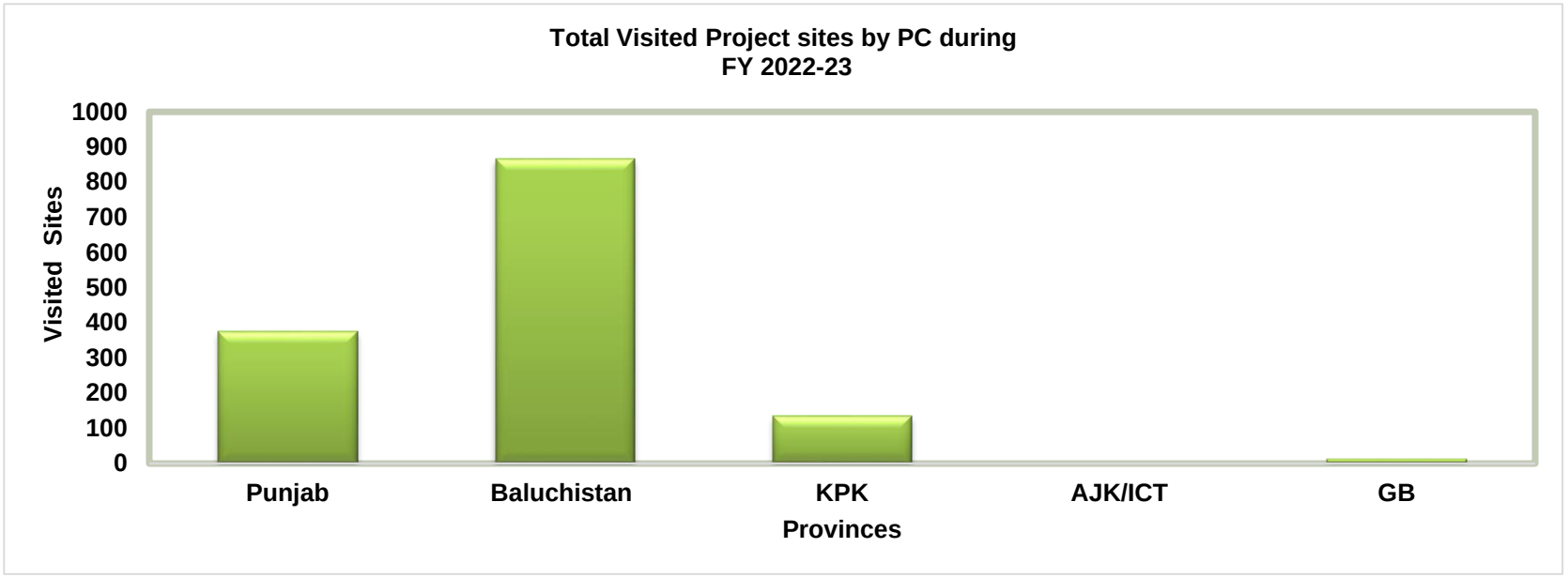
In the KPK province, during the re-verification process, a total of 135 sites were visited, which included 712 acres of Rough Land Leveling and 55 watercourses.

Due to limited available resources, only 12 project sites were visited in GB. The project consultants faced constraints in conducting a more extensive re-verification in this region.

No sites have been visited by the project consultants in the AJK/ICT due to a lack of mobilization of field inspection staff till june 2023.

Table 13: Physical Progress during FY 2022-23

Physical Progress Till June 2023														
Interventions														
Provinces	Farm Ponds	Solar pumping system on Farm ponds	Dug wells	Solar Pumping System on Dug Wells	Water Courses Development	LASER Land Leveler Units	Rough Land Leveling	Hydro Ram Pump	Fruits/Plants	Oil Seeds	Fodder/Rangee/Forage	Total Verified sites by PC	Deffered Sites by PC	Sites Visited by PC
Punjab	23	8	50	29	189	76	0	0	0	0	0	355	20	**375**
Baluchistan	53	51	100	84	103	0	_____	_____	124	200	151	0	866	**866**
KPK	_____	_____	_____	_____	55	_____	80	_____	0	0	0	135	0	**135**
AJK/ICT	0	0	0	0	0	0	0	0	0	_____	0	0	0	**0**
GB	5	7	_____	_____	0	_____	_____	0	0	_____	0	0	12	**12**



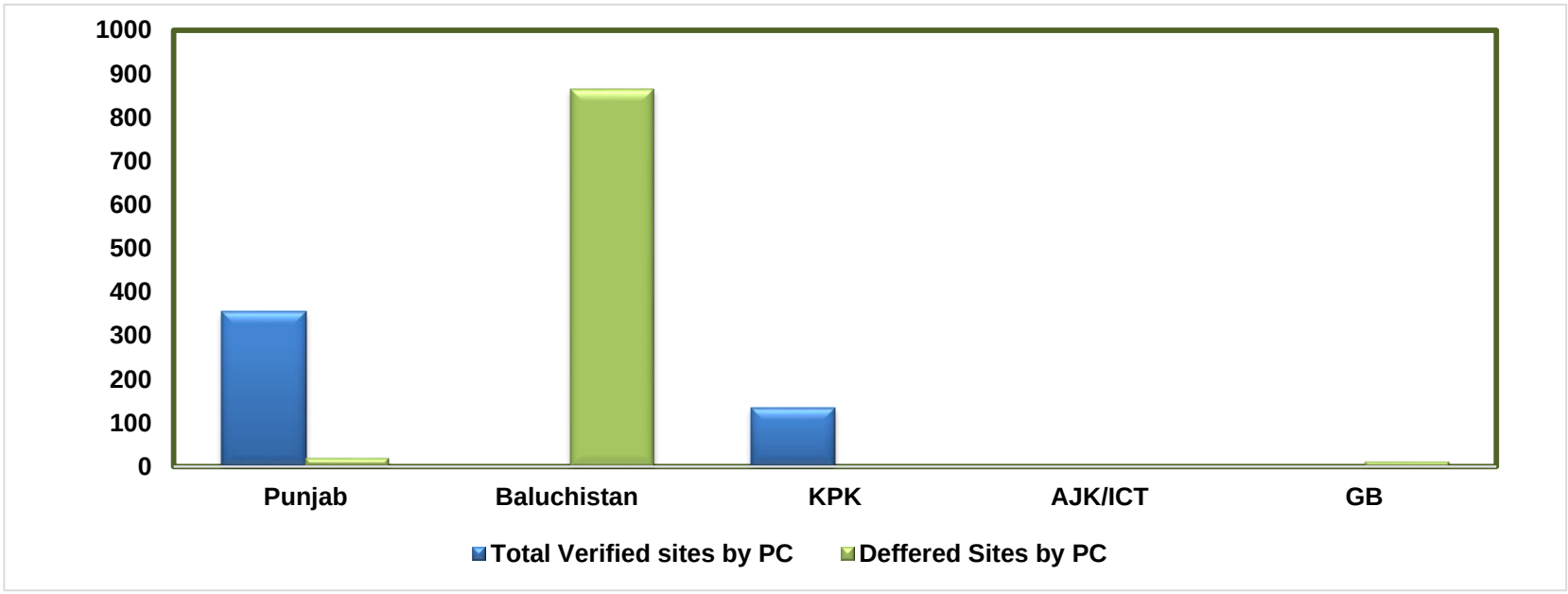


Figure 18: Physical Progress till June 2023

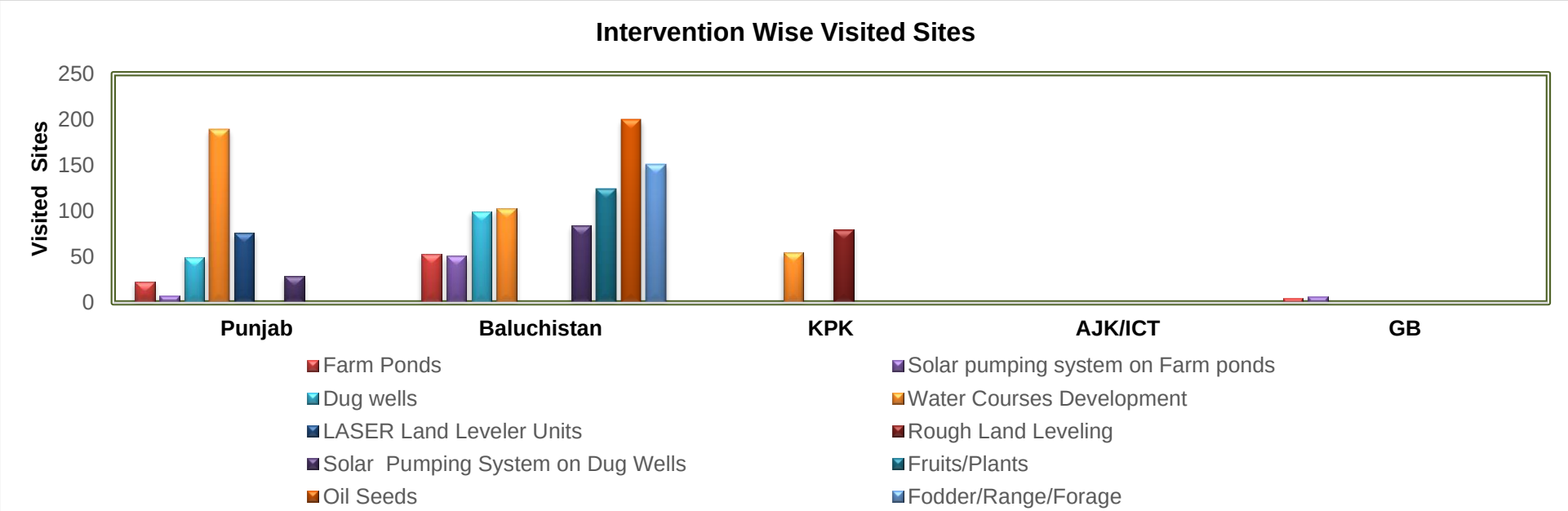


Figure 19: Intervention Wise visited Sites

4.9.2 Deffered sites

Some visited sites have been deferred by the project field inspection team account of the following reasons;

- Absence of files and documentation containing comprehensive information about the project components.
- Non-alignment of the technical sanctions and FCR as per PC-I of the project.
- Absence or damage to signboards and informational materials about the project interventions.

The project consultants have duly notified the relevant departments regarding the mentioned deficiencies and have requested their prompt rectification. The deferred report or summary has already been provided along with the progress reports of all months.

4.9.3 Financial Progress

Table 14: Financial Progress during FY 2022-23

Sr. No.	IPC No.	Month	Date of Submission	Base Amount	Sales Tax	Total Amount
				Rs.		
Remunerations						
1	3-A	Oct-22	8-May-23	1,454,745	185,108	1,639,853
2	4-A	Nov-22	8-May-23	1,590,891	206,891	1,797,782
3	5-A	Dec-22	8-May-23	1,727,037	228,675	1,955,712
4	6-A	Jan-23	8-May-23	1,727,037	228,675	1,955,712
5	7-A	Feb-23	8-May-23	1,727,037	228,675	1,955,712
6	8-A	Mar-23	8-May-23	3,110,281	348,483	3,458,764
7	9-A	Apr-23	5-Jun-23	4,586,104	432,894	5,018,998
8	10-A	May-23	5-Jun-23	4,449,958	411,110	4,861,068
9	11-A	Jun-23	13-Jun-23	4,729,230	455,794	5,185,024
Sub-total (A)				**25,102,320**	**2,726,305**	**27,828,625**
Reimbursable						
10	3-B	Oct-22	-	105,245	-	105,245
11	4-B	Nov-22	-	118,815	-	118,815
12	5-B	Dec-22	-	458,409	-	458,409
13	6-B	Jan-23	-	665,005	-	665,005
14	7-B	Feb-23	-	1,231,813	-	1,231,813
15	8-B	Mar-23	-	1,100,050	-	1,100,050
16	9-B	Apr-23	-	2,416,143	-	2,416,143
17	10-B	May-23	-	2,853,507	-	2,853,507
18	11-B	Jun-23	-	3,053,502	-	3,053,502
Sub-total (B)				**12,002,489**	**-**	**12,002,489**
Grand Total (A+B)				**37,104,809**	**2,726,305**	**39,831,114**

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DELIVERABLES

5.1 REPORTING

As per the contract with the client, the project consultant will prepare and submit the following deliverables during the operational period of the project.

Table 15: Reporting Details

Sr. No	Reports	Date
1.	Submission of Draft Inception Report **(08 copies)**	45 days after the effectiveness of the services agreement.
2.	Submission of Final Inception Report **(15 copies)**	Two weeks after the issuance of comments by the client on the draft inception report.
3.	Monthly progress report (Physical and Financial) **(10 copies)**	10th of the following month
4.	Quarterly progress report (Physical and Financial) **(10 copies)**	10th of the first month following Quarter.
5.	Annual Progress Reports (Physical and Financial) **(05 copies)**	During 1st month of the following financial month.
6.	Draft assignment completion Report **(05 copies)**	After the assignment or one month before the expiry of the project period.
7.	Final project completion Report **(15 copies)**	After the assignment period after the incorporation of the comment of the client.
8.	Complete inventory of works/activities completed **(10 copies)**	After completion of the project.
9.	**Special Reports and Presentations**	As and when required.

Since the contract signing, the following Reports have been submitted to FPMU;

Table 16: Deliverables to FPMU

Sr. No	Reports	Submission Date
1.	Inception Report	14th June 2023
2.	PAM	4TH May 2023
3.	Progress Report (Oct 2022-March 2023)	17th April 2023
4.	Progress Report (April) Physical and financial	18th May 2023
5.	Progress Report (May) Physical and financial	14th June 2023

Sr. No	Reports	Submission Date
6.	Progress Report (June) Physical and financial	20th July 2023

Unfortunately, the deadline for submitting the inception report, which was set at 45 days from the contract's effectiveness, could not be met. This was primarily due to certain reasons e.g. delay in the mobilization advance as a result of budgetary constraints and the non-availability of team members. In the initial stages of the project, only the team leader and provincial coordinator from the national office were approved to engage in preliminary activities.

Eventually, the inception report was submitted on 2nd January 2023. Subsequently, a revised inception report was prepared and submitted on 10th April 2023, incorporating all the valuable observations provided by the Client. Moreover, the Client provided additional observations, which were duly incorporated into the report and subsequently submitted.

In addition to the inception report, the Consultants were assigned the task of preparing the Project Administrative Manual (PAM), despite it not being originally listed in the schedule for report submission. Nonetheless, recognizing the importance of adhering to the approved format applicable to the Client, the Consultants submitted the PAM to ensure consistency and avoid any discrepancies or conflicts with existing formats. As expected, some observations were raised regarding the submitted PAM, which has been duly addressed and processed.

The physical progress data from all provinces is gathered on progress sheets for inclusion in the monthly Progress Report, which is then submitted to FPMU during the fiscal year 2022-23.

These professional updates highlight the challenges encountered in meeting specific deadlines and the efforts made to accommodate the requirements and preferences of the Client. The Consultants' commitment to addressing observations and maintaining alignment with established protocols underscores their dedication to delivering a high-quality and harmonized output.

6

OUTSTANDING ISSUES

One of the major challenges our field inspection team is facing is cost escalation due to inflation. Due to the overall economics situation prevailing in our country, the issue of adequate funding is most important.

In Punjab and Baluchistan, the Field Engineers have been utilizing their resources as well as departmental resources, whereas, in GB, the department's resources are limited, hindering effective field activities. Field activities in AJK/ICT have not yet commenced due to delays in mobilizing the field staff. Compared to other provinces, the progress of field activities in AJK/ICT during the fiscal year 2022-23 has been the lowest. While the national office is adequately furnished, the field offices lack basic logistical support, equipment, and other facilities. This is primarily due to delays in the disbursement of funds.

During field visits, the field inspection team encountered several shortcomings. For instance, signboards were not installed or damaged at various field sites, and the technical specifications did not align with PC-I. The Team Leader of the project Consultants has been directed to coordinate with the department to address and rectify these deficiencies.

Our entire team, including the national and field officers, has experienced delays in salary payments since the signing of the contracts. This is mainly attributable to the delay in receiving mobilization advances and the clearance of invoices by clients. Employees have often received their salaries with a delay of three to four months, significantly impacting their work performance. The flow of funds has been inconsistent, although showing gradual improvement. Despite these challenges, the entire team, including field staff, is diligently working and investing exceptional efforts during the verification and validation phases of the project.