GOVERNMENT OF THE PUNJAB

PC-II

Perfoma for Preparation of Proposal for Conducting Feasibilty Study/Survey

Name of the proposed Study/Survey: FEASIBILITY STUDY AND DETAILED DESIGN FOR AUGUMENTATION OF WATER SUPPLY TO RAWALPINDI CITY BASED UPON DADHOCHA DAM

Date of Preparation of PC-II: 22nd November, 2024

1. NAME OF THE PROJECT

FEASIBILITY STUDY AND DETAILED DESIGN FOR AUGUMENTATION OF WATER SUPPLY TO RAWALPINDI CITY BASED UPON DADHOCHA DAM

i. Commencement Date:	01st April, 2025
ii. Completion Date:	30th September, 2025
iii. Total Gestation Period:	6 Month(s)

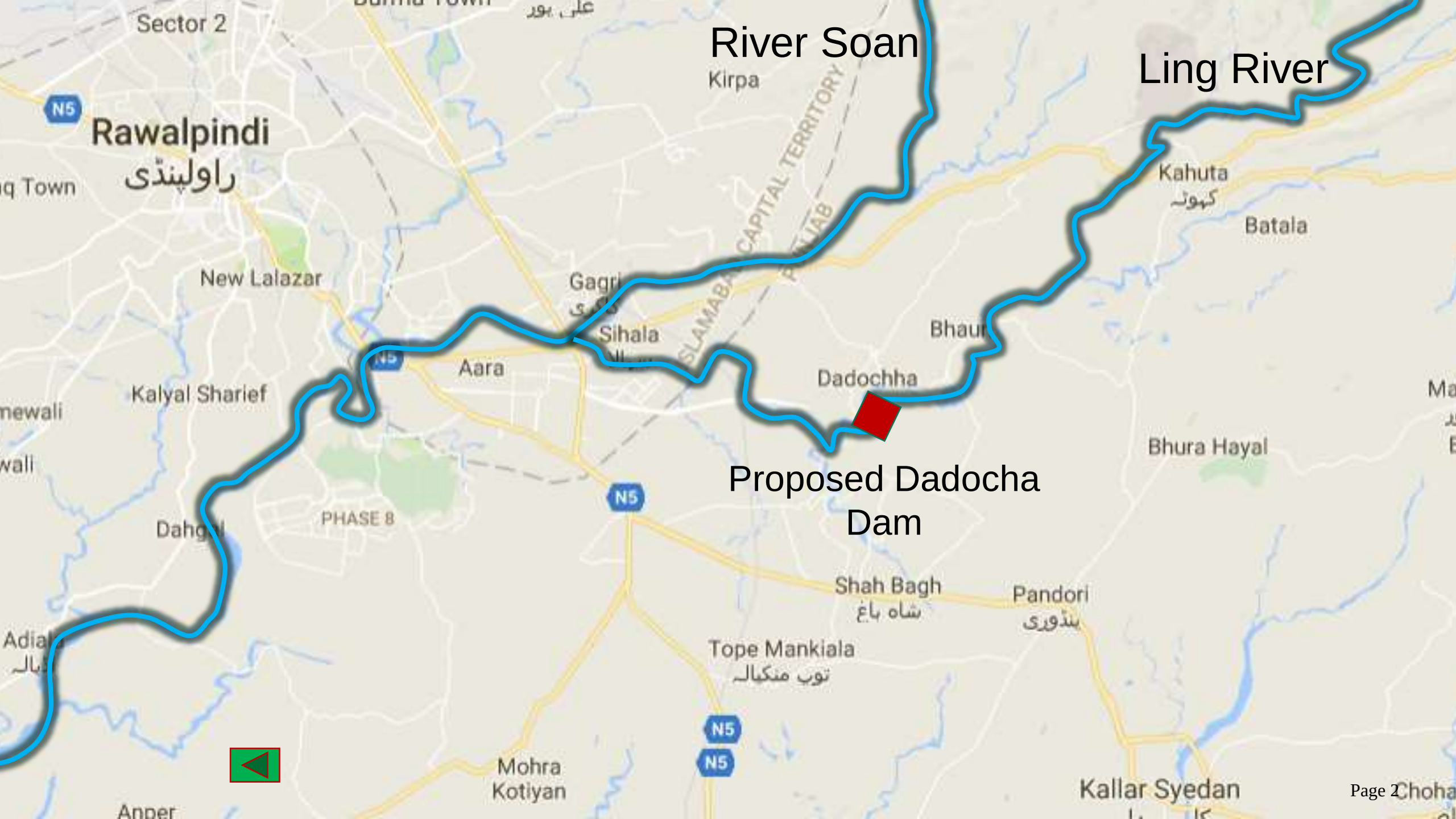
2. LOCATION OF THE PROJECT

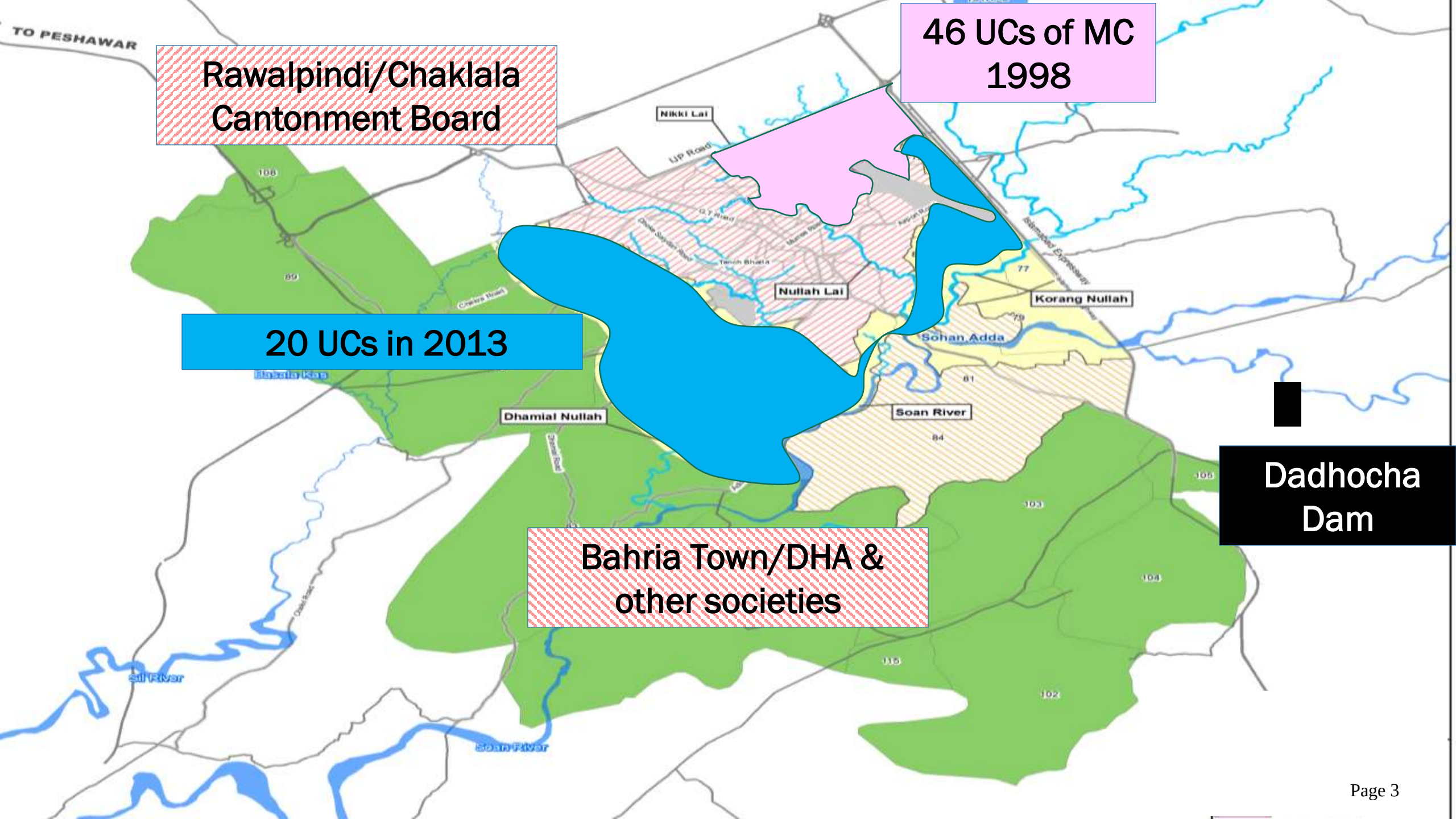
2.1. DISTRICT(S)

I. RAWALPINDI

2.2. TEHSIL(S)

I. RAWALPINDI


River Soan
Ling River
Proposed Dadocha Dam
Rawalpindi
راولپنڈی
Sector 2
Kirpa
Kahuta
کہوٹہ
Batala
New Lalazar
Gagri
Sihala
Aara
Bhaun
Dadochha
Kalyal Sharief
Bhura Hayal
PHASE 8
Shah Bagh
شاہ باغ
Pandori
پنڈوری
Tope Mankiala
توپ منکیالہ
Mohra Kotiyan
Kallar Syedan
N5


TO PESHAWAR
Rawalpindi/Chaklala Cantonment Board
46 UCs of MC 1998
20 UCs in 2013
Dadhocha Dam
Bahria Town/DHA & other societies
Nikki Lai
Nullah Lai
Korang Nullah
Sohan Adda
Soan River
Dhamial Nullah
Soan River

3. AUTHORITIES RESPONSIBLE FOR

3.1. SPONSORING AGENCY

- HUD&PHED

3.2. EXECUTION AGENCY

- WASA RDA

4. PLAN PROVISION / SOURCE OF FINANCING

Sr #	Description
1	**Source of Funding:**Scheme Proposed for Next ADP
2	**Proposed Allocation:**50.808

Comments:

funds may be allocated through supplementary grant

5. PROJECT OBJECTIVES

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The objectives of the consultancy are to:

-To augment water for drinking purpose not only to present but also for future needs.
-To address the scarcity of drinking water /municipal water.
-To mitigate the problem of contaminated water being supplied to the peoples.
-To improve the water supply conditions in overall WASA area
-Reduction in the O&M expenditure of WASA.
-The overall environment of the city will be improved with the availability of sufficient water to the poor and low income peoples.
-To devise effective measures for suitable quality control of water supply system from health consideration and pollution control.
-To design a system to integrate various sources of water supply for alternate use in case of break down.

6. DESCRIPTION AND JUSTIFICATION / DETAIL OF SURVEY / FEASIBILITY STUDY

6.1 JUSTIFICATION OF PROJECT:

The technical expertise is not available with WASA to conduct the feasibility report and carryout detailed design. As per instruction of P&D Department, Government of the Punjab, project having cost Rs.750 million or above it is mandatory to engage consultant for feasibility study and detailed design. Therefore, the consultancy services would be required.

6.2 SCOPE OF THE PROJECT

6.3 SECTORAL SPECIFIC INFORMATION

NA

7. YEAR WISE COST ESTIMATES

Financial Components: Revenue
Cost Center:OTHERS- (OTHERS)
Fund Center (Controlling):N/A

Grant Number: Development Revenue - (PC22036)
LO NO:N/A
A/C To be Credited:N/A

PKR Million

Sr #	Object Code	2024-2025		2025-2026	
		Local	Foreign	Local	Foreign
1	**A01150**-Others	0.000	0.000	0.000	0.000
Total		**0.000**	**0.000**	**0.000**	**0.000**

WATER AND SANITATION AGENCY, RAWALPINDI

Feasibility Study and detailed design for augmentation of Water Supply of Rawalpindi city based on Dadhocha Dam

SUMMARY OF COST

S. No	Item	Amount Rs.
A	Staff Cost	35,800,000.00
B	Direct Cost	8,000,000.00
	PST (16%)	7,008,000.00
	Sub Total	**50,808,000.00**

WATER AND SANITATION AGENCY, RAWALPINDI

Feasibility Study and detailed design for augmentation of water supply of Rawalpindi city based on Chahan Dam

B- DIRECT COST

S. No	Description	Units	Qty	Rates Rs.	Amount Rs.
1	Office rent, furnishing including utilites	Months	6	250,000.00	1,500,000.00
2	Communication - Telephone, Fax, Courier/Postage etc.	Months	6	50,000.00	300,000.00
3	Stationary, binding, printing and project consumable items	Months	6	50,000.00	300,000.00
4	Geotech & other Surveys including GIS maps etc.	L.S			4,000,000.00
5	Water quality tests and preparation of reports charges	L.S			1,000,000.00
6	Transportation & Vehicles POL etc.	Months	6	400,000.00	2,400,000.00
Sub Total (B)					**8,000,000.00**

WATER AND SANITATION AGENCY, RAWALPINDI

Feasibility Study and detailed design for augmentation of water supply of Rawalpindi city based on Dadhocha Dam

A- STAFF COST

S. No/ Activity	Designation	Man month	Monthly Rates Rs.	Amount Rs.
Key Staff				
1	Team Leader/Water supply Specialist	6	700,000.00	4,200,000.00
2	Geologist	1	350,000.00	350,000.00
3	Geotechnical Engineer	2	350,000.00	700,000.00
4	Structural Engineer	4	500,000.00	2,000,000.00
5	Environmental specialist	4	500,000.00	2,000,000.00
6	Financial/Economic Expert	4	350,000.00	1,400,000.00
7	Social Expert	2	300,000.00	600,000.00
8	Mechanical Engineer	4	500,000.00	2,000,000.00
9	Electrical Engineer	4	500,000.00	2,000,000.00
10	Contract Management Specialist	2	350,000.00	700,000.00
11	Water Treatment Plant Expert (International)	2	1,500,000.00	3,000,000.00
12	Water Treatment Plant Expert (Local)	5	550,000.00	2,750,000.00
13	Chief Surveyor	3	200,000.00	600,000.00
TECHNICAL/SUPPORT STAFF				
1	Junior Engineers (04 Nos.)	24	250,000.00	6,000,000.00
2	Quantity and other Surveyor (06 Nos.)	18	150,000.00	2,700,000.00
3	AUTOCAD/MIS Staff (04 Nos.)	20	150,000.00	3,000,000.00
4	Computer operator/office assistance (03 Nos.)	18	60,000.00	1,080,000.00
5	Support staff/Drivers (03 Nos.)	18	40,000.00	720,000.00
				35,800,000.00

8. MANAGEMENT STRUCTURE AND MANPOWER REQUIREMENTS

-Managing Director WASA with senior engineers and supporting staff from WASA.

-Local consultants through competitive bidding as per PPRA rules 2014 with amendments upto 2023 & consultant selection guidelines of P&D Department.

9. ACTIVITIES / IMPLEMENTATION PLAN OF SCHEME / SURVEY / FEASIBILITY STUDY

WATER AND SANITATION AGENCY, RAWALPINDI

Feasibility Study and detailed design for augmentation of water supply based on Dadhocha Dam

ACTIVITY	DESCRIPTION	Months 1	2	3	4	5	6
Activity Schedule							
Act 1	Topographic survey						
Act 2	Hydrographic & Geotech investigation						
Act 3	Feasibility Study						
Act 4	Design of different components						
Act 5	Environmental & Social Assessment						
Act 6	Soci-Economic Study						
Act 7	Land Acquisition and resettlement Plan						
Act 8	Preparation of PC-1						
Act 9	Finance and Economic Analysis						
REPORT SUBMISSION							
Act 1	Inception Report						
Act 2	Monthly Report						
Act 3	Feasibility Report						
Act 4	Final Design Report						
Act 5	Submission of PC-1						

WATER AND SANITATION AGENCY, RAWALPINDI

Feasibility Study and detailed design for augmentation of water supply based on Dadhocha Dam

Staffing Schedule

S. No/ ACTIVITY	DESCRIPTION	Man month	Months 1	2	3	4	5	6
1. Expertise								
1	Team Leader/Water supply Specialist	6						
2	Geologist	1						
3	Geotechnical Engineer	2						
4	Structural Engineer	4						
5	Environmental specialist	4						
6	Financial/Economic Expert	4						
7	Social Expert	2						
8	Mechanical Engineer	4						
9	Electrical Engineer	4						
10	Contract Management Specialist	2						
11	Water Treatment Plant Expert (International)	2						
12	Water Treatment Plant Expert (Local)	5						
13	Chief Surveyor	3						
TECHNICAL/SUPPORT STAFF								
1	Junior Engineers (04 Nos.)	24						
2	Quantity and other Surveyor (06 Nos.)	18						
3	AUTOCAD/MIS Staff (04 Nos.)	20						
4	Computer operator/office assistance (03 Nos.)	18						
5	Support staff/Drivers (03 Nos.)	18						

10. THE STUDY (TORS OF THE CONSULTANT)

10.1 BRIEF BACKGROUND OF THE PROJECT

Project Description

Water and Sanitation Agency (WASA), Rawalpindi was created in 1992 and became fully Operational in April 1998 after taking over the water supply and sewerage networks from defunct RMC which cover 46 Union Councils of Rawal Town. Presently, WASA Rawalpindi is responsible for provision of water supply in the entire Rawalpindi Municipal Corporation Limit and 20 Union Councils of District Council, Rawalpindi covering a total population of 1.75 million.

Presently, WASA Rawalpindi is supplying water to the citizens of Rawalpindi from surface and groundwater sources. Rawal Dam is the oldest and main surface water source supplying more than 23 Million Gallon per Day (MGD) water against the installed capacity of 28 MGD. The storage capacity of Rawal Dam has been reduced approx. 10,000 Acre Ft. Out of 23 MGD water from Rawal Dam, 13 MGD is supplying to Military Engineering Services (MES), NARC and NIH. Similarly, Khanpur Dam is the second source of surface water with the total allocation of 14.6 MGD water out of installed capacity of 51 MGD. The other stakeholders from this source are Cantonment Board and Capital Development Authority. Since its completion, WASA is receiving 06 MGD of water due to less availability of water in Khanpur Lake.

The ground water in WASA administered area is abstracted through 480 operational tube-wells and about 35 MGD of water is supplied by those tube-wells, which forms more than 60% of the actual water being presently supplied from all the available sources. The number of tube-wells in Rawalpindi has increased drastically during the past 40 years from 33 in 1980 to a total of 480 at present. Consequently, due to excessive withdrawal of ground water, the water table has depleted to an alarming level with reduction of the yield of tube-wells and the complaints of tube-wells going dry or producing turbid water are quite common.

The present sources are not enough to cater future demand of the growing population of Rawalpindi city. The drinking water position in Islamabad (the Capital city) and Rawalpindi Cantonment Boards is also very alarming. They are mainly dependent on Simly and Khanpur Dam water reservoirs. Switching from ground water source to surface water source is essential in order to meet water demand of future population of the city as the ground recharge potential is no longer available.

The Rawal Dam has completed about 56 years of its useful life, therefore, one and only option available to augment drinking water requirements for the citizens of Rawalpindi, is to construct Dadhocha Dam project in order to store storm surface water and after its treatment supply water of 35 MGD to WASA Rawalpindi for domestic use. The Dam project will not only provide assured water supply to Rawalpindi but also contribute a lot in recharging ground water.

Small Dam Organization has started execution of Dadhocha Dam at Ling River (a tributary of River Sawan) near Dadhocha village for drinking need of Rawalpindi City. PC-I was administratively approved by the Government of the Punjab vide No. SO(EVL)7-2/2001 dated 30.01.2018 at the cost of Rs. 6,027.710 Million. Small Dam organization has requested vide letter No. PD/SDO/2018/4732-36/191g dated 20 July 2018 for make necessary arrangements for approval; of scheme for filtration and distribution of water supply. WASA, therefore, has planned to conduct a feasibility study followed by detailed design to treat, transport and distribute this water to the resident of the Rawalpindi city in the most economical and beneficial way. A prefeasibility study has been conducted through PICIIP under PRF for identification of site for water treatment plant and conductance route which need further investigation to firm up proposal under this project.

10.2 OBJECTIVES OF CONSULTANCY

-To augment water for drinking purpose not only to present but also for future needs.

-To address the scarcity of drinking water /municipal water.

-To mitigate the problem of contaminated water being supplied to the peoples.

-To improve the water supply conditions in overall WASA area.

-Reduction in the O&M expenditure of WASA by switching to surface from ground water which is very

costly due to depleted water table.

-The overall environment of the city will be improved with the availability of sufficient water to the poor and low income peoples.

-To devise effective measures for suitable quality control of water supply system from health consideration and pollution control.

-To design a system to integrate various sources of water supply for alternate use in case of break down.

10.3 SCOPE, DUTIES & RESPONSIBILITIES OF CONSULTANTS

The consultant is required to carry out feasibility study followed by detailed design of water treatment plant, conductance main, distribution system and allied works. The estimated duration of consultancy is 06 months liable to be extended subject to performance. The detailed TORs for the consultants include but not limited to the following:

Task-I Data Collection & Review of Previous studies/reports.
Task-II Topographic Survey.
Task-III Geotechnical & Hydrogeological Investigation.
Task-IV Feasibility study.
Task-V Detailed design of different components.
Task-VI Land acquisition and resettlement Plan.
Task-VII Environmental & Social Economic Impact Study.
Task-VIII Project Proposal.
Task IX Finance and Economic Analysis

Task 1: Data Collection & Review of Previous Studies.

Immediately after signing of the Contract agreement, the consultant will get relevant data relates to Dadhocha Dam from different relevant departments including Small Dam Organization, CDA, Cantonment Boards for the feasibility study and detailed design of this Project. In case any authorization is required in obtaining the information, the same will be provided by WASA in the form of letter. The consultant should inform the local administrations of Rawalpindi & Islamabad as well as other concerned department before conducting all types of field surveys. Before planning the field reconnaissance, the consultant should co-ordinate meeting with the concerned Departments to know any future plans for city expansion etc.

The consultant shall review the prefeasibility study carried out by the consultant of PICIIP under PRF for Dadhocha dam water supply system and shall incorporate their recommendations in the detailed feasibility study and detailed design. In this regard, they shall also review the spatial plan and last master plan of the city.

Task-II Topographic Survey

1. The consultants will carry out a topographic survey for the sites of Water Treatment Plant, conductance main and localities where water will be distributed. This must include the survey of existing water supply system of entire city and also review the cantonment boards water supply system to identify the water deficit areas specially where the tubewells yield is substantially reduced and water of Dadhocha Dam source can easily and economically transported to water deficit areas
2. Prepare a base plan at a scale of at least 1: 1000 showing topographic features, extent and details of existing water supply, rising mains and distribution network. Existing utilities like sewerage, gas, electric, telephone, roads and other services should also be marked on this base plan.

Task-III Geotechnical & Hydrogeological

1. Geotechnical investigation of proposed water treatment plant site, conductance main, distribution network and allied works. The consultant shall conduct all necessary tests required for design of foundations based on dynamic loading and also bedding under the pipes.
2. Hydrogeological study to explore the ground water potential near Dadhocha Dam site as standby arrangement which can be utilized during dry weather having low water level in the reservoir.

Task-IV Feasibility study

1. The consultant shall carry out water/waste water quality testing from all main stream recipient i.e.

Ling River and major allied tributaries/nullahs on fortnighty basis during entire year and select the most appropriate treatment technology for the treatment of raw water of Dadhocha Dam. The consultant shall also consider the potential contamination load likely to be generated in future due to current development activities of housing societies in the watershed area of the Dadhocha dam. In addition to this, they will review the geological, hydrological, structural, seismic, environmental and all other relevant aspects and select the most appropriate site for installation / construction of water treatment plant.

2. The consultant will also select site for intake structure at Dadhocha Dam having multistage system so that surface water should be used throughout year having low turbidity and contamination level. The intake structure shall be integrated with the dam Outlet/intake point

-Consultant will select at least three routes for conductance main and explained their merit and demerit based on technical and economical aspect. They will recommend the most feasible and economical route which require no or minimum pumping.

1. The consultant will explore potential sites for installation of tubewells near by or in the down stream of Dadhocha dam which can be utilized either during dry summer season when Dadhocha reservoir is reaching to dead level or may be added with surface water to augment water supply of Rawalpindi city.
2. Analyze the existing distribution network of city by developing a computer model using a good, commercially available or the consultant's own computer programme. Required data which is available with RDA WASA Rawalpindi should be collected & reviewed, and missing data should be determined by field investigations. All parameters to be used in the study shall be verified by appropriate field investigation such as topography, lines and level as required. WASA Rawalpindi will provide all pertinent data available with it but the consultant will collect such necessary data as required. They will also suggest the distribution of dadhocha dam water in the water deficit areas in the city as well as cantonment boards and also proposed location for Ground Storage Tanks, Over Head Reservoirs and pumping stations if required. They must dovetail the existing distribution network and prepare integrated water supply system.
3. A comprehensive tube well performance study will be carried out by the consultant which will be not limited to life of tubewells, Design Discharge, existing Discharge, Energy Audit and Production Cost. Tubewells of extremely poor efficiency and uneconomic viability will be recommended for closure.

-The consultant must conduct option analysis between different water sources including Tubewells for WASA and prepare most economical solution with least O&M Cost. In this regard, they shall overview the existing distribution of water in different areas of the areas and suggest the redistribution of water of different sources within city after induction of dadhocha dam water in the existing system. They will also suggest the closure of tubewells in those areas where this surface water will be provided.

-Compare the current method of water distribution with a round the clock continuous supply in terms of technical viability, economics and acceptability to the end users and recommend a plan for implementation.

1. Evaluate various types of pipes for Conductance Main, Transmission Mains and Distribution System and recommend the appropriate pipes to be used in the project.
2. Prepare detailed design criteria for hydraulic, civil, structural, electrical and instrumentation design inline with the HUD&PHED/WASA/ PHED design criteria.

Task-V Detailed design of different components

1. The consultant will carry out the design of raw water Conductance Main/Channel from Dadhocha Dam outlet including intake structure to the proposed water treatment plant with all other allied works.
2. Design of Water Treatment Plant of required capacity which includes intake structure, clarifiers/secondary segmentation tank & flocculators, filters with back washing system, control valves

and flow measurement arrangement, chemical dosing, disinfection, standby power, electrical/mechanical works, storage reservoirs, water testing laboratory, staff residences etc complete in all respects.

-Design of Conductance main from Water Treatment Plant upto Rawalpindi both in the city as well as cantonment boards.

1. Carry out detailed design of distribution network for water deficient area after dovetailing the existing water supply system by considering the economical and viable aspect in WASA areas.
2. Structural Design of all civil structures including GST, OHR, valve chambers etc.
3. Design of intermediate Pumping Stations and allied works.

-The Consultant will prepare drawings for each component(s) of Water Treatment Plant. The consultants will provide the summary of the design calculations if and when demanded by the Client & keep all the relevant design calculations, for review and record, for a minimum of ten years period. Consultants will prepare the process and instrumentation drawings of components of water treatment plant.

-The consultant must provide the detailed design of sludge handling system keeping in view the minimum energy load requirements.

1. The consultant will provide most energy efficient method with Supervisory Control and Data Acquisition (SCADA) design for proper monitoring. They should of necessary detailed design and drawings for this purpose for automation and better control of operations.
2. Water metering shall be included in the project to ensure water conservation and charging the water cost on quantitative consumption.
3. The consultant shall also explore the alternate energy source in shape of installation of solar system or any other method.

Task-VI Land Acquisition and resettlement Plan

1. Consultant will carry out as comprehensive study for area falling under water treatment plant, conductance main, GST, OHR, pumping stations and allied structures and calculate the land to be acquired for above works. The will also prepare resettlement plan in consultation with the local residents and affectees while consider the donor requirement.
2. The consultant will prepare the coordinate plan and assist WASA in land acquisition demarcation and also superimpose the khasra plan on google map and drawings.

Task-VII Environmental & Social Economic Impact Study

1. Prepare an IEE (Initial Environmental Examination) / EIA (Environmental Impact Assessment) / EMP (Environmental Management Plant) if required according to requirement of Federal Environmental protection Agency and Punjab Environmental Protection Department of the interventions/sub-Projects proposed in the Feasibility Study. They will also defend the IEE/EIA and assist WASA in issuance of NOC from EPD/EPA.
2. Socio-Economic evaluation of the project by means of financial and economic analysis to assess the monetary and intangible benefits of the project. Sensitivity analysis and socio economic impact analysis is also be included.

-The consultant will carry out all analysis including different plans required in Preparation of PC-I and approval from competent forum.

Task-VIII Recommended Project Proposal

1. It would include preparation of technical specifications for all proposed components, Engineers Cost Estimates based on the latest MRS rates duly supported with detail of quantities, bill of quantities, tender documents and PC-I etc. with supporting calculations / computations. The PC-I would be prepared on latest format of Planning Commission, duly supported with all requisite data and information including economic analysis and all other relevant plans and requisite documents

required. Technical specifications will be in accidence with WASA & PHE specifications. The consultant are required to submit the Design Report, Engineers Cost Estimates, Bill of Quantities, Tender Documents(s) and PC-I Document and Consultant will also be required to assist WASA Rawalpindi in this regard. The consultant will give technical support to WASA Rawalpindi in the approval phase where and when required from the competent authority i.e PDWP, CDWP or ECNEC.

2. Prepare Operation and maintenance manuals of the concerned Project Works like WTP, pump stations, conductance main, pumps etc.

-Prepare Quality Control manual & standard operation Procedures (SOP).

1. Cost sharing formula between WASA and other agencies according to water share allotted from this project alongwith O&M mechanism.
2. Ensure participation of stakeholder, involvement of NGO's/public representatives through awareness campaign and consultation about proposed engineering interventions.
3. Finalize Feasibility Report together with PC-I document for possible implementation by the Government.

Task IX Finance and Economic Analysis

The Consultant would:

1. Compute the Financial and Economic Internal Rate of Return (FIRR/EIRR) and other financial and economic indicators to assess the financial/economic viability of various alternatives of water supply & its treatment.
2. Carry out sensitivity analysis for FIRR and EIRR with respect to important parameters such as project risks, revenues, capital investments, O&M costs, availability of land, nature / composition of raw water and its treatment, climatic conditions, economization, energy bills, etc.
3. The consultant will propose for possible funding options like PPP, BOT, loan from multilateral bands etc. and developed comparative analysis for decision making.

10.4 DELIVERABLE WITH TIMELINES

10.5 TIME DURATION OF PROPOSED CONSULTANCY

10.6 ROLE OF CLIENT AGENCY

10.7 PROFESSIONAL LIABILITIES OF CONSULTANTS

10.8 CORE TEAM OF EXPERTS ALONG WITH QUALIFICATION, EXPERIENCE AND MAN MONTHS REQUIREMENTS

KEY PROFESSIONAL STAFF

1	Team Leader (Water Sector specialist) with at least 15 years' experience in design of water supply scheme based on surface water source)
2	Geologist Engineer (B.Sc in Geology with 10 years or M.Sc in Geology with 07 years relevant experience in exploration of tubewells)
3	Geotech Engineer (B.Sc in Civil Engg with 10 years or M.Sc in Geotech Engineering with 07 years' experience in the relevant field)
4	Structural Engineer (B.Sc Civil Engg with 12 years or M.Sc Structural Engineering with 08 years' experience in the design of buildings and allied works for water and wastewater facilities)
5	Environmental Expert (M.Sc in Environmental / science with 08 years relevant experience in water quality testing and preparation of EIA/IEE reports)
6	Financial/Economic Expert (MBA in Finance and Management or M.Sc Economics with at least 10 years' experience in valuation of public sector projects)
7	Social Expert (Masters in Social sciences with at least 10 years of experience in projects involving stakeholder consultation and review)
8	Mechanical Engineer (B.Sc Mech Engg with 10 years or M.Sc in Mechanical Engineering with 07 years' experience in the design of water pumps and allied machineries)
9	Electrical Engineer (B.Sc in Elect Engg with 10 years or M.Sc in Electronics with 07 years' experience in the design of control panels of water pumps and allied machineries and at least 3 year experience in design of SCADA System
10	Contract Management Specialist (M.Sc in Contract Management with 10 years' experience in relevant field)
11	Water Treatment Plant Design Expert (International) Master in relevant field with at least 10 years' experience in design of water treatment Plant).
12	Water Treatment Plant Design Expert (local) (M.Sc in Environment / Public Health Engineering with 10 years' experience in water treatment plants)
13	Chief Surveyor (at least 15 years of experience in planning and execution of engineering surveys and mapping)

. TASKS OF INDIVIDUAL CONSULTANTS

i) Team Leader / Water Treatment Plant Specialist:

The Team Leader will take the overall responsibility for the completion of all activities envisaged in the Terms of Reference (TOR) and submission of all reports in accordance with the TOR. He will prepare a work plan for each individual and supervise all field investigations and studies, carry out the quality assurance of all the reports submitted to the Client and co-ordinate the work of all the team members and ensure the active involvement of various stakeholders during designing. The Team Leader would ensure that the requirements of the TOR for each specialty are fulfilled and that the achieved pace/progress of work is relevant or corresponding to the time requirements. The Team Leader in this regard will fix various performance targets for the team ensuring both the progress of work and the quality of submission. The Team Leader will also represent the Team in all matters including meetings with Clients, stakeholders and Govt. representatives etc. He will prepare the Monthly Progress Reports & submit them to the Client / Govt. representatives on Schedule. He will also ensure that all the Investigations and surveys needed for the detailed design are initiated and completed in time, so that the results of the same can be properly incorporated for the preparation of the detailed design and tender documents of various services. He will be responsible for the selection of conductance main route by consider different route options and workout their technical and financial comparisons, merits / demerits and their sustainability with least O&M cost. He will responsible to prepare detailed design of conductance main and entire distribution network. He will also prepare Engineering drawings, technical specifications, BOQ's and tender documents for the proposed components.

ii) Geologist:

The geologist will collect and review the available hydrogeological data near Dadhocha Dam site and to explore the ground water potential

near Dadhocha Dam site. Predict the effect on potential yield of ground water source after construction of Dadhocha Dam.

iii) Geotechnical Engineer

The Geotechnical Engineer will formulate and supervise all necessary Soil/Geotech Investigations envisaged under the proposed Project components i.e. Water treatment plant, Intermediate Pumping, OHR and GST including protection of conductance main against ling River scouring and any other site of relevance.

He will disseminate the information/analysis obtained from the Geotech Investigations to the concerned specialists for incorporation of the results into the design of Water treatment Plant and other allied structures.

iv) Structural Engineer:

Structural Engineer will prepare the detailed design, BOQ's, technical specifications and engineering drawings for any structural component of proposed Water treatment plant, Intermediate Pumping, OHR and GST including protection work of conductance main against ling River scouring.

v) Environmental Specialist

Environmental Specialists will carry out the IEE/EIA's of all components including Water treatment Plant. The Environmental Impact Assessment/monitoring will be carried out according to the applicable Punjab Environment Protection Department or Donor agencies and will also consider all social, resettlement and other relevant aspects.

vi) Economic/Financial Management Expert

Compute the Economic Internal Rate of Return (FIRR) and other economic indicators to assess the economic viability of various alternatives of Treatment.

vii) Social Expert

He will assist environment specialist in the preparation of IEE/EIA by carrying different survey and also assist in preparation of resettlement plan and social economic survey.

viii) Mechanical Engineer

Mechanical Engineer will assist the Water Treatment Design Expert and other Specialist in the design of any mechanical components related to the design of Water Treatment plant and intermediate pumping. He will also prepare the technical specifications, tender drawings for the mechanical component including BOQ's and cost estimates.

ix) Electrical Engineer

Electrical Engineer will assist the Water Treatment Expert and other Specialist in the design of any electrical components related to the design of Water Treatment plant and intermediate pumping. He will also prepare the technical specifications, tender drawings for the electrical component including BOQ's and cost estimates.

x) Contracts Management Specialist

The contract management specialist will assist the Team in formulation and preparation of the various Contract Packages keeping in view various institutional/legal and International/local bidding requirements. He will prepare the "Special Conditions of Contract" to judiciously safeguard the interest of all stakeholders i.e. the Client, the Contractor and the workers at site, whose health and safety safeguards will be built into the contract documents.

xi) **Water treatment Plant Expert (Local):**

He will be responsible for the preparation of the detailed design of Water Treatment Plant including study and review of all the treatment methods and workout their technical and financial comparisons, merits / demerits with environment problems and sustainability with least O&M

cost. He will also prepare Engineering drawings, technical specifications, BOQ's and tender documents for the proposed water treatment Plant components.

xii) International Expert (Water treatment Plant):

He will assist the domestic water treatment Specialist in finalization of design of water treatment plant including technical specifications, BOQs and other allied work as per International Standards.

xiii) Junior Engineers:

They will assist design experts on finalization of feasibility study and detailed design. They will supervisor all survey work and will collect water at different location for analysis. Moreover they will conduct geotech test. Any other duty assigns by the team leader and design experts for finalization of feasibility study and detailed design.

10.9 POSSIBILITY OF PROSPECTIVE PROJECT FINANCING AND IMPLEMENTATION THROUGH DIFFERENT MODES

Will be workout after feasibility study and detailed design of the project.

10.10 RISK AND SENSITIVITY ANALYSIS AND PROPOSED MITIGATION MEASURES

NA

10.11 FORWARD BACKWARD LINKAGES OF THE PROPOSE STUDY / SURVEY

all Dams Organization
rigation Department
Govt. Of the Punjab

Small Dams Division
Islamabad
Phone No:- 051-9255758
Fax No:- 051-9255759

No. EE/SDD/ISD/2018/ 959 Dated 2/8/2018

To

THE MANAGING DIRECTOR
WASA Rawalpindi Development Authority
Rawalpindi.

SUBJECT: - **CONSTRUCTION OF DADOCHHA DAM PROJECT**

Please refer to the Project Director Small Dams Organization Islamabad letter No.PD/SDO/2018/4732-36/191-G dated 20-07-2018 addressed to your office and copy to this office and others on the subject cited above. vide which it is brought to your kind notice that PC-I for construction of Dadochha Dam Project has been approved by the PDWP. The project envisages provision of 25 MGD raw water for drinking purpose to Rawalpindi city. The project is included in the ADP of current financial year and will be physically started at site shortly. The Raw Water is to be received by WASA at the outlet of Dadhocha Dam for further distribution in the Rawalpindi city.

You are, therefore, requested to make necessary arrangements for approval of your scheme for filtration and distribution of Rawa Water supply etc. so, that these component could also be completed along with Dodhocha Dam project.

R-WASA
MD OFFICE
2982
10-08-18

7.8.18

EXECUTIVE ENGINEER
Small Dams Division
Islamabad

C.

The Project Director Small Dams Organization, Islamabad for information with reference to his letter quoted supra.

(Dev.)

Irrigation Department
Govt: of the Punjab

OFFICE OF THE CHIEF ENGINEER
IRRIGATION POTOHAR ZONE
RAWALPINDI / ISLAMABAD
Park Road, Rawal Dam Colony, Islamabad
Ph 051-9255749
Email: ce_potohar@irrigation.punjab.gov.pk
chiefengineerpotohar@gmail.com

To

The Managing Director,
Water and Sanitation Agency (WASA),
WASA Head Office, Liaqat Bagh, Murree Road,
Rawalpindi.

No. CE/IRRI/PTR/2024/ 3974-78 /5-D (II), Dated. 28.08.2024

Subject: **UPDATED STATUS ON CONVEYANCE SYSTEM / FILTRATION PLANT FOR 35 MGD DRINKING WATER SUPPLY FROM BARWALA DAM**

I am directed to refer to the subject cited above and to draw your kind attention towards drinking water supply in Pakistan that is facing many challenges such as shortage of water during drought period. According to National Drinking Water Supply Policy (NDWP) of 2009, goal is to provide universal access to drinking water in an equitable, efficient and sustainable manner by the year 2025. The Sustainable Development Policy Institute (SDPI) has extensively debated on Rawalpindi Water Vision 2030. Water Experts are generally of the view that severe water shortage in Rawal Dam is anticipated as it is the existing major source of drinking water to twin cities. As such there is an immediate need to construct small dams on Soan and Ling Rives. The construction of Small Dams is a step towards revolution in water sector development and to cater water needs in the Potohar Region.

The present requirements of the Rawalpindi City is in the range of 60-65 MGD which are not being met. The deficit in average daily demand may reach 60-70 MGD by the year 2030. The depleting water table in Potohar Region particularly in Rawalpindi District is attributed to excessive withdrawal of ground water through tubewells.

It is pertinent to mention here that Revised PC-I of Construction of Barwala Dam (previously named as Dadhocha Dam) has been approved by ECNEC. The competent authorities have also accorded Administrative Approval and Technical Sanction of the project. The procurement process for project has been completed and Acceptance Letter has been issued vide Executive Engineer, Small Dams Division Islamabad letter No. EE/SDD/2024/3878-81/A&B, dated. 28.08.2024 to M/S Frontier Works Organization (FWO) for construction of Barwala Dam. The execution of civil work will be started shortly and the completion period of said dam is 36 months. The Executive Engineer, Small Dams Division vide his letter No. EE/SDD/2024/3766-67/98W, dated. 21.08.2024 (Annex-A) has already informed you and also requested to do the

needful so that both projects can be completed simultaneously to draw the benefits from the Barwala Dam. This office vide letter No. CE/IRRI/PTR/2022/2127-32/1-D (IV), dated 11.05.2022 (Annex-B) requested Director General, RDA, Rawalpindi to expedite all possible measures to serve the intended purpose of project as accrued benefits of the project are linked with the parallel construction of conveyance system / filtration plant by WASA and Dam by Irrigation Department.

It is paramount to mention here that it is a matter of fact that the responsibility of Punjab Irrigation Department is limited to the extent of Construction of Dam component only and works of construction of conveyance system and filtration plant rests with HUD & PHE Department. In this connection, it is apprised that 6th meeting of Project Steering Committee of the above titled project held on 02.09.2021 under the chairmanship of Chairman P&D Board Punjab wherein representative of HUD & PHED apprised the committee that PC-II for feasibility study of conveyance system / filtration plant has been submitted to P&D board for approval. The decision made in the said meeting is reproduced here as:

"HUD & PHED to come up with the comprehensive plan and timelines to proceed with feasibility study & execution of filtration plant and distribution system".

It is further added here that 09th Project Steering Committee meeting was held on 14.12.2023 and minutes of the same were issued vide No. 9(67)/PO(IRRI)/P&D/2021, dated 28.12.2023 (Annex-C), the decision is reproduced here as:

"PHED /WASA to bring the PC-II for detailed engineering design for the water supply distribution network as early as possible and to ensure construction of the water distribution system parallel to the completion of Dadhocha Dam".

Keeping in view the above narrated facts and as well as above quoted decisions of Project Steering Committee, I am directed to request you to intimate this office regarding upto date status of feasibility study as this office intends to expedite the construction of conveyance system and filtration plant and it is further requested to boost up all possible measures for the betterment of community of Twin Cities.

28/08/2

Executive Engineer (Op)
for **CHIEF ENGINEER**
Irrigation Potohar Zone
Rawalpindi / Islamabad
28/08/2024

CC.

1. PS to Secretary, Irrigation Department, Government of Punjab, Lahore.
2. The Director General, Rawalpindi Development Authority (RDA), Rawalpindi.
3. Additional Secretary (Technical), Irrigation Department, Lahore.
4. The Project Director, Small Dams Circle-I, Islamabad.

10.12 EXPECTED OUTPUT OF THE PROPOSED FEASIBILITY STUDY / SURVEY

11. INDICATE STUDIES / SURVEYS ALREADY UNDERTAKEN:

undefined

Scheme ID	Scheme Name
	FEASIBILITY STUDY AND DETAILED DESIGN FOR AUGUMENTATION OF WATER SUPPLY TO RAWALPINDI CITY BASED UPON DADHOCHA DAM.

12. CERTIFICATE

Focal Person Name: Azizullah khan **Designation:** Director (Water Supply)
Email:aziz_52k@yahoo.com **Tel. No.:**03335289384
Fax No:
Address:WASA head office, liaquat bagh Murree road, Rawalpindi

g) Materials and Parts required yearly and after completion of the project (local and foreign costs)	estimated by the Project Consultant, who would be nominated after the project has been approved by the competent authority for implementation.

Prepared by:
Azizullah Khan
Director (Water Supply)
Water & Sanitation Agency (WASA), RDA
Rawalpindi

Checked by:
Zeeshan Shaukat Gondal
Dy Managing Director (Engg),
WASA, RDA
Rawalpindi

Recommended by:
Muhammad Saleem Ashraf
Managing Director
WASA, RDA
Rawalpindi

Forwarded by:
Secretary
HUD & PHED, Punjab

13. CHECKLIST FOR INITIAL SCRUTINY

1. Signature of the Administrative Secretary	(No)
2. The Study (TORS Of The Consultant)	
a. Brief background of The Project	(No)
b. Objective of Consultancy	(No)
c. Scope, Duties & Responsibilities of Consultants	(No)
d. Deliverables with Timelines	(No)
e. Time Duration of Proposed Consultancy	(No)
f. Role of Client Agency	(No)
g. Professional Liabilities of Consultants	(No)
h. Core Team of Experts along with Qualification, Experience and Man Months Requirements	(No)
3. Management Structure And Manpower Requirements	(No)
4. Implementation Plan (Gantt Chart or Line Chart / Bar Chart	(No)
5. Risk Analysis And Proposed Mitigation Measures	(No)
6. Year Wise Financial Phasing	(No)