

GOVERNMENT OF THE PUNJAB



PC-II

Perfoma for Preparation of Proposal for Conducting Feasibility Study/Survey

Name of the proposed Study/Survey: Engineering, Procurement, And Construction Management(EPCM) Consultant for Punjab Intermediate CitiesImprovement Investment Program (PICIP)

Date of Preparation of PC-II: 16th January, 2025

1. NAME OF THE PROJECT

Engineering, Procurement, And Construction Management(EPCM) Consultant for Punjab Intermediate CitiesImprovement Investment Program (PICIIP)

i. Commencement Date:	02nd February, 2018
ii. Completion Date:	30th June, 2026
iii. Total Gestation Period:	101 Month(s)

2. LOCATION OF THE PROJECT

2.1. DISTRICT(S)

I. SAHIWAL, SIALKOT

2.2. TEHSIL(S)

I. SAHIWAL, SIALKOT

3. AUTHORITIES RESPONSIBLE FOR

3.1. SPONSORING AGENCY

- LG&CD DEPARTMENT

3.2. EXECUTION AGENCY

- LG&CD DEPARTMENT

4. PLAN PROVISION / SOURCE OF FINANCING

Sr #	Description
1	Source of Funding: Scheme Listed in ADP CFY
2	GS No: 1015
3	Total Allocation: 11,810.001

Comments:

5. PROJECT OBJECTIVES

The vision of GoPb is the provision of upgraded sustainable infrastructure and connectivity for faster economic growth and higher productivity with opportunity for inclusive growth and sustained quality of life for its citizens. In the urban economic growth strategy of the GoPb has advanced initiative with focus on development of cities as a hub for development, sustained growth with an aim those cities in the economies are significant. It argues Cities as more efficient and competitive by virtue of strengthening the role of the government as policy maker and regulator. The role of the private sector in developing infrastructure and providing services is also advanced the need for enabling environment and condition for ease for doing business as essential. This also entails efficient service delivery institutions professionally managed and set up and incentivized for performance in cities as major contributor in an efficient and smart city. Government of Punjab has rightly focused on the development of cities as a livable, economic vibrant entity of economic hub, contributing in the economic growth through its Governance & Institutional Reform program in Cities. The five large cities Governance and improvement in service delivery aspect is addressed in World Bank

funded Punjab Cities Governance Improvement Investment Project (PCGIP). The Intermediate cities of Punjab are being addressed in the proposed ADB funded PICIIP in 7 intermediate cities and 2 major cities with total investment of 760 M US\$ via Multi Tranche Financing Facility (MFF) of ADB. The Asian Development Bank (ADB) has prepared a Punjab Intermediate Cities Improvement Investment Project (the Project) which will support key urban sectors including water sanitation, solid waste, urban transport and spaces (e.g., parks, river banks) in the cities of Sahiwal and Sialkot in Punjab, Pakistan. The total project amount is estimated at \$250 million, of which ADB will finance \$200 million and remaining \$50 million will be allocated by the Government of Punjab (the Government). Under the Project, the Government will procure goods and works with 32 procurement packages with an estimated amount of \$174 million. The Government will also recruit 6 consulting firms and individual consultants with an estimated total amount of \$15 million.



GOVERNMENT OF PAKISTAN **PLANNING COMMISSION**

3rd Revised PC-II

1.	Name of Project	Engineering, Procurement, And Construction Management (EPCM) Consultant for Punjab Intermediate Cities Improvement Investment Program (PICIIP)
2.	Administrative Authorities Responsible for: -	Local Government & Community Development Department, Punjab.
	i. Sponsoring Agency	Asian Development Bank & Local Government & Community Development Department (LG&CDD), Government of the Punjab (GoP)
	ii. Execution Agency	i. LG&CDD –PMU ii. MC-CIU Sialkot iii. MC-CIU Sahiwal
3.	Central Ministry Concerned with: -	
	i. Sponsoring Agency	N.A
	ii. Execution Agency	N.A
4.	Details of Survey / Feasibility Study: -	
	a) General Description (of aims and objectives):	<p>The vision of GoPb is the provision of upgraded sustainable infrastructure and connectivity for faster economic growth and higher productivity with opportunity for inclusive growth and sustained quality of life for its citizens.</p> <p>In the urban economic growth strategy of the GoPb has advanced initiative with focus on development of cities as a hub for development, sustained growth with an aim those cities in the economies are significant. It argues Cities as more efficient and competitive by virtue of strengthening the role of the government as policy maker and regulator. The role of the private sector in developing infrastructure and providing services is also advanced the need for enabling environment and condition for ease for doing business as essential. This also entails efficient service delivery institutions professionally managed and set up and incentivized for performance in cities as major contributor in an efficient and smart city.</p>



	<p>Government of Punjab has rightly focused on the development of cities as a livable, economic vibrant entity of economic hub, contributing in the economic growth through its Governance & Institutional Reform program in Cities. The five large cities Governance and improvement in service delivery aspect is addressed in World Bank funded Punjab</p> <p>Cities Governance Improvement Investment Project (PCGIP). The Intermediate cities of Punjab are being addressed in the proposed ADB funded PICIIP in 7 intermediate cities and 2 major cities with total investment of 760 M US\$ via Multi Tranche Financing Facility (MFF) of ADB.</p> <p>The Asian Development Bank (ADB) has prepared a Punjab Intermediate Cities Improvement Investment Project (the Project) which will support key urban sectors including water sanitation, solid waste, urban transport and spaces (e.g., parks, river banks) in the cities of Sahiwal and Sialkot in Punjab, Pakistan. The total project amount is estimated at \$250 million, of which ADB will finance \$200 million and remaining \$50 million will be allocated by the Government of Punjab (the Government). Under the Project, the Government will procure goods and works with 32 procurement packages with an estimated amount of \$174 million. The Government will also recruit 6 consulting firms and individual consultants with an estimated total amount of \$15 million.</p> <p><u>Aim of PICIIP:</u></p> <p>“The Punjab Intermediate Cities Improvement Investment Program (PICIIP)” will improve the quality of life of the residents living in the selected cities of Punjab. It will transform the intermediate cities into urban centers which are more efficient, accountable & serve as an engine of economic growth and sustainable development”.</p> <p>This aim will be achieved by addressing urban development challenges at city level including city integrated planning, improved institutional framework for urban services, strengthened business processes of utilities, and improved urban infrastructure and services.</p>
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		<p>Punjab Growth Strategy Targets</p> <ul style="list-style-type: none"> • 8% annual GDP growth • Increasing Private Sector Investment from \$ 8 billion to \$ 17.5 billion • Achieving all Millennium Development Goals • Narrowing security gaps • 2,000,000 skills graduates • Increase exports by 15% per year • 1 million quality jobs every year <p>Key outcomes</p> <ul style="list-style-type: none"> • Human capital and skills development • Overcoming energy shortages • Institutional reforms and good governance • Gender mainstreaming • Equitable regional development • Export-led growth • Productivity enhancement <p>The project needs an EPCM consultant for Engineering, Procurement, Construction and Management Services of different project components.</p>
	b) Consultancy Period	The allowable period of Consultancy for EPCM will be of 8 years & 2 months from the date of “Commencement of Services”.
	c) Man Power Requirement	<p>The Consultant shall provide, for the duration of the entire assignment, a team of national and international experts who are experienced in Planning, Design, Procurement, Management and Construction Supervision as per scope of the project included in TORs (attached as Appendix-A&C).</p> <p>Further, as per the 1st revision of PC-II, the allocated person months was 1058.6 against 126 sanctioned positions. In the 2nd revision of PC-II, the person months are increased up to 2,842 against 180 sanctioned positions. However, in the instant PC-II (3rd revision), the allocated person months increase upto 3,723.93 against 186 sanctioned positions. Detail of which is given in Appendix-B&D).</p>
4.	Expected Major	<ul style="list-style-type: none"> • The project has the following major outputs

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

6.1 JUSTIFICATION OF PROJECT:

The vision of GoPb is the provision of upgraded sustainable infrastructure and connectivity for faster economic growth and higher productivity with opportunity for inclusive growth and sustained quality of life for its citizens. In the urban economic growth strategy of the GoPb has advanced initiative with focus on development of cities as a hub for development, sustained growth with an aim those cities in the economies are significant. It argues Cities as more efficient and competitive by virtue of strengthening the role of the government as policy maker and regulator. The role of the private sector in developing infrastructure and providing services is also advanced the need for enabling environment and condition for ease for doing business as essential. This also entails efficient service delivery institutions professionally managed and set up and incentivized for performance in cities as major contributor in an efficient and smart city. Government of Punjab has rightly focused on the development of cities as a livable, economic vibrant entity of economic hub, contributing in the economic growth through its Governance & Institutional Reform program in Cities. The five large cities Governance and improvement in service delivery aspect is addressed in World Bank funded Punjab Cities Governance Improvement Investment Project (PCGIP). The Intermediate cities of Punjab are being addressed in the proposed ADB funded PICIIP in 7 intermediate cities and 2 major cities with total investment of 760 M US\$ via Multi Tranche Financing Facility (MFF) of ADB. The Asian Development Bank (ADB) has prepared a Punjab Intermediate Cities Improvement Investment Project (the Project) which will support key urban sectors including water sanitation, solid waste, urban transport and spaces (e.g., parks, river banks) in the cities of Sahiwal

and Sialkot in Punjab, Pakistan. The total project amount is estimated at \$250 million, of which ADB will finance \$200 million and remaining \$50 million will be allocated by the Government of Punjab (the Government). Under the Project, the Government will procure goods and works with 32 procurement packages with an estimated amount of

\$174 million. The Government will also recruit 6 consulting firms and individual consultants with an estimated total amount of \$15 million.

The project is aligned with these impacts: living standards, health, and economy in Sialkot and Sahiwal improved. The project will have the following outcome: access to quality urban services by the residents of Sialkot and Sahiwal cities improved. The prime objective of the assignment is sustainable urban development through optimization of services' operation and maintenance cost and enhanced service delivery to 100% urban population living in urban area.

%uF0B7 Improvement of service delivery.

%uF0B7 Reduction in the period of storm water drainage.

%uF0B7 Improvement in environmental conditions.

%uF0B7 Reduction in pollution of ground and surface

water.

Aim of PICIIP:

“The Punjab Intermediate Cities Improvement Investment Program (PICIIP)” will improve the quality of life of the residents living in the selected cities of Punjab. It will transform the intermediate cities into urban centers which are more efficient, accountable & serve as an engine of economic growth and sustainable development”.

This aim will be achieved by addressing urban development challenges at city level including city integrated planning, improved institutional framework for urban services, strengthened business processes of utilities, and improved urban infrastructure and services.

6.2 SCOPE OF THE PROJECT



	Outcome	Original Scope/TOR <ul style="list-style-type: none">• Output 1: Water supply systems improved. This will be achieved through installation / rehabilitation of at least 114 tube wells / water pumping stations, 16 over head water reservoirs, approximately 350 kilometers (km) of water pipes, up to 15,000 metered customer connections, of which 1,400 will be pre-paid meters on a pilot basis, and new supervisory control and data administration (SCADA) systems, to provide 24/7 water supply to urban population.• Output 2: Sanitation systems improved This will be achieved through installation / rehabilitation of minimum 3 sewage pumping stations, replacement of approximately 40 km of sewer pipes, provision of missing equipment for wastewater management, improvement of drainage system, and construction of waste water treatment plants in both cities. Equipment will be procured for improved collection, segregation, transportation and safe disposal of solid wastes.• Output 3: Urban public spaces improved. This will be achieved through rehabilitation of 07 parks, 7 km green belts, major streets, footpaths, river bank paths, urban transport & parking system and 3 bus terminals, which serve as critical hubs for regional transport systems. Local shops, vendors, and companies will expand new business opportunities with the upgraded facilities.• Output 4: Institutional support and capacity development. This will be achieved through support to institutional reforms such as the establishment of urban service standards, enhancement of customer services function, and development of new tariff structures. Various capacity development programs, including (a) operation and maintenance of key urban services, (b) urban policy and planning, (c) finance management, and (d) tariff policy, will also be delivered to relevant staff in the government and urban service companies. This output will also promote behavior changes on hygiene practice and environment through partnership with youth groups and civil society organizations. Targeted public
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		<p>awareness campaigns will be organized. Below matrix describes infrastructure development in Sahiwal and Sialkot.</p> <ul style="list-style-type: none">• Output 5: Smart City Component This will be achieved through support to institutional Smart City reforms including the City Central Control Room, Intelligent Transport System, Android Based Asset Monitoring System, Asset Management Information System (AMIS), Management Information System (MIS), Municipal Complaint Management and Re-address System, Vehicle tracking system for SWM Machinery and Equipment. SCADA System, Smart Water Management, development of dashboards for monitoring & evaluation and Smart internal procurement system.• Additional Services from EPCM: The purpose of the instant revision of PC-II is to perform remaining/ additional Services, mainly include the deployment of adequate resources to effectively supervise the quality and scope of the projects mentioned below; a. WATSAN & WWTP <u>Sahiwal:</u><ul style="list-style-type: none">• Lot 1: Water Supply System, Filtration Plants, Tube-wells, OHRs, SCADA and Allied Works• Lot 2: North Zone A (Sanitation), Sahiwal Trunk Main Sewer Lines and Allied Works, Sahiwal• Lot 3: North Zone B (Sanitation) Trunk Main Sewer Conduit, Influent Pumping Station and Allied Works, Sahiwal• Lot 4: South Zone Trunk Main Sewer, Effluent Pumping Station and Allied Works• Procurement of Woks for Construction of Waste Water Treatment Plant (WWTP) in North Zone, Sahiwal
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		<p><u>Sialkot:</u></p> <ul style="list-style-type: none"> • Lot-1: Sewerage Lines and Allied Works (Zone 3-A), Sialkot. • Lot-2: Pre-Cast RCC Conduits and Allied Works (Zone 3-B), Sialkot. • Lot-3: Influent Pumping Station, Force main and Allied Works (Zone 3-C), Sialkot • Lot-4: Water Supply System (Zone 3-D), Sialkot • Procurement of Works for Construction of Waste Water Treatment Plant (WWTP) in North Zone, Sialkot <p>b. OTHER SERVICES</p> <ul style="list-style-type: none"> • Design and Construction Supervision of Parking sheds in Sahiwal & Sialkot for SWM & WSS Equipment/Machinery. • Design, Develop, Deploy & Maintain the Project Progress Monitoring and Management Information System (PPM-MIS) works. • Design and Construction Supervision of “Upgradation of Existing Roads in Sahiwal”. • Extended Services for Construction Supervision of Punjab Local Government Academy Building Lahore. • Detail Design and Construction Supervision for Consumer Water Meter in Sahiwal & Sialkot • Revised PC- 1 and Engineer Estimate of WWTP Sahiwal <p>• DETAIL OF WORKS TO BE CARRIED OUT UNDER PICIIP PROJECT MONITORING INFORMATION SYSTEM IS AS UNDER; Major Modules/Functionalities for PPM-MIS:</p> <ul style="list-style-type: none"> • Reference Data • Cities (Sahiwal, Sialkot, Lahore)
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		<ul style="list-style-type: none"> • Lots (Lot-1, Lot-2, Lot-3 etc.) • UCs • Schemes (Water Supply, Sewerage, Parks, PLGA) • Sub Schemes • Components • Sub Components • SWM Equipment <p>• Android App (Data Collection)</p> <p>Consultant Interfaces:</p> <ul style="list-style-type: none"> • Monitoring • Delay Factor Recording • Random Visit • Before Picture • Quality Test Activity Data <p>Client Interfaces:</p> <ul style="list-style-type: none"> • Inspection • Random Visit <p>In all these Monitoring, GPS Coordinates and real-time Pictures along with Status and Comments/Remarks shall be recorded.</p> <p>All these functionalities shall be available both in Online and Offline mode with Data Synchronizations from Server.</p> <p>SWM Equipment Received Quantity along with Pictures and GPS Coordinates.</p> <p>• DASHBOARD (Overall and City wise) & Web Application</p> <ul style="list-style-type: none"> • Field/Monitoring Data for Physical Progress on basis of Monitoring by the Consultants • Overall Schemes Cost • Physical Progress • Financial Progress • SWM Equipment • Delay Factors • Scheme wise Timelines • Field Monitoring real-time data (latest visits with pictures) • Drill down functionality for quick navigations • Monitoring/Visits Data at Component and Sub-Component Level
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		<ul style="list-style-type: none"> • Tree View at Scheme, City Level up-to Components • Financial Module <ul style="list-style-type: none"> • Bill Uploading by Contractor for Tracking/Approvals • Verifications and Approvals of Bills at different levels (Consultants, PICIIP CIU, Engineering Dept. & Finance) • Reporting Module <ul style="list-style-type: none"> • Reports for Field Monitoring, Delay Factors and other relating data on Scheme/ Sub-Scheme/Component and City/Lot-wise • Report's data exportable to PDF and Excel. • ADMIN Module <ul style="list-style-type: none"> • Access Roles & Rights • Users Management <p>Deployment Options There can be following two options for Deployment of this Software Application.</p> <ul style="list-style-type: none"> • Windows based Dedicated Hosting (dedicated server) • Windows based Shared Hosting/Cloud) <p>Minimum Resources Requirement for Hosting:</p> <ul style="list-style-type: none"> • Licensed MSSQL Server 2012 or Higher Version • 1 TB or More Hard Disk Space • 16 GB or More RAM • Upload and Download Bandwidth should be 10 Mbps or more for Attachments/Pictures of Field Monitoring • IIS and Dot Net Framework 4.5 <p>Following is the phase wise description for Web GIS application development.</p> <ul style="list-style-type: none"> • Data Display (Display of Spatial Data of All Schemes and Administrative boundaries on Map) • Widgets Development (Base Map Switcher, Map Navigation, Map Scale, Map Coordinates, Info Window, Search widget
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		<ul style="list-style-type: none"> • View compatibility with multiple platform: Windows, Android, iOS • Widgets Development (geotagged images Widget, Alternate route plan widget, Print Map) • Integration with MIS (Admin Module & Dashboard) • View compatibility with multiple platform: Windows, Android, iOS <p>• DETAILED DESIGN AND CONSTRUCTION SUPERVISION OF PARKING SHEDS AT SAHIWAL & SIALKOT</p> <p>The principal objective of construction of three (03) Nos. Parking Sheds and other Miscellaneous Facilities for the Solid Waste Equipment at Sahiwal (01 site) and Sialkot City (02 sites) is the protection of these equipment from the solar radiation, Ultraviolet rays, rain, hail, wind, and dust is necessary for the long-life and effective working. These sheds will also serve as maintenance of these vehicles for respective districts. Therefore, parking areas with covered / shaded structures will be constructed at the proposed sites of Fareed Town Sahiwal, Allama Iqbal Town Sialkot and Mubarak Pura, Capital Road, Sialkot.</p> <p>• DETAILED DESIGN AND CONSTRUCTION SUPERVISION FOR UPGRADATION WORKS OF SAHIWAL MODEL ROADS</p> <p>The sub-project involves upgradation of following three roads in Sahiwal:</p> <ul style="list-style-type: none"> • Fateh Sher Road from High Street Road to Old Civil line Road. • Main Market Road from Garvi Wala Pull to Fateh Sher Road. • Mall Mandi Chowk to Main Market Road. <p>The main objective of the sub-project is as under;</p> <ul style="list-style-type: none"> • To transform the entire pattern of transportation in surrounding areas resulting in reduced travel time, fuel consumption, noise & air pollution and overall transportation cost leading to uplift of economic condition of local inhabitants. • To enhance the safety, comfort and efficiency of the
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		<p>commuters.</p> <ul style="list-style-type: none"> • To ensure smooth and efficient movement of trade, goods and traffic in relatively • To Shorten the travel time. <p>4) Detail Design and Construction Supervision for Consumer Water Meter in Sahiwal & Sialkot</p> <p>Presently, there are no consumer water meters in Sahiwal and Sialkot; this priority project will lead to the installation of 8,256 consumer water meters in both cities, resulting in a significant increase in water income and making the operational capacity of MCs more sustainable. The main objective of the sub-project is as under;</p> <ul style="list-style-type: none"> • Maximizing the efficiency of the water supply system by creating self-sustaining Water Zones and District Meter Zones (DMZs) & District Meter Areas (DMAs). • Domestic Metering in order to minimize water losses (Non-Revenue Water) and to increase the revenue generation. • It will enable MC to collect the appropriate fees for the services they provide. This revenue will aid in infrastructure maintenance, investments in technology, and future expansion of services. • Responsible consumption as consumers will be aware of their usage and its associated cost resulting in Water Conservation. • By installing water meters, it will ensure that resources are distributed fairly among consumers. Without meters, some consumers might consume disproportionately more resources, causing shortages for others and leading to inequity in service delivery. • Water meters will enable MCs to efficiently manage their water distribution systems. By monitoring usage patterns and identifying peak demand period. MCs will allocate resources more effectively, leading to reduced infrastructure maintenance costs and lower operational expenses.
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6.3 SECTORAL SPECIFIC INFORMATION

N/A

7. YEAR WISE COST ESTIMATES

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

Grant Number:Engineering - (PC220036)
LO NO:N/A
A/C To be Credited:N/A

PKR Million

S r #	Object Code	2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026	
		Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig	Local	Foreig
1	A06470- Others	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



Loan No. 3562-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)
Engineering Procurement and Construction Management (EPCM) Consultant
ABSTRACT OF COST

ADB

Total Cost: US\$ 6.68 M

		Original PC-II	1st Revised PC-II		2nd Revised PC-II		Utilization	Balance as Per 2nd Revised PC-II		Additional as per 3rd Revised PC-II (Proposed)		3rd Revised PC-II (Proposed)		Excess (PKR)
A- Competitive:		Amount (PKR.)	Charge Rate \$	Amount (PKR.)	Charge Rate \$	Amount (PKR.)	Amount (PKR.)	Charge Rate \$	Amount (PKR.)	Charge Rate \$	Amount (PKR.)	Charge Rate \$	Amount (PKR.)	
Remuneration Key Experts (International)		49,660,800	155,125.00	17,474,831	155,125.00	27,596,738	12,780,439	130,095.04	23,143,908	-	-	131,400.00	36,514,746	8,918,008.50
Remuneration Key Experts (National)		90,453,600	1,278,169.86	143,985,835	1,483,935.38	263,992,105	284,325,702	- 114,297.90	- 20,333,597	306,831.37	85,265,369	1,256,819.15	349,257,474	85,265,369.42
Remuneration Non- Key Experts (National)		69,835,500	2,016,491.00	227,157,712	3,392,247.51	603,480,833	633,100,274	- 166,494.89	- 29,619,441	756,885.99	210,331,047	2,928,539.64	813,811,879	210,331,046.54
Sub-Total (Remuneration)		209,949,900	3,449,785.86	388,618,377	5,031,307.90	895,069,675	930,206,415	- 150,697.75	- 26,809,130	1,063,717.36	295,596,416	4,316,758.79	1,199,584,100	304,514,424.47
Total Reimbursable / Out of Pocket Expenses (OPE):		Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR		Rate \$	Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR	Rate PKR
OPE (A) Per Diem+Air Travel		8,247,240	41,225.00	4,643,996	41,225.00	7,333,928	4,974,762	13,261	2,359,166	-	-	41,225.00	11,456,015	4,122,088
OPE (B) Office Operation		95,308,830	-	-	-	-	-	-	-	-	-	-	-	-
OPE (C) Other Expenses			769,388.4	86,671,600	1,163,597.81	207,004,050	206,987,028	95.68	17,022	512,518.23	142,423,692	1,257,431.87	349,427,742	142,423,692
Sub-Total (OPE)		103,556,070	810,613.37	91,315,596	1,204,822.81	214,337,978	211,961,790	13,356.87	2,376,188	512,518.23	142,423,692	1,298,656.87	360,883,757	146,545,779
Lumpsum Based Components for Additional Works														
1 Environment Studies			28,965.71	5,153,000.00	-	-	-	-	-	-	-	-	-	-
2 Upgradation of Lala Musa Academy			28,105.68	5,000,000.00	-	-	-	-	-	-	-	-	-	-
Sub-Total (Lumpsum Based Assignments)			57,071.39	10,153,000.00	-	-	-	-	-	-	-	-	-	-
B- Non-Competitive Component		Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR		Rate \$	Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR	Rate PKR
Provisional Sums		2,660,400	24,000.00	2,703,600	24,000.00	2,703,600	1,000,000	9,576.17	1,703,600	10,080.74	2,801,337	19,809.77	5,504,937	2,801,337
Sub-Total (PS)		2,660,400	24,000.00	2,703,600	24,000.00	2,703,600	1,000,000	9,576.17	1,703,600	10,080.74	2,801,337	19,809.77	5,504,937	2,801,337
C- Contingency		Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR		Rate \$	Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR	Rate PKR
3% of Local Component		15,808,319	142,610.00	16,065,017	181,193.42	32,234,310	21,453,313	60,601.45	10,780,997	6,491.82	1,804,013	122,488.48	34,038,323	1,804,013
Sub-Total (Contingencies)		15,808,319	142,610.00	16,065,017	181,193.42	32,234,310	21,453,313	60,601.45	10,780,997	6,491.82	1,804,013	122,488.48	34,038,323	1,804,013
Total (A+B+C)		331,974,689	4,484,080.62	508,855,590	6,441,324.13	1,144,345,563	1,164,621,517	- 67,163.27	- 11,948,345	1,592,808.15	442,625,458	5,757,713.90	1,600,011,117	455,665,554
D- Indirect Local Tax Estimate		Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR		Rate \$	Rate PKR	Rate \$	Rate PKR	Rate \$	Rate PKR	Rate PKR
i) General Sales Tax (GST) @16%		53,115,950	664,668	74,874,903	966,365	171,916,318	186,339,443	- 10,746	- 1,911,735	254,849.30	70,820,073	921,234	256,001,779	84,085,461
ii) Stamp Duty @ 0.35% [Local Component + Reimbursable Expenses]		1,161,911	-	-	-	-	-	-	-	-	-	-	-	-
iii) Income tax on non-resident experts @15% (as per existing govt.law)			-	3,317,824	-	-	-	-	-	-	-	-	-	-
Sub-Total (D)		54,277,862	664,668	78,192,728	966,365	171,916,318	186,339,443	- 10,746	- 1,911,735	254,849	70,820,073	921,234	256,001,779	84,085,461
Grand Total (A+B+C+D)		386,252,550	5,148,749	587,048,318	7,407,689	1,316,261,881	1,350,960,960	- 77,909	- 13,860,080	1,847,657	513,445,531	6,678,948	1,856,012,896	539,751,015
Grand Total in (Million)		386	5.15	587	7.41	1316.26	1351	-0.08	-13.86	1.85	513.45	6.68	1856.01	539.75

Loan No. 3562-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)																									
Engineering Procurement and Construction Management (EPCM) Consultant																									
REMUNERATION OF INTERNATIONAL AND NATIONAL EXPERTS																									
	1st Revised PC-II				2nd Revised PC-II				Utilization				Balance as Per 2nd Revised PC-II				Additional Per Months as per 3rd Revised PC-II (Proposed)				3rd Revised PC-II (Proposed)				
Staff Position	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	
International (Key Experts)																									
Team Leader/ Urban Space Development Specialist	1.00	3.00	2,878,208	8,634,623	1.00	3.00	4,545,345	13,636,035	1.00	0.86	4,545,345	3,926,269	1.00	2.14	7,100,090	15,167,211	1.00	0.00	7,100,090	-	1.00	3.00	7,100,090	21,300,269	
Senior Procurement and Contracts Management Specialist	1.00	1.00	1,850,276	1,850,276	1.00	1.00	2,922,008	2,922,008	1.00	0.00	-	-	1.00	1.00	4,564,343	4,564,343	0.00	-1.00	4,564,343	-	4,564,343	0.00	0.00	-	-
Design Engineer	1.00	2.00	3,083,794	6,167,588	1.00	2.00	4,870,013	9,740,025	1.00	1.82	4,870,013	8,854,170	1.00	0.18	7,607,239	1,383,757	1.00	0.00	7,607,239	-	1.00	2.00	7,607,239	15,214,478	
Smart City Specialist /Engineer	1.00	0.50	1,644,690	822,345	1.00	0.50	2,597,340	1,298,670	1.00	0.00	-	-	1.00	0.50	4,057,194	2,028,597	0.00	-0.50	4,057,194	-	2,028,597	0.00	0.00	-	-
Sub-Total International Experts	4.00	6.50		17,474,831	4.00	6.50		27,596,738	4.00	2.68		12,780,439	4.00	3.82		23,143,908	2.00	-1.50		-	6,592,940	2.00	5.00		36,514,746
National (Key Experts)																									
Deputy Team Leader [also work as the Engineer / Project Manager]	1.00	34.50	628,283	21,675,765	1.00	43.20	628,283	27,144,711	1.00	43.20	628,283	27,144,711	1.00	0.00	-	-	1.00	0.00	-	-	1.00	43.20	628,283	27,144,711	
Deputy Team Leader / Project Manager	0.00	0.00	-	-	1.00	28.00	872,620	24,433,369	1.00	31.25	872,620	27,270,539	1.00	-3.25	872,620	-	2,837,170	1.00	23.25	872,620	20,289,576	1.00	51.25	872,620	44,722,945
Senior Resident Engineer / The Engineer	0.00	0.00	-	-	2.00	80.22	628,283	50,401,355	2.00	89.07	628,283	55,963,940	2.00	-8.85	628,283	-	5,562,585	2.00	46.85	628,283	29,437,340	2.00	127.07	628,283	79,838,695
Manager Coordination Design	1.00	21.00	628,283	13,193,944	1.00	21.00	628,283	13,193,944	1.00	23.00	628,283	14,450,510	1.00	-2.00	628,283	-	1,256,566	1.00	2.00	628,283	1,256,566	1.00	23.00	628,283	14,450,510
MIS Team Lead	0.00	0.00	-	-	1.00	3.00	628,283	1,884,849	1.00	3.00	628,283	1,884,849	1.00	0.00	-	-	1.00	0.00	-	-	1.00	3.00	628,283	1,884,849	
Design Engineer (W&S and sewerage infrastructure)	1.00	9.00	300,000	2,700,000	1.00	9.00	300,000	2,700,000	1.00	9.00	300,000	2,700,000	1.00	0.00	300,000	-	1.00	0.00	300,000	-	1.00	9.00	300,000	2,700,000	
Sanitation Expert/Public Health Engineer	1.00	21.50	450,630	9,688,554	1.00	21.50	450,630	9,688,554	1.00	27.50	450,630	12,392,336	1.00	-6.00	450,630	-	2,703,782	1.00	6.00	450,630	2,703,782	1.00	27.50	450,630	12,392,336
Solid Waste Management Expert	1.00	6.00	628,283	3,769,698	1.00	6.55	628,283	4,114,940	1.00	6.55	628,283	4,114,940	1.00	0.00	628,283	-	1.00	0.00	628,283	-	1.00	6.55	628,283	4,114,940	
Design Engineer (Mechanical)	1.00	3.75	872,620	3,272,326	1.00	3.75	872,620	3,272,326	1.00	3.75	872,620	3,272,326	1.00	0.00	872,620	-	1.00	0.00	872,620	-	1.00	3.75	872,620	3,272,326	
Sociologist	1.00	7.00	450,630	3,154,413	1.00	7.00	450,630	3,154,413	1.00	7.00	450,630	3,154,413	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	7.00	450,630	3,154,413	
Environmental Expert	1.00	7.50	450,630	3,379,728	1.00	14.00	450,630	6,308,826	1.00	12.54	450,630	5,651,176	1.00	1.46	450,630	657,650	1.00	1.54	450,630	694,242	1.00	15.54	450,630	7,003,067	
Plumbing Design Expert	1.00	0.50	872,620	436,310	1.00	0.55	872,620	476,014	1.00	0.55	872,620	476,014	1.00	0.00	872,620	-	1.00	0.00	872,620	-	1.00	0.55	872,620	476,014	
Senior Architect	2.00	4.25	872,620	3,708,636	2.00	4.25	872,620	3,708,636	2.00	4.25	872,620	3,708,636	2.00	0.00	872,620	-	2.00	0.00	872,620	-	2.00	4.25	872,620	3,708,636	
Architect	1.00	5.00	628,283	3,141,415	1.00	7.41	628,283	4,654,949	1.00	7.41	628,283	4,654,949	1.00	0.00	628,283	-	1.00	2.00	628,283	1,256,566	1.00	9.41	628,283	5,911,515	
Senior Urban Space Developer	1.00	8.00	450,630	3,605,043	1.00	8.00	450,630	3,605,043	1.00	8.00	450,630	3,605,043	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	8.00	450,630	3,605,043	
Town Planner	1.00	1.00	628,283	628,283	0.00	0.00	628,283	-	0.00	0.00	628,283	-	0.00	0.00	628,283	-	0.00	0.00	628,283	-	0.00	0.00	628,283	-	
Design Engineer (Structure)	1.00	7.50	628,283	4,712,123	1.00	7.82	628,283	4,912,042	1.00	9.32	628,283	5,854,467	1.00	-1.50	628,283	-	942,425	1.00	1.50	628,283	942,425	1.00	9.32	628,283	5,854,467
Design Engineer (Electromechanical)	1.00	5.50	628,283	3,455,557	1.00	5.73	628,283	3,598,365	1.00	6.73	628,283	4,226,648	1.00	-1.00	628,283	-	628,283	1.00	1.00	628,283	628,283	1.00	6.73	628,283	4,226,648
Senior SCADA Expert	1.00	2.50	872,620	2,181,551	1.00	2.77	872,620	2,419,514	1.00	5.77	872,620	5,037,375	1.00	-3.00	872,620	-	2,617,861	1.00	3.00	872,620	2,617,861	1.00	5.77	872,620	5,037,375
SCADA Expert	1.00	5.00	450,630	2,253,152	1.00	5.00	450,630	2,253,152	1.00	5.00	450,630	2,253,152	1.00	0.00	450,630	-	1.00	1.50	450,630	675,946	1.00	6.50	450,630	2,929,098	
Design Engineer (HVAC)	1.00	3.00	628,283	1,884,849	1.00	3.00	628,283	1,884,849	1.00	3.00	628,283	1,884,849	1.00	0.00	628,283	-	1.00	0.00	628,283	-	1.00	3.00	628,283	1,884,849	
Fire Fighting Expert	1.00	2.50	450,630	1,126,576	1.00	2.50	450,630	1,126,576	1.00	2.50	450,630	1,126,576	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	2.50	450,630	1,126,576	
Groundwater Expert	1.00	8.00	628,283	5,026,264	1.00	8.00	628,283	5,026,264	1.00	8.00	628,283	5,026,264	1.00	0.00	628,283	-	1.00	0.00	628,283	-	1.00	8.00	628,283	5,026,264	
Geophysicist / Electrical Resistivity Expert	1.00	2.75	450,630	1,239,234	1.00	2.75	450,630	1,239,234	1.00	2.75	450,630	1,239,234	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	2.75	450,630	1,239,234	
Irrigation Expert	1.00	3.50	628,283	2,198,991	1.00	3.50	628,283	2,198,991	1.00	3.50	628,283	2,198,991	1.00	0.00	628,283	-	1.00	0.00	628,283	-	1.00	3.50	628,283	2,198,991	
Horticultural Expert	1.00	4.75	450,630	2,140,494																					

Loan No. 3562-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)																								
Engineering Procurement and Construction Management (EPCM) Consultant																								
REMUNERATION OF INTERNATIONAL AND NATIONAL EXPERTS																								
Staff Position	1st Revised PC-II				2nd Revised PC-II				Utilization				Balance as Per 2nd Revised PC-II				Additional Per Months as per 3rd Revised PC-II (Proposed)				3rd Revised PC-II (Proposed)			
	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)
Chief CAD Officer (W&S)	1.00	10.50	193,655	2,033,373	1.00	10.50	193,655	2,033,373	1.00	13.50	193,655	2,614,337	1.00	-3.00	193,655	- 580,964	1.00	3.00	193,655	580,964	1.00	13.50	193,655	2,614,337
Assistant Solid Waste Expert-1	1.00	7.00	349,344	2,445,409	1.00	7.41	349,344	2,588,326	1.00	7.41	349,344	2,588,326	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	7.41	349,344	2,588,326
Assistant Design Engineer (Mechanical)	1.00	5.00	349,344	1,746,721	1.00	5.00	349,344	1,746,721	1.00	5.00	349,344	1,746,721	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	5.00	349,344	1,746,721
Chief CAD Officer (Mechanical)	1.00	1.14	276,209	314,416	1.00	1.14	276,209	314,416	1.00	6.14	276,209	1,695,462	1.00	-5.00	276,209	- 1,381,046	1.00	5.00	276,209	1,381,046	1.00	6.14	276,209	1,695,462
Assistant Sociologist	2.00	5.75	300,000	1,725,000	2.00	5.75	300,000	1,725,000	2.00	5.75	300,000	1,725,000	2.00	0.00	300,000	-	2.00	0.00	300,000	-	2.00	5.75	300,000	1,725,000
Plumbing Engineer	1.00	1.00	450,630	450,630	1.00	1.00	450,630	450,630	1.00	1.00	450,630	450,630	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	1.00	450,630	450,630
Assisstant Plumbing Engineer	1.00	1.50	349,344	524,016	1.00	1.50	349,344	524,016	1.00	1.50	349,344	524,016	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	1.50	349,344	524,016
Assistant Architect-I	1.00	4.00	450,630	1,802,522	2.00	12.00	450,630	5,407,565	2.00	11.96	450,630	5,389,080	2.00	0.04	450,630	18,485	2.00	-0.04	450,630	- 18,485	2.00	11.96	450,630	5,389,080
Assistant Architect-II	1.00	4.50	349,344	1,572,049	1.00	4.50	349,344	1,572,049	1.00	4.50	349,344	1,572,049	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	4.50	349,344	1,572,049
Assistant Architect-III	1.00	8.00	276,209	2,209,673	1.00	8.00	276,209	2,209,673	1.00	8.00	276,209	2,209,673	1.00	0.00	276,209	-	1.00	0.00	276,209	-	1.00	8.00	276,209	2,209,673
Assistant Architect-IV	1.00	3.00	300,000	900,000	1.00	3.00	300,000	900,000	1.00	3.00	300,000	900,000	1.00	0.00	300,000	-	1.00	0.00	300,000	-	1.00	3.00	300,000	900,000
Chief Quantity Surveyor (Architect) - I	1.00	6.00	276,209	1,657,255	1.00	6.77	276,209	1,870,764	1.00	6.77	276,209	1,870,764	1.00	0.00	276,209	-	1.00	0.00	276,209	-	1.00	6.77	276,209	1,870,764
Chief Quantity Surveyor (Architect) - I	1.00	5.00	193,655	968,273	1.00	5.00	193,655	968,273	1.00	5.00	193,655	968,273	1.00	0.00	193,655	-	1.00	0.00	193,655	-	1.00	5.00	193,655	968,273
Chief CAD Officer (Architect)-I	2.00	5.50	238,179	1,309,985	2.00	7.50	238,179	1,786,343	2.00	7.50	238,179	1,786,343	2.00	0.00	238,179	-	2.00	0.00	238,179	-	2.00	7.50	238,179	1,786,343
Chief CAD Officer (Architect)-II	1.00	3.50	276,209	966,732	1.00	3.50	276,209	966,732	1.00	3.50	276,209	966,732	1.00	0.00	276,209	-	1.00	0.00	276,209	-	1.00	3.50	276,209	966,732
Chief CAD Officer (Architect)-III	1.00	4.50	193,655	871,446	1.00	4.50	193,655	871,446	1.00	4.50	193,655	871,446	1.00	0.00	193,655	-	1.00	0.00	193,655	-	1.00	4.50	193,655	871,446
Chief CAD Officer (Architect)-IV	1.00	7.50	193,655	1,452,409	1.00	7.50	193,655	1,452,409	1.00	7.50	193,655	1,452,409	1.00	0.00	193,655	-	1.00	0.00	193,655	-	1.00	7.50	193,655	1,452,409
Assistant Structure Engineer - I	2.00	7.50	450,630	3,379,728	2.00	7.50	450,630	3,379,728	2.00	9.00	450,630	4,055,674	2.00	-1.50	450,630	- 675,946	2.00	1.50	450,630	675,946	2.00	9.00	450,630	4,055,674
Assistant Structure Engineer - II	2.00	12.00	349,344	4,192,130	2.00	13.23	349,344	4,620,775	2.00	13.23	349,344	4,620,775	2.00	0.00	349,344	-	2.00	0.00	349,344	-	2.00	13.23	349,344	4,620,775
Chief CAD Officer (Structure) - I	1.00	7.00	193,655	1,355,582	1.00	7.32	193,655	1,417,203	1.00	8.32	193,655	1,610,857	1.00	-1.00	193,655	- 193,655	1.00	1.00	193,655	193,655	1.00	8.32	193,655	1,610,857
Chief CAD Officer (Structure) - II	1.00	5.50	147,560	811,581	1.00	5.50	147,560	811,581	1.00	6.00	147,560	885,361	1.00	-0.50	147,560	- 73,780	1.00	0.50	147,560	73,780	1.00	6.00	147,560	885,361
Chief Quantity Surveyor (Structure)	1.00	6.00	349,344	2,096,065	1.00	6.00	349,344	2,096,065	1.00	6.00	349,344	2,096,065	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	6.00	349,344	2,096,065
Assistant Design Engineer (Electrical) - I	2.00	6.25	450,630	2,816,440	2.00	6.61	450,630	2,980,289	2.00	8.61	450,630	3,881,550	2.00	-2.00	450,630	- 901,261	2.00	2.00	450,630	901,261	2.00	8.61	450,630	3,881,550
Assistant Design Engineer (Electrical) - II	1.00	1.50	300,000	450,000	1.00	1.50	300,000	450,000	1.00	1.50	300,000	450,000	1.00	0.00	300,000	-	1.00	0.00	300,000	-	1.00	1.50	300,000	450,000
Chief Quantity Surveyor (Electromechanical)	1.00	2.50	193,655	484,136	1.00	3.00	193,655	580,964	1.00	4.50	193,655	871,446	1.00	-1.50	193,655	- 290,482	1.00	1.50	193,655	290,482	1.00	4.50	193,655	871,446
Chief CAD Officer (Electromechanical) - I	1.00	2.00	276,209	552,418	1.00	2.00	276,209	552,418	1.00	3.00	276,209	828,627	1.00	-1.00	276,209	- 276,209	1.00	1.00	276,209	276,209	1.00	3.00	276,209	828,627
Chief CAD Officer (Electromechanical) - II	1.00	1.50	193,655	290,483	1.00	1.50	193,655	290,483	1.00	1.50	193,655	290,483	1.00	0.00	193,655	-	1.00	0.00	193,655	-	1.00	1.50	193,655	290,483
Assistant Design Engineer (HVAC) - I	1.00	3.00	450,630	1,351,891	1.00	3.00	450,630	1,351,891	1.00	3.00	450,630	1,351,891	1.00	0.00	450,630	-	1.00	0.00	450,630	-	1.00	3.00	450,630	1,351,891
Assistant Design Engineer (HVAC) - II	1.00	3.00	349,344	1,048,032	1.00	3.00	349,344	1,048,032	1.00	3.00	349,344	1,048,032	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	3.00	349,344	1,048,032
Assistant Geophysicist / Electrical Resistivity Expert	1.00	2.00	349,344	698,688	1.00	2.00	349,344	698,688	1.00	2.00	349,344	698,688	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	2.00	349,344	698,688

Loan No. 3562-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)																								
Engineering Procurement and Construction Management (EPCM) Consultant																								
REMUNERATION OF INTERNATIONAL AND NATIONAL EXPERTS																								
Staff Position	1st Revised PC-II				2nd Revised PC-II				Utilization				Balance as Per 2nd Revised PC-II				Additional Per Months as per 3rd Revised PC-II (Proposed)				3rd Revised PC-II (Proposed)			
	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)	Person No.	Duration (Person-Month)	Charge Rate (PKR)	Amount (PKR)
Manager Admin	0.00	0.00	-	-	1.00	28.00	100,000	2,800,000	1.00	30.85	100,000	3,084,892	1.00	-2.85	100,000	- 284,892	1.00	2.85	100,000	284,892	1.00	30.85	100,000	3,084,892
Sr. Manager Admin	0.00	0.00	-	-	0.00	0.00	-	-	0.00	0.00	-	-	0.00	0.00	-	-	1.00	19.00	200,000	3,800,000	1.00	19.00	200,000	3,800,000
Web Developer	0.00	0.00	-	-	2.00	13.52	349,344	4,722,122	2.00	13.52	349,344	4,722,122	2.00	0.00	349,344	-	2.00	0.00	349,344	-	2.00	13.52	349,344	4,722,122
Android Developer	0.00	0.00	-	-	2.00	5.41	349,344	1,890,826	2.00	5.41	349,344	1,890,826	2.00	0.00	349,344	-	2.00	0.00	349,344	-	2.00	5.41	349,344	1,890,826
GIS Developer	0.00	0.00	-	-	1.00	4.88	349,344	1,706,142	1.00	4.88	349,344	1,706,142	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	4.88	349,344	1,706,142
GIS Analyst	0.00	0.00	-	-	1.00	1.75	349,344	611,352	1.00	1.75	349,344	611,352	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	1.75	349,344	611,352
Assistant Resident Engineers (Civil)	3.00	60.00	450,630	27,037,824	9.00	296.44	450,630	133,584,779	9.00	334.25	450,630	150,623,211	9.00	-37.81	450,630	- 17,038,432	9.00	118.81	450,630	53,539,495	9.00	415.25	450,630	187,124,274
Assistant Resident Engineers (Civil)	1.00	20.00	349,344	6,986,883	1.00	21.87	349,344	7,639,836	1.00	20.77	349,344	7,254,141	1.00	1.10	349,344	385,695	1.00	-1.10	349,344	- 385,695	1.00	20.77	349,344	7,254,141
Assistant Construction Manager (Civil)-Building	1.00	17.00	349,344	5,938,851	1.00	35.48	349,344	12,393,400	1.00	39.00	349,344	13,624,808	1.00	-3.52	349,344	- 1,231,408	1.00	6.52	349,344	2,279,440	1.00	42.00	349,344	14,672,840
Assistant Resident Engineers (Electromechanical)	2.00	16.00	349,344	5,589,507	0.00	0.00	-	-	0.00	0.00	-	-	0.00	0.00	-	-	3.00	31.00	450,630	13,969,542	3.00	31.00	450,630	13,969,542
Material Engineer	2.00	36.00	349,344	12,576,390	2.00	56.00	349,344	19,563,273	2.00	49.36	349,344	17,244,505	2.00	6.64	349,344	2,318,768	2.00	19.36	349,344	6,764,180	2.00	75.36	349,344	26,327,453
Site Inspector	6.00	120.00	200,000	24,000,000	28.00	720.57	200,000	144,115,000	28.00	820.91	200,000	164,182,000	28.00	-100.34	200,000	- 20,067,000	31.00	371.47	200,000	74,294,389	31.00	1092.05	200,000	218,409,389
Chief CAD Officer	0.00	0.00	-	-	1.00	24.00	193,655	4,647,720	1.00	18.18	193,655	3,521,355	1.00	5.82	193,655	1,126,365	1.00	6.18	193,655	1,197,495	1.00	30.18	193,655	5,845,215
Lab Technician	0.00	0.00	-	-	2.00	48.00	193,655	9,295,440	2.00	31.28	193,655	6,057,059	2.00	16.72	193,655	3,238,381	2.00	-2.72	193,655	- 527,211	2.00	45.28	193,655	8,768,229
Surveyor	0.00	0.00	-	-	10.00	224.00	90,000	20,160,000	10.00	137.74	90,000	12,396,600	10.00	86.26	90,000	7,763,400	10.00	-4.26	90,000	- 383,400	10.00	219.74	90,000	19,776,600
Construction Supervisor	2.00	36.00	200,000	7,200,000	2.00	72.77	200,000	14,554,000	2.00	93.01	200,000	18,601,857	2.00	-20.24	200,000	- 4,047,857	2.00	34.24	200,000	6,847,857	2.00	107.01	200,000	21,401,857
Electrical Engineer	1.00	6.00	349,344	2,096,065	1.00	17.06	349,344	5,960,842	1.00	16.93	349,344	5,914,397	1.00	0.13	349,344	46,445	1.00	2.87	349,344	1,001,587	1.00	19.93	349,344	6,962,429
Fire Fighting and Plumbing Expert	1.00	4.00	349,344	1,397,377	1.00	11.75	349,344	4,106,057	1.00	3.95	349,344	1,381,173	1.00	7.80	349,344	2,724,884	1.00	-6.80	349,344	- 2,375,540	1.00	4.95	349,344	1,730,517
HVAC Expert	1.00	3.00	349,344	1,048,032	1.00	14.96	349,344	5,226,499	1.00	8.07	349,344	2,818,452	1.00	6.89	349,344	2,408,047	1.00	-4.89	349,344	- 1,709,359	1.00	10.07	349,344	3,517,140
SCADA/Electrical Low Voltage (ELV) Engineer	1.00	4.00	349,344	1,397,377	1.00	14.61	349,344	5,103,563	1.00	8.67	349,344	3,027,135	1.00	5.94	349,344	2,076,428	1.00	-3.94	349,344	- 1,377,740	1.00	10.67	349,344	3,725,823
Chief Quantity Surveyor	1.00	18.00	193,655	3,485,782	5.00	176.15	193,655	34,112,489	5.00	170.49	193,655	33,016,166	5.00	5.66	193,655	1,096,323	5.00	56.34	193,655	10,910,260	5.00	232.49	193,655	45,022,749
Construction Supervisor MEP	1.00	6.00	238,179	1,429,074	1.00	21.11	238,179	5,027,743	1.00	25.60	238,179	6,096,380	1.00	-4.49	238,179	- 1,068,637	1.00	11.49	238,179	2,735,890	1.00	32.60	238,179	7,763,634
Sociologist (For Social Safeguard Compliance During Execution)	1.00	12.00	349,344	4,192,130	0.00	0.00	349,344	-	0.00	0.00	349,344	-	0.00	0.00	349,344	-	0.00	0.00	349,344	-	0.00	0.00	349,344	-
Environmental Scientist (For Environmental Compliance During Execution)	1.00	12.00	349,344	4,192,130	1.00	0.78	349,344	273,124	1.00	0.78	349,344	273,124	1.00	0.00	349,344	-	1.00	0.00	349,344	-	1.00	0.78	349,344	273,124
Health, Safety and Environment Expert	0.00	0.00	-	-	2.00	48.00	349,344	16,768,512	2.00	42.73	349,344	14,928,649	2.00	5.27	349,344	1,839,863	2.00	32.73	349,344	11,435,209	2.00	80.73	349,344	28,203,721
Sub-Total Non-Key Experts	85.00	772.10		227,157,712	139.00	2325.41	-	603,480,833	139.00	2384.27	-	633,100,274	139.00	-58.86	-	- 29,619,441	146.00	765.00	-	210,331,047	146.00	3090.40	-	813,811,879
Sub-Total Key + Non-Key Experts (Int'l + National)	125.00	1067.39		388,618,377	181.00	2841.84		895,069,675	181.00	2914.97		930,206,415	181.00	-73.13		- 26,809,130	186.00	882.08		289,003,476	186.00	3723.93		1,199,584,100



Loan No. P 46526-007-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)

Engineering Procurement and Construction Management (EPCM) Consultant



		As per Approved PC-II						As per 2nd Revised PC-II				Utilization				Balance as Per 2nd Revised PC-II				Additional Per Months as per 3rd Revised PC-II (Proposed)				As per 3rd Revised PC-II								
S/No	Description	Unit	Duration	Rate (US\$)	Rate (PKR)	Amount (US\$)	Amount (PKR)	Unit	Duration	Item Rate	Total Amount	Unit	Duration	Item Rate	Total Amount	Unit	Duration	Item Rate	Total Amount	Unit	Duration	Item Rate	Total Amount	Unit	Duration	Item Rate	Total Amount	Unit	Duration	Item Rate	Total Amount	
A	General Expenses									Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	
(a)	Housing Allowance for International Consultants (including rental fee, utilities, and related expenses)	Month																														
(b)	Subsistence Allowance (International)	Month	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(c)	National Per Diem	Day	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Air Tickets Expenses																																
(a)	International air travel	RT	14	925		12,950	1,458,818	14		925	-	12,950	-		10,798.04	-		-	-	2,152	-		-	-	1,000	-		-	-	13,950	-	
(b)	Miscellaneous Travel Expenses	RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(c)	National Air Travel	RT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total A						12,950.00	1,458,818				12,950.00	-		10,798.04	-			2,152	-			1,000	-					13,950	-			
B	Consultant Office / Residence and Support Staff																															
(a)	Office Establishment / Residence / Utilities	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(b)	Office Operational Expenses (Office Supplies and Salaries of Support Staff Etc)	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(c)	Cost of office equipments / other equipments	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(d)	Provision for vehicles	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(e)	Fueling/maintenance of vehicles	Month	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(f)	Communications	Month	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
(g)	Drafting and Reproduction of Reports	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sub Total (B)						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total of OPE (A + B)						12,950.00	1,458,818	-	-	-	12,950.00	-	-	10,798.04	-	-	-	2,152	-	-	-	1,000	-	-	-	-	13,950	-	-	-	-	
C	Other Expenses																															
a	Per diem international staff (as per actual)	Nos.	195	145.00	-	28,275	-	Nos.	195	145.00	-	28,275.00	-	Nos.	-	-	-	11,109	-	Nos.	-	-	-	1,000	-	Nos.	-	-	-	27,275	-	
b	Per diem Local Staff & Project Allowance (design and supervision staff)	Lumpsum	-	-	-	-	8,847,700	Lumpsum	-	-	-	16,847,700	Lumpsum	-	-	-	15,014,714	Lumpsum	-	-	-	1,832,986	Lumpsum	-	-	3,983,497	Lumpsum	-	-	-	20,831,197	-
c	Support staff Salaries	Months	32	-	-	28,145,000	Months	60	-	-	49,533,325	Months	60	-	53,379,864	Months	-	-	-	3,846,539	Months	19	-	50,000.00	-	48,767,992	Months	79	-	-	98,301,316	-
d	Office Running Cost (Stationary, Printing & Publication, Internet Connectivity)	Lumpsum	-	-	-	8,294,900	Lumpsum	-	-	-	9,956,634	Lumpsum	-	-	9,945,584	Lumpsum	-	-	11,050	Lumpsum	-	-	-	-	3,304,105	Lumpsum	-	-	-	13,260,739	-	
e	Office Rent (Lahore)	Month	-	-	-	200,000	Month	-	-	-	-	Month	-	-	-	-	-	-	-	Month	-	-	-	-	Month	-	-	-	-	-	-	
f	Office Rent (Sialkot-Sahawal)	Month	20.0	-	-	2,000,000	Month	48.0	-	-	16,711,400	Month	48.0	-	13,292,660	Month	-	-	3,418,740	Month	71.0	-	-	7,709,300	Month	119	-	-	24,420,700	-	-	
i	Vehicle Purchased and POL for TL and international Staff	Lumpsum	-	-	-	-	Lumpsum	-	-	-	-	Lumpsum	-	-	-	Lumpsum	-	-	-	Lumpsum	-	-	-	-	Lumpsum	-	-	-	-	-	-	
	Vehicle Rent with POL and driver	Lumpsum	-	-	-	8,200,000	Lumpsum	-	-	-	17,501,368	Lumpsum	-	-	19,793,470	Lumpsum	-	-	2,292,102	Lumpsum	-	-	-	17,627,000	Lumpsum	-	-	-	35,128,368	-	-	
j	Purchase of 1300 CC Car (client property for use by consultants)	No.	1.0	-	-	2,101,000	No.	2.0	-	-	5,501,000	No.	2.0	-	5,501,000	No.	-	-	-	No.	-	-	-	-	No.	2	-	-	5,501,000	-	-	
k	Purchase of 1000 CC Cars (client property for use by consultants)	Nos.	4.0	-	-	5,420,000	Nos.	9.0	-	-	17,920,000	Nos.	8.0	-	17,920,000	Nos.	-	-	-	Nos.	-	-	-	-	Nos.	9	-	-	17,920,000	-	-	
l	Registration of purchased cars (11 No.)	Nos.	5.0	-	-	300,000	Nos.	11.0	-	-	775,000	Nos.	10.0	-	606,501	Nos.	-	-	168,499	Nos.	-	-	-	389,856	Nos.	11	-	-	1,164,856	-	-	
m	Purchase of motor bykes (client property for use by consultants)	Nos.	8.0	-	-	600,000	Nos.	28.0	-	-	2,692,800	Nos.	26.0	-	2,654,602	Nos.	-	-	38,198	Nos.	-	-	-	-	Nos.	28	-	-	2,692,800	-	-	
n	Registration of purchased Bikes	Nos.	8.0	-	-	48,000	Nos.	28.0	-	-	276,000	Nos.	26.0	-	138,900	Nos.	-	-	137,100	Nos.	-	-	-	-	Nos.	28	-	-	276,000	-	-	
o	POL and Maintenance for purchased cars/ bykes	Lumpsum	-	-	-	4,160,000	Lumpsum	-	-	-	38,145,536	Lumpsum	-	-	38,759,644	Lumpsum	-	-	614,108	Lumpsum	-	-	-	38,369,851	Lumpsum	-	-	-	76,515,387	-	-	
p	Cost of Utility Services (Electricity, Water, Gas) (Lahore Offices)	Month	36.0	-	-	740,000	Month	-	-	-	-	Month	-	-	-	Month	-	-	-	Month	-	-	-	-	Month	-	-	-	-	-	-	
q	Cost of Utility Services (Electricity, Water, Gas) (Sialkot-Sahawal Offices)	Month	40.0	-	-	1,200,000	Month	96.0	-	-	6,173,387	Month	96.0	-	8,006,168	Month	-	-	1,832,781	Month	71.0	-	-	11,731,030	Month	167	-	-	17,904,417	-	-	
r	Photocopying machine with ADF	Nos.	5.0	-	-	1,200,000	Nos.	3.0	-	-	1,378,900	Nos.	1.0	-	378,900	Nos.	2.00	-	1,000,000	Nos.	-	-	-	1,000,000	Nos.	3	-	-	378,900	-	-	
s	Printer (3 in One)	Nos.	3.0	-	-	105,000	Nos.	13.0	-	-	886,500	Nos.	11.0	-	581,750	Nos.	2.00	-	304,750	Nos.	8.0	-	-	1,400,000	Nos.	21	-	-	2,286,500	-	-	
t	Plotter	Nos.	3.0	-	-	1,500,000	Nos.	-	-	-	-	Nos.	-	-	-	Nos.	-	-	-	Nos.	-	-	-	-	Nos.	-	-	-	-	-	-	
u	Air Conditioner	Nos.	10.0	-	-	880,000	Nos.	14.0	-	-	1,670,389	Nos.	14.0	-	1,523,402	Nos.	-	-	146,987	Nos.	3.0	-	-	553,013	Nos.	17	-	-	2,223,402	-	-	
v	Laptops	Nos.	8.0	-	-	800,000	Nos.	14.0	-	-	2,381,440	Nos.	12.0	-	2,350,240	Nos.	-	-	31,200	Nos.	9.0	-	-	4,645,000	Nos.	23	-	-	7,026,440	-	-	
w	Desktop Computers	Nos.	10.00	-	-	1,125,000	Nos.	15.00	-	-	2,625,000	Nos.	15.00	-	1,583,294	Nos.	-	-	1,041,706	Nos.	-	-	-	491,706	Nos.	15	-	-	2,133,294	-	-	
x	Licensed Software's (AutoCAD, Microsoft Office and other required)	Lumpsum	-	-	-	300,000	Lumpsum	-	-	-	-	Lumpsum	-	-	-	Lumpsum	-	-	-	Lumpsum												

Loan No. P 46526-007-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIIP)

Engineering Procurement and Construction Management (EPCM) Consultant

PROVISIONAL SUMS

		As Per Approved PC-II					As per 2nd Revised PC-II		Utilization		Balance as Per 2nd Revised PC-II		Additional Per Months as per 3rd Revised PC-II (Proposed)		As per 3rd Revised PC-II	
S/No	Description	Unit	Duration	Rate (PKR)	Amount (US\$)	Amount (PKR)	Total Amount		Total Amount		Total Amount		Total Amount		Total Amount	
							Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)	Foreign (US\$)	Local (PKR)
(a)	Studies, Survey Satellite Images and Reports	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(b)	Workshop, Seminars, Trainings	L/S	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(c)	Provisional Sums	L/S	1	-	24,000	2,703,600	-	2,703,600	-	1,000,000	-	1,703,600	-	2,801,337	-	5,504,937
(d)	Contingency	L/S	1	-	142,610.00	16,065,017	-	32,234,310	-	21,453,313	-	10,780,997	-	1,804,013	-	34,038,323
Total					166,610.00	18,768,617	-	34,937,910	-	22,453,313	-	12,484,597	-	4,605,350	-	39,543,260



Loan No. P 46526-007-PAK: Punjab Intermediate Cities Improvement Investment Program (PICIP)

Engineering Procurement and Construction Management (EPCM) Consultant

Lumpsum Based Assignment

ADB

		Description		As Per Approved PC-II		As per Revised PC-II	
S/No	Description	Unit	Deliverable	Amount (US\$)	Amount (PKR)	Total Amount	
						Foreign (US\$)	Local (PKR)
1	Environment Studies Sahiwal	L/S	Environment Due Diligence Report (EDDR) for Water Supply System	13,288.95	1,497,000	-	-
		L/S	Environment Due Diligence Report (EDDR) for Sanitation System				
		L/S	Environment Due Diligence Report (EDDR) for Sewage Treatment Plants in Sahiwal City	9,977.81	1,124,000	-	-
Sub Total (1)				23,266.76	2,621,000	-	-
2	Environment Studies Sialkot	L/S	Environment Due Diligence Report (EDDR) for Water Supply System	13,510.87	1,522,000	-	-
		L/S	Environment Due Diligence Report (EDDR) for Sanitation System				
		L/S	Environment Due Diligence Report (EDDR) for Sewage Treatment Plant in Zone-III	8,965.82	1,010,000	-	-
Sub Total (2)				22,476.70	2,532,000	-	-
B. Total (1+2) Environment Studies				45,743	5,153,000	-	-
3	Upgradation of Lala Musa Academy	L/S	Preparation of PC-1	44,385.26	5,000,000	-	-
C. Total (Upgradation of Lala Musa Academy)				44,385	5,000,000	-	-
Grand Total (A+B+C)				23,266.76	2,621,000	-	-

8. MANAGEMENT STRUCTURE AND MANPOWER REQUIREMENTS

The Project Management team will be parked under Punjab Intermediate Cities Improvement Investment Program for execution of the Project. For detailed composition of the experts needed for the project refer to the TORs of the Consultant.

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

N/A

10. THE STUDY (TORS OF THE CONSULTANT)

10.1 BRIEF BACKGROUND OF THE PROJECT

The Asian Development Bank (ADB) approved a Punjab Intermediate Cities Improvement Investment Project (the Project) which will support key urban sectors including water, sanitation, and urban transport and spaces (e.g., parks, river banks) in the cities of Sahiwal and Sialkot in Punjab, Pakistan. The total project amount is estimated at \$250 million, of which ADB will finance \$200 million and remaining \$50 million will be allocated by the Government of Punjab (the Government). Under the Project, the Government will procure goods and works with several procurement packages with an estimated amount of \$199.25 million. The Government will also recruit consulting firms and individual consultants with an estimated total amount of \$21.58 million. This Terms of Reference is prepared for the recruitment of Engineering, Procurement, and Constructions Management (EPCM) Consultant under the consultant recruitment package PICIIP_Cons2.

Overall Impact and Outcome

The project is aligned with these impacts: living standards, health, and economy in Sialkot and Sahiwal improved. The project will have the following outcome: access to quality urban services by the residents of Sialkot and Sahiwal cities improved.⁶ The prime objective of the assignment is sustainable urban development through optimization of services' operation and maintenance cost and enhanced service delivery to 100% urban population living in urban area.

Outputs

The project will have following major outputs:

(i)

Output 1: Water supply systems improved. This will be achieved through installation/rehabilitation of at least 114 boreholes and tube wells, 22 water reservoirs, 20 water pumping stations, approximately 350 kilometers (km) of water pipes, up to 15,000 metered customer connections, of which 1,400 will be pre-paid meters on a pilot basis, and new supervisory control and data administration (SCADA) systems, to provide 24/7 water supply to urban population.

Output 2: Sanitation systems improved. This will be achieved through installation and rehabilitation of minimum 18 sewage pumping stations, replacement of approximately 40 km of sewer pipes, provision of missing equipment for wastewater management, improvement of drainage system, and construction of a waste water treatment plants. Equipment/facilities will be procured for improved collection, segregation, transportation and safe disposal of solid wastes.

Output 3: Urban public spaces improved. This will be achieved through rehabilitation of 11 parks, 7 km green belts, major streets, footpaths, river bank paths, urban transport & parking system and 3 bus terminals, which serve as critical hubs for regional transport systems. Local shops, vendors, and companies will expand new business opportunities with the upgraded facilities.

Output 4: Institutional support and capacity development. This will be achieved through support to

institutional reforms such as the establishment of urban service standards, enhancement of customer services function, and development of new tariff structures. Various capacity development programs, including (a) operation and maintenance of key urban services, (b) urban policy and planning, (c) finance management, and (d) tariff policy, will also be delivered to relevant staff in the government and urban service companies. This output will also promote behavior changes on hygiene practice and environment through partnership with youth groups and civil society organizations. Targeted public awareness campaigns will be organized. Below matrix describes infrastructure development in Sahiwal and Sialkot.

10.2 OBJECTIVES OF CONSULTANCY

Output 1: Water supply systems improved. This will be achieved through detailed designing and construction supervision of the following works;

Population served 214,600

Tubewell Rehabilitation 114

Tubewell New 20

OHR Rehabilitation 10

OHR New 12

Water Supply Lines (Km) 390

Filtration Plant New 0

Filtration Rehabilitation 0

Output 2: Sanitation systems improved This will be achieved through detailed designing and construction supervision of the following works;

Population served 581,574

Sewer Line (12"-72") 17.4 km

Replacement of Sewer Lines 40 Km

Disposal Station Rehab. 18

WWTP 1

Output 3: Urban public spaces improved. This will be achieved through detailed designing and construction supervision of the following works;

Parks 11 Nos.

Green Belt 7 Km

Bus Terminals 3 Nos.

Street Improvement 6 Km

Upgradation of River Bank Path 2.5 Km

Sanitation Equipment's -

OUTPUT 4: INSTITUTIONAL SUPPORT AND CAPACITY DEVELOPMENT

Design and Construction Supervision of PLGA Building Lahore.

OTHER WORKS

1) PARKING SHEDS IN SAHIWAL & SIALKOT

Design and Construction Supervision of Parking sheds in Sahiwal & Sialkot for SWM & WSS Equipment/Machinery

2) PROJECT MONITORING SYSTEM

Development and implementation of Project Progress Monitoring and Management Information System (PPM-MIS)

3) SAHIWAL ROADS

Design and Construction Supervision of Sahiwal Model Roads.

10.3 SCOPE, DUTIES & RESPONSIBILITIES OF CONSULTANTS

Duties and Responsibilities of Consultant is attached in attachment.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
A	Key Expert (National)		
1	Deputy Team Leader (DTL) / Project Manager	Experience:	Preferably 15 years' experience as Deputy Team Leader/Project Manager on major infrastructure projects of civil works (water, sanitation, buildings, roads etc), contract management, processing of claims and implementation.
		Qualification:	Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering/Transportation Engineering/Environmental Engineering/Construction Management/Project Management or equivalent.
		Responsibilities:	<p>He/She will be responsible for overall project management related to design and construction supervision and ensuring that the project is implemented in accordance with the required specifications and drawings. He/She will be responsible to assist the Team Leader for all issues when required.</p> <p>Responsibilities of the Deputy Team Leader/Project Manager will include, but are not limited to the following:</p> <ul style="list-style-type: none">• Act as the Team Leader during the absence of Team Leader;• Responsible for overseeing quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;• Render necessary advice and assist the client in contract administration and procurement issues/assignments/contractual claims;• Assist the PMU in resolving any contractual issues;• Provide assistance to the Employer in dispute resolution as per provisions in the conditions of contract;• Keeping the Employer informed of contractual and claims issues by direct contacts and through discussions and correspondence;• Participate in the Dispute Board meetings to explain and discuss issues raised by the Contractor/Employer or Dispute Board;• At the end of the construction activities, guide and ensure that the team prepares a comprehensive Construction Completion Reports inclusive of 'as-built drawings' as appropriate;• Act as project manager in ADB small work contracts;• Recommend extension of time for completion and other claims in accordance with the

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<p>conditions of contract in consultation with the employer;</p> <ul style="list-style-type: none"> • Issues the completion certificates in coordination with the Employer of the completed sub-projects and performance certificates upon completion of DNP period; • Assist the Employer in preparing responses to audit objections and queries of the financiers or other Government Authorities; and • Coordinate with all concerned Employer's organizations on project issues. • Any other task assigned relevant to the assignment.
2	Senior Resident Engineer / The Engineer	Experience:	Preferably 15 years' experience as Resident Engineer/Senior Resident Engineer/Project Manager on major infrastructure projects of civil works (water, sanitation, buildings, roads etc), contract management, processing of claims and implementation.
		Qualification:	Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering/Transportation Engineering/Environmental Engineering/Construction Management/Project Management or equivalent.
		Responsibilities:	<p>The responsibilities of Senior Resident Engineer (SRE) / The Engineer will include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Responsible for ensuring that the consulting team prepare all the designs and specifications and carries out construction supervision and contract administration of all the civil works and goods for the project assuming the role of "the Engineer" and undertakes all tasks as defined under FIDIC General Conditions of Contract for Construction; • To overall manage all the construction sites through designated Resident Engineers and other allied construction supervision staff of the consultants; • Responsible for managing the consultants' activities ensuring compliance to detail provided in the construction drawings and strict adherence to the technical specifications through Resident Engineers; • To assist the DTL/Project Manager and PMU in all contractual, construction, claims and progress related issues; • To monitor progress of works in line with the approved construction schedule and recommend action for removal of bottlenecks if any. • Recommend extension of time for completion and other claims in accordance with the

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<p>conditions of contract in consultation with the resident engineer;</p> <ul style="list-style-type: none"> • To conduct Project kick-off meeting with all stakeholders; • Responsible for holding meetings with the Contractor on contract and claims issues; • To review and implement the following through resident supervision staff: <ul style="list-style-type: none"> • Contractor's Work Plan. • Layout Plan and its Setting Out at Site. • HSE Plan and Environment Management Plan • Quality Control Plan. • Shop Drawings. • Pre-shipment Inspections. • Pre-Commissioning Procedure. • Commissioning Procedure. • As-Built Drawings. • O & M Manuals. • Asset Management Plan at Handing Over stage. • To discuss with concerned stakeholders, review and implement any recommended changes and modifications in drawings and specifications; • Review the CVs of Contractor's proposed staff, interview them and recommend to DTL on their approval or otherwise; • Review and recommend the Material Approval Sheets and conduct factory visits and site tests on materials and equipment; • To exchange correspondence with the Contractor on HSE, EMP, Quality, Progress, Technical, Financial and all other Project related affairs; • Maintain cohesion and coordination between Supervision Staff, CIU and Contractor to carry out the work in a smooth, cordial and professional manner; • To monitor the progress as per approved Work Plan and advise for the necessary actions to make up any delays; • To overall manage the supervision of all quality tests required on site; • To check contractor's Interim and Final Payment Certificates as verified by the Resident Engineers; • To review and recommend As-Built Drawings for approval by the Project Manager and PMU; • Compilation of Daily, Weekly and Monthly Progress Reports; • Periodic site visits of the construction sites as per requirement;

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> • Prepare and Implement the Minutes of Project Meetings; and • Responsible for preparing a comprehensive Project Completion Report (PCR). • Manage provision of support to the PMU/CIUs and ensure liaison with the Punjab Province administration, City Commissions, the Project Steering Committee (PSC), ADB, the Local Government and Community Development Department (LG&CDD) and other relevant stakeholders' through Resident Engineers and associated staff at site. • Ensure maintenance of consolidated project accounts, prepare statements and progress reports in collaboration with the site staff as desired by Client. • Any other task assigned relevant to the assignment.
3	Manager Coordination Design	Experience:	Preferably 15 years of professional experience out of which at least 05 year as managerial experience urban development / infrastructure projects. The candidate must have demonstrated ability to manage teams composed of different field of engineers. Excellent communication (written and oral) skills in English and strong inter-personal skills will be considered an asset.
		Qualification:	Bachelor in Civil Engineering or Masters in Environmental Engineering / Environmental Sciences or equivalent.
		Responsibilities:	<p>He/she will be fully responsible for coordination of design work among all the design experts and specialists for design of various components and bidding/contract documents of assigned projects. His input will be required for the overall project (PICIP) till completion of design phase.</p> <p>Responsibilities as a Manager Coordination Design will include, but is not limited to the following:</p> <ul style="list-style-type: none"> ▪ Ensure that the design team undertakes the design activities in timely manner and reports/documents are being comprehensively reviewed by the relevant experts. ▪ Ensure preparation of detailed and quantitative progress reports. ▪ Keep the Employer informed of technical issues and progress of all works by informal and formal meetings and correspondence and assist in any project issue which the design team may require. ▪ Ensure implementation of environment and social safeguards requirements through relevant experts.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> Any other task assigned relevant to the assignment.
4	Sanitation /Public Health Engineer/WTTP Expert	Experience:	Preferably 10 years work experience as Sanitation Expert with proven experience in sanitation (wastewater) designing for urban development projects.
		Qualification:	Bachelor degree in Civil/ Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for Site Identification and design of WATSAN & WWTPs in Sahiwal and Sialkot cities. Any other task assigned relevant to the assignment.
5	Design Engineer (Mechanical)	Experience:	Preferably 12 years work experience as mechanical engineer on water and wastewater projects with proven experience in urban development, water and sanitation infrastructure design.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for design and prepare specification of mechanical equipment's. Machinery to be used in solid waste management, sewerage and water supply maintenance systems. Any other task assigned relevant to the assignment.
6	Sociologist	Experience:	Preferably 10 years work experience as Sociologist with proven experience in preparing resettlement action plans for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ Sociology or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for preparation of Land Acquisition and resettlement plan (LARP) of Bus Terminal, social due diligence reports (DDR's) of Parks & bus terminals and PLGA Lahore etc. Also assist in site identification of WWTPS in both cities. Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
7	Environmental Expert	Experience:	Preferably 10 years work experience as Environmental Expert with proven experience in preparing Environmental Management Plan (EMP) for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ City & Regional Planning or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: He/she will be responsible for preparation of Environmental Management Plans (EMPs), Environmental, Health and Safety (HSE) Plans and DDRs of Parks, Bus Terminal, PLGA Lahore etc. Any other task assigned relevant to the assignment.
8	Plumbing Expert	Experience:	Preferably 15 years work experience as Civil engineer/plumbing expert with proven experience in plumbing design of buildings.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design, plumbing expert will undertake the following tasks: ▪ He/she will be responsible for engineering design of plumbing of PLGA Lahore. He/she will also be responsible to prepare engineering drawings, cost estimate and relevant part of PC-I. Any other task assigned relevant to the assignment.
9	Town Planner	Experience:	Preferably 12 years work experience in the strategic planning and implementation of urban public spaces. 5 years' working experience in similar urban sector development projects in countries with similar geographic conditions.
		Qualification:	Bachelor degree in Town Planning/ Architecture or Masters/equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, Deputy Team Leader (DTL), Manager Coordination Design and Senior Urban Space Developer will undertake the following tasks: ▪ Detailed landuse planning of open spaces, bus terminals etc. ▪ Provide the necessary inputs for the elaboration of the guide drawings to be included in the tender documents as well as for the preparation of the detailed Cost estimates. ▪ Any other task assigned relevant to the assignment.
10		Experience:	Preferably 12 years work experience as mechanical engineer with proven experience in

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
	Design Engineer (HVAC)		design of Heating Ventilation and Air Conditioning (HVAC) systems for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for Heating Ventilation and Air Conditioning (HVAC) Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal. ▪ Any other task assigned relevant to the assignment.
11	Fire Fighting Expert	Experience:	Preferably 10 years work experience as Mechanical Engineer with proven experience in design of firefighting equipment for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for Firefighting Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal etc. ▪ Any other task assigned relevant to the assignment.
12	Ground Water Expert	Experience:	Preferably 10 years work experience as Ground Water Expert with proven experience in assessment of quality and quantity of ground water for urban development projects.
		Qualification:	Bachelor degree in Civil Engineering/ Bachelor degree in Geology/ Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ Responsible for preparation of groundwater study report for WATSAN projects in Sahiwal & Sialkot cities. ▪ Also responsible for design of tubewell for water supply in parks and bus terminal etc. ▪ Any other task assigned relevant to the assignment.
13	Geophysicist /Electrical Resistivity Expert	Experience:	Preferably 10 years work experience as ERS/Electrical Resistivity Expert with proven experience in carrying out electrical resistivity survey.
		Qualification:	Bachelor degree in Geophysics or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			He/she will be responsible for Planning, data execution / processing / interpretation and reports preparation of geophysical investigations/groundwater exploration for water supply system of both cities. Any other task assigned relevant to the assignment.
14	Irrigation Expert	Experience:	Preferably 10 years work experience as Irrigation Expert with proven experience in design of sprinkler/irrigation system.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will provide design of sprinkler/irrigation system to be installed in the parks. ▪ Preparing operation and maintenance guidelines for high efficiency irrigation systems. ▪ Preparation of Cost Estimates. ▪ Preparation of Specifications for irrigation system. ▪ Any other task assigned relevant to the assignment.
15	Horticultural Expert	Experience:	Preferably 10 years work experience as Horticulture Expert with proven experience in design of horticulture for urban development projects.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for landscape/horticultural design of parks in Sahiwal and Sialkot, cost estimate and specifications etc. ▪ Any other task assigned relevant to the assignment.
16	GIS Expert	Experience:	Preferably 10 years work experience as GIS Expert with proven experience in preparing GIS maps for different urban development projects.
		Qualification:	Bachelor degree in Science with M.Sc. in Space Science or equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will responsible for preparing GIS maps for water supply and sewerage systems. ▪ Carrying out Image Processing, Digital Image Classification, Land use and Land cover map development. ▪ Map Preparation and Development of Final Layouts.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> Any other task assigned relevant to the assignment.
17	Senior Geotechnical Expert	Experience:	Preferably 12 years work experience as Geotechnical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	Responsible for preparation of geotechnical recommendations for structural design. Responsible for construction materials studies, identification, planning, field investigation and laboratory programs execution and results evaluation. Any other task assigned relevant to the assignment.
18	Geotechnical Expert	Experience:	Preferably 12 years work experience as Geotechnical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc. / equivalent.
		Responsibilities:	Responsible for preparation of borehole logs, collection of field data, compilation of results and assistance in preparation of geotechnical recommendations for structural design of different buildings of the project including PLGA, Lahore, Parks in both cities, Sahiwal Bus Terminal & WATSAN works etc. Any other task assigned relevant to the assignment.
19	Economist	Experience:	Preferably 10 years work experience as Economist on conducting traffic studies for urban development projects.
		Qualification:	Bachelor in Economics/ Agriculture Economics or Masters/equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: Responsible for preparation of financial and economic studies for different components of the project i.e. parks, bus terminal, PLGA, Lahore and WATSAN works etc. Any other task assigned relevant to the assignment.
20	Contract Analyst/ Claims Expert	Experience:	Preferably 10 years work experience in contracts and claims management of urban development projects.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./ equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> ▪ He/she will be responsible for Contract administration of the works and goods contracts, taking timely contractual actions related to cost, time and quality controls in accordance with the provisions of the contract agreement and contract closure etc. ▪ Any other task assigned relevant to the assignment.
21	Construction Manager Civil-Building	Experience:	Preferably 12 years work experience as Civil engineer with proven experience in construction works of Buildings.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, will undertake the following tasks:</p> <ul style="list-style-type: none"> ▪ He/she will be responsible for evaluation and certification of construction works and process contractor payment certificates, variation order and claims. ▪ Evaluate construction schedule of contractor and work methodology and sequence in accordance with sound engineering practice. ▪ Review and approve the building materials and sources of building materials and issue progress monitoring reports. ▪ Any other task assigned relevant to the assignment.

S/No	Title	Experience, Qualification and Responsibilities	
B	Non-Key Expert (National)		
1	Planning Engineer/Office Engineer	Experience:	Preferably 08 years work experience as Environmental Engineer/Office Engineer.
		Qualification:	Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be responsible for coordination and technical correspondence between the Client and the Consultant, preparation of monthly progress reports, quarterly reports, annual report and project completion report etc. Any other task assigned relevant to the assignment.
2	Water Supply Expert/Public Health Engineer	Experience:	Preferably 08 years work experience as Water Supply Expert /Public Health Engineer with proven experience in water supply designing for urban development projects.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for mapping of existing infrastructure, sectoral assessment, master planning and detailed design of water supply and sanitation systems in Sahiwal and Sialkot Cities. Any other task assigned relevant to the assignment.
3	Assistant Sanitation Expert/Public Health Engineer	Experience:	Preferably 05 years work experience as Sanitation Expert /Public Health Engineer with proven experience in water supply and sewerage system designing for urban development projects.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for mapping of existing infrastructure, sectoral assessment, master planning and detailed design of water supply and sanitation systems in Sahiwal and Sialkot Cities. Any other task assigned relevant to the assignment.
4	Chief CAD Officers (W&S)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for water and sanitation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for preparation of water supply, sewerage and drainage network drawings. Any other task assigned relevant to the assignment.
5	Assistant Solid Waste Management Expert	Experience:	Preferably 05 years work experience solid waste management planning and designing.
		Qualification:	Bachelor degree in Civil Engineering / Environmental Engineering / Waste management or related subject or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Solid Waste Management Expert will undertake the following tasks: Responsible for preparation PC-1 and detailed cost estimate for Solid waste management, Water supply and sewerage equipment/machinery in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
6	Assistant Design Engineer (Mechanical)	Experience:	Preferably 05 years work experience as mechanical engineer.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Mechanical) will undertake the following tasks: Responsible for preparation of specifications of mechanical equipment requirement for different components of the project i.e. tubewells, disposal stations, SWM, Water and Sewerage equipment and machinery etc. Also responsible for preparation of cost estimates etc. Any other task assigned relevant to the assignment.
7	Chief Quantity Surveyor (Mechanical)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for mechanical component in urban development projects.
		Qualification:	Certificate in Mechanical Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Mechanical) will do the following tasks: He/she will be responsible for preparation of Mechanical drawings. Any other task assigned relevant to the assignment.
8	Assistant Sociologist	Experience:	Preferably 05 years work experience as Sociologist with proven experience in preparing resettlement action plans for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ Sociology or M.Sc./equivalent.
		Responsibilities:	Provide assistance to Sociologist in preparation of Land Acquisition and resettlement plan (LARP), due diligence reports (DDR), of Parks, Bus terminals & PLGA Lahore etc. Carry out random visit to sites and ensure social safeguard compliance during execution of the project. Any other task assigned relevant to the assignment.
9	Assistant Plumbing Expert	Experience:	Preferably 05 years work experience as plumbing expert with proven experience in plumbing design of buildings.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	He/she will assist plumbing design expert in Plumbing Design of PLGA Lahore and other building structure for the project in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.
10	Assistant Architects	Experience:	Preferably 05 years work experience in the building design for urban sector development.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Architecture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible for design of parks, bus terminals and associated buildings etc. Any other task assigned relevant to the assignment.
11	Chief Quantity Surveyors (Architectural)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for architectural component in urban development projects.
		Qualification:	Diploma of Associate Engineers or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible to prepare quantities and estimation of architectural design items of parks, bus terminals and PLGA Lahore. Any other task assigned relevant to the assignment.
12	Chief CAD Officers (Architectural)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for architectural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible for preparation of architectural drawings. Any other task assigned relevant to the assignment.
13	Chief CAD Officers (Structure)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for structural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Structures) will undertake the following tasks: He/she will be responsible for preparation of structural drawings. Any other task assigned relevant to the assignment.
14	Chief Quantity Surveyors (Structure)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for structural component in urban development projects.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Structure) will undertake the following tasks: Responsible for structural design estimation of PLGA Lahore, Bus Terminal and all buildings covered under Parks and WATSAN.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
			Any other task assigned relevant to the assignment.
15	Assistant Design Engineer (Electrical)	Experience:	Preferably 05 years work experience as electrical engineer.
		Qualification:	Bachelor degree in Electrical Engineering, preferably M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Electrical) will undertake the following tasks: Provide assistance to Design Engineer Electrotechnical in detailed electrification design of all parks, bus terminal, PLGA Lahore and different buildings covered WATSAN work etc. Any other task assigned relevant to the assignment.
16	Chief Quantity Surveyor (Electromechanical)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for electromechanical component in urban development projects.
		Qualification:	Diploma of Associate Engineers or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer Electromechanical will undertake the following tasks: He/she will be responsible for preparation of bill of quantities and estimation of electromechanical equipment for various components of the project. Any other task assigned relevant to the assignment.
17	Chief CAD Officers (Electromechanical)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for structural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Electromechanical) will do the following tasks: He/she will be responsible for preparation of Electromechanical drawings. Any other task assigned relevant to the assignment.
18	Assistant Design Engineer (HVAC)	Experience:	Preferably 05 years work experience as mechanical engineer with proven experience in design of Heating Ventilation and Air Conditioning (HVAC) systems for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (HVAC) will undertake the following tasks: Provide assistance to Design Engineer (HVAC) in preparation for Heating Ventilation and Air Conditioning

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
			(HVAC) Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal. Any other task assigned relevant to the assignment.
19	Assistant Geophysicist / Electrical Resistivity Expert	Experience:	Preferably 05 years work experience as ERS Surveyor with proven experience in carrying out electrical resistivity survey.
		Qualification:	Bachelor degree in Geophysics or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the ERS Expert will undertake the following tasks: Provide assistance to geophysicist in Planning, data execution / processing / interpretation and reports preparation of geophysical investigations/groundwater exploration for water supply system of both cities. Any other task assigned relevant to the assignment.
20	Assistant Irrigation Expert	Experience:	Preferably 05 years work experience in Irrigation with proven experience in design of irrigation system.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Irrigation Expert will undertake the following tasks: He/she will be responsible for design of irrigation system to be installed in the parks. Any other task assigned relevant to the assignment.
21	Chief CAD Officers (Irrigation)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for Irrigation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Irrigation Expert will undertake the following tasks: He/she will be responsible for preparation of Irrigation System drawings. Any other task assigned relevant to the assignment.
22	Assistant Horticultural Expert	Experience:	Preferably 05 years work experience as Horticulturalist.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Horticultural Expert will undertake the following tasks: He/she will be responsible for landscape/horticultural detailed design of parks in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.
23	Chief CAD Officers (Horticultural)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for horticultural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Horticultural Expert will undertake the following tasks: He/she will be responsible for preparation of horticultural drawings. Any other task assigned relevant to the assignment.
	Assistant Geotechnical Expert I	Experience:	Preferably 5 years work experience as Geo-technical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Civil Engineering/Geo-technical Engineering or M.Sc./equivalent.
		Responsibilities:	To assist geotechnical Expert in supervision of geotechnical investigation at site and preparation of geotechnical recommendations. Any other task assigned relevant to the assignment.
24	Assistant Geotechnical Expert II	Experience:	Preferably 5 years work experience as Geo-technical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering/Geo-technical Engineering or M.Sc./equivalent.
		Responsibilities:	To assist geotechnical Expert in supervision of geotechnical investigation at site and preparation of geotechnical recommendations. To assist geologist in supervision of sample collection from test pits for subsequent laboratory testing and preparation of geotechnical recommendations. Any other task assigned relevant to the assignment.
25	Chief CAD Officers (Geotech)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for borehole logs and geotechnical components in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Geotechnical Expert will undertake the following tasks: He/she will be responsible for preparation of borehole logs, investigation layout and other related drawings etc. Any other task assigned relevant to the assignment.
26	Assistant SCADA Expert	Experience:	Preferably 05 years work experience as SCADA expert with proven experience in SCADA and telecommunication design of buildings.
		Qualification:	Bachelor degree in Electrical Engineering/ Electronics Engineering or Masters/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ He/she will assist SCADA expert in Design of SCADA and telecommunication Network for PLGA, Lahore, Parks and Bus Terminal etc. He/she will assist SCADA Expert in preparation of Design Documents, Engineer's cost Estimate and tender Documents. Any other task assigned relevant to the assignment.
27	Assistant Economist	Experience:	<ul style="list-style-type: none"> ▪ Preferably 10 years work experience as Economist on conducting traffic studies for urban development projects.
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor in Economics/ Agriculture Economics or Masters/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ He/she will assist in preparation of economic and financial plans, conduct traffic study and associated studies etc., under the supervision of economist. ▪ Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
28	Assistant Design Engineer / Planner (Transport)	Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as design engineer for major road/ urban road projects with proven credentials in geometric design of highways/ urban roads.
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Civil Engineer/ Transportation Engineering or Masters/equivalent.
		Responsibilities:	<p>Under the supervision of the Design Engineer / Planner (Transport) will undertake the following tasks:</p> <ul style="list-style-type: none"> ▪ Provide assistance to design engineer (Planner Transport) in preparation of detailed design of Sahiwal Bus Terminal, Traffic Management Plan in both cities, design of parking facilities in parks. ▪ Any other task assigned relevant to the assignment.
29	Chief CAD Officers (Transport)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for transportation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	<p>Under the supervision of the Design Engineer / Planner (Transport) will do the following tasks:</p> <p>He/she will be responsible for preparation of transportation drawings.</p> <p>Any other task assigned relevant to the assignment.</p>
30	Assistant Construction Manager (Civil)- Building	Experience:	Preferably 05 years work experience as Civil Engineer for building projects with proven experience in construction management of buildings projects etc.
		Qualification:	Bachelor degree in Civil Engineer/ Structural Engineering or Masters/equivalent.
		Responsibilities:	<p>Under the supervision of the Construction Manager will undertake the following tasks:</p> <ul style="list-style-type: none"> ▪ Evaluate and certify construction works and process contractor's payment certificates, variation order & claims. ▪ Evaluate construction schedule of the contractor, work methodology etc. ▪ Review and approve the building material and source of building materials. ▪ Issue progress monitoring reports. ▪ Any other task assigned relevant to the assignment.
31	Fire Fighting and Plumbing Expert	Experience:	Preferably 10 years work experience as Mechanical Engineer with proven experience in design of firefighting equipment and plumbing for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Responsible for supervision of all firefighting and plumbing related work of PLGA Lahore.</p> <p>Any other task assigned relevant to the assignment.</p>
32	SCADA/ELV Engineer	Experience:	Preferably 05 years work experience as SCADA expert with proven experience in Supervision of SCADA and telecommunication system implementation of buildings.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Electrical Engineering/ Electronics Engineering or Masters/equivalent.
		Responsibilities:	Responsible for Implementation and supervision of SCADA/ELV System design as per the specifications and drawings for PLGA Lahore. Any other task assigned relevant to the assignment.
33	Construction Supervisor	Experience:	Preferably 5 years work experience as construction supervisor with proven experience in supervisor of buildings projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Assist Construction Manager in supervision of structure and finishing work, checking of bar bending schedule, shuttering, reinforcement and concrete work. Checking out contractors IPC's and final bill. Any other task assigned relevant to the assignment.
34	Construction Supervisor (MEP)	Experience:	Preferably 5 years work experience as construction supervisor with proven experience in supervisor of buildings projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Responsible for mechanical, electrical and plumbing system implementation at PLGA Lahore building as per the specifications and drawings. Any other task assigned relevant to the assignment.
35	Site Inspector	Experience:	Preferably 3 years work experience as site inspector with proven experience in supervision of Water and Sanitation projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of assistant resident engineer will supervise site activities of contractor as per the drawings and specifications. Any other task assigned relevant to the assignment.
36	Lab Technician	Experience:	Preferably 3 years work experience as Lab Technician.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of Material Engineer carry out lab testing of material and site testing. Any other task assigned relevant to the assignment.
37	Surveyor	Experience:	Preferably 3 years work experience as surveyor.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Responsible for supervision of the the survey work during execution of WATSAN Works. Any other task assigned relevant to the assignment.
38	Environmental Scientist	Experience:	Preferably 05 years work experience as Environmentalist.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering/ Environmental Sciences or M.Sc./equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Carry out random visit to sites and ensure environmental compliance during execution of the project. ▪ Any other task assigned relevant to the assignment.
39	Manager Admin	Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as Manager Admin.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in BBA or MBA./equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Under the supervision of Project Manager responsible for all admin related matter of EPCM. ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience in the field of Occupational, Health & Safety.
40	HSE	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering/ Chemical Engineering / Environmental Sciences or M.Sc in the relevant field/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Responsible for compliance of Environmental Management Plan at site, deal with all HSE related matters and report to the Engineer. ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 08 years work experience as Environmental Engineer/Office Engineer.
41	Office Engineer	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be for coordination and technical correspondence between the Client and the Consultant, preparation of monthly progress reports, quarterly reports, annual report and project completion report etc.</p> <ul style="list-style-type: none"> ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as Planning Engineer.
42	Planning Engineer	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering / Civil Engineering / Contract Management or M.Sc./equivalent.
		Responsibilities:	<p>Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be responsible for review/ evaluation of Work Programs of the Contractor for all lots, planning, scheduling and resource allocation as per the requirement of the Contract Agreement. Responsible for regularly updating the program of works and real time monitoring & control through Primavera.</p> <ul style="list-style-type: none"> ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 8 years of experience as ARE or Senior engineer in respective field.
43	Assistant Resident Engineer Civil or Highway Design Engineer (1 No.)	Qualification:	<p>Bachelor's degree in Engineering in respective field preferably–or equivalent.</p>
		Responsibilities:	<p>Reports to the Senior Resident Engineer and will undertake the following tasks:</p> <ul style="list-style-type: none"> • Works directly with the Senior Resident Engineers to ensure timely implementation and efficient construction management of the Project; • Supervise day to day activities of the subprojects; • Ensure quality of work; and • Provide inputs to quarterly, semi-annual and annual reports as needed.
		Experience:	<ul style="list-style-type: none"> • Any other task related to the assignment

Terms of Reference

PAK- Punjab Intermediate Cities Improvement Program (PICIIP) Engineering, Procurement, and Construction Management (EPCM) Consultant

(A) Introduction

1. The Asian Development Bank (ADB) approved a Punjab Intermediate Cities Improvement Investment Project (the Project) which will support key urban sectors including water, sanitation, and urban transport and spaces (e.g., parks, river banks) in the cities of Sahiwal and Sialkot in Punjab, Pakistan. The total project amount is estimated at \$250 million, of which ADB will finance \$200 million and remaining \$50 million will be allocated by the Government of Punjab (the Government). Under the Project, the Government will procure goods and works with several procurement packages with an estimated amount of \$199.25 million. The Government will also recruit consulting firms and individual consultants with an estimated total amount of \$21.58 million. This Terms of Reference is prepared for the recruitment of Engineering, Procurement, and Construction Management (EPCM) Consultant under the consultant recruitment package PICIIP_Cons2.

(B) Background

2. Cities are the economic, social and innovative core of Pakistan. They generate most wealth and are home to about 40% of the country's population.¹ Pakistan's cities, particularly the intermediate cities, are developing at a fast rate and this has led to the rapid expansion of the urban environment but in an uncoordinated, unplanned and unregulated manner. Water supply, wastewater collection and treatment, storm water drainage, and the urban road networks are increasingly unable to respond to population pressures and economic demands. Furthermore, the residents are suffering from a severe lack of open spaces and civic amenities. There is therefore a growing demand to make Pakistan's cities more livable to promote better living standards, improve public health and to develop the country's economy in a more appropriate and sustainable manner. While in other Asian countries the focus is often on attracting large firms to provincial capitals, in Pakistan, the clear majority of urban jobs are created by small and medium firms that rely heavily on the collective resources of urban infrastructure and services in the intermediate cities.²

3. The Government of Pakistan has realized the importance of making its cities, particularly the intermediate cities, more livable and has put the urban sector at the forefront of its national development strategy. Pakistan's Vision 2030³ and Framework for Economic Growth⁴ envisage livable cities as engines of national growth and centers of economic activity, culture, and knowledge. The framework also recognized the advantage of the local governments in managing the urban development on the ground, as they are closer to the beneficiary population with an informational advantage in identifying citizens' preferences, as well as essential flexibilities to respond rapidly to evolving city's needs. Under these circumstances, the government amended its constitution to decentralize the role of urban services to the provincial governments.⁵ In 2015, the Government requested ADB to process a new urban sector project covering key urban sector development in the cities of Sahiwal and Sialkot. ADB has approved the project in September 2017.

¹ Finance Division, Government of Pakistan. 2016. Pakistan Economic Survey 2015-16. Islamabad.

² The Urban Unit of Punjab stipulates that a large city is a city with population size between 1.9 to 9.0 million while an intermediate city is defined as a city with population size between 0.25 to 1.9 million. See also paragraph 10.

³ Planning Commission, Government of Pakistan. 2007. *Pakistan in 21st Century*, Vision 2030. Islamabad.

⁴ Planning Commission, Government of Pakistan. 2011. *Framework for Economic Growth*. Islamabad.

⁵ The 18th Amendment to the Constitution of Pakistan. 2010. Islamabad.

(C) Overall Impact and Outcome

4. The project is aligned with these impacts: living standards, health, and economy in Sialkot and Sahiwal improved. The project will have the following outcome: access to quality urban services by the residents of Sialkot and Sahiwal cities improved.⁶ The prime objective of the assignment is sustainable urban development through optimization of services' operation and maintenance cost and enhanced service delivery to 100% urban population living in urban area.

(D) Outputs

5. The project will have following major outputs:

- (i) **Output 1: Water supply systems improved.** This will be achieved through installation/rehabilitation of at least 114 boreholes and tube wells, 22 water reservoirs, 20 water pumping stations, approximately 350 kilometers (km) of water pipes, up to 15,000 metered customer connections, of which 1,400 will be pre-paid meters on a pilot basis, and new supervisory control and data administration (SCADA) systems, to provide 24/7 water supply to urban population.
- (ii) **Output 2: Sanitation systems improved.** This will be achieved through installation and rehabilitation of minimum 18 sewage pumping stations, replacement of approximately 40 km of sewer pipes, provision of missing equipment for wastewater management, improvement of drainage system, and construction of a waste water treatment plants. Equipment/facilities will be procured for improved collection, segregation, transportation and safe disposal of solid wastes
- (iii) **Output 3: Urban public spaces improved.** This will be achieved through rehabilitation of 11 parks, 7 km green belts, major streets, footpaths, river bank paths, urban transport & parking system and 3 bus terminals, which serve as critical hubs for regional transport systems. Local shops, vendors, and companies will expand new business opportunities with the upgraded facilities.
- (iv) **Output 4: Institutional support and capacity development.** This will be achieved through support to institutional reforms such as the establishment of urban service standards, enhancement of customer services function, and development of new tariff structures. Various capacity development programs, including (a) operation and maintenance of key urban services, (b) urban policy and planning, (c) finance management, and (d) tariff policy, will also be delivered to relevant staff in the government and urban service companies. This output will also promote behavior changes on hygiene practice and environment through partnership with youth groups and civil society organizations. Targeted public awareness campaigns will be organized. Below matrix describes infrastructure development in Sahiwal and Sialkot.

6. The Civil works and good requirements under the project are shown in Table 1.

⁶ The design and monitoring framework is in Appendix 1 of the Report and Recommendation of the President.

Table 1. Major Civil Works and Goods Requirements

DMF Outputs	Civil Work Deliverables (based on Para 13, RRP)	City		Descriptions
		Sahiwal	Sialkot	
Output 1 Water	114 Boreholes and tube wells	Rehabilitation of 19 existing tube wells	Rehabilitation of 95 tube wells	Rehabilitation of borehole / tube wells will provide access to clean water to 224,000 households
	22 Water reservoirs	Provision of 12 new overhead reservoirs with disinfection units	Rehabilitation of 10 overhead reservoirs with disinfection units	Provision and rehabilitation of overhead reservoirs with disinfection units will provide sustained access to clean water to 224,000 households
	20 Water pumping stations	Provision of 8 new pumping stations	Replacement of 12 turbine pumps and motors	Provision and replacement of pumping stations will ensure sustained supply of clean water to 224,000 households
	Approx. 390 km of Water pipes	Replacement of about 54 km water supply pipelines and 24 km of asbestos cement pipe by PE Pipes	Rehabilitation of about 312 km pipes and Fateh Garh distribution system	Provision and replacement of pumping stations will ensure sustained supply of clean water to 224,000 households
	Supervisory control and data administration (SCADA) and smart city Components	Installation of SCADA and smart city Components	Installation of SCADA and smart city Components	Installation of SCADA system will help reducing NRW and efficient service delivery to approx. 224,000 households, design and development of City Central Control Room, Intelligent Transport System, Android Based Asset Monitoring System, Asset Management Information

DMF Outputs	Civil Work Deliverables (based on Para 13, RRP)	City		Descriptions
		Sahiwal	Sialkot	
				System (AMIS), Management Information System (MIS), Municipal Complaint Management and Re-address System, Vehicle tracking system for SWM Machinery and Equipment. SCADA System, Smart water management, development of dashboards for monitoring & evaluation and Smart internal procurement system.
	Up to 16,600 Metered customer connections (1,400 pre-paid meter)	Installation of 6,400 postpaid and 600 prepaid meters	Installation of 8,800 postpaid and 800 prepaid meters	Postpaid and prepaid meters will ensure revenue collection from approx. 16,600 households
	Distribution Network Improvement (DNI) zones and Non-Revenue Water (NRW) program	Development of DNI zones and NRW program in selected zones including bulk meters and pressure gauges	Development of DNI zones and NRW program in selected zones including bulk meters and pressure gauges	These interventions will result in safe water supply to approx. 224,000 households and increase the O&M cost recovery from 30% to 80%.
Output 2 Sanitation	18 Sewage pumping stations	Rehabilitation of 8 existing disposals and pumping stations	Rehabilitation of 10 disposals/ pumping stations	Rehabilitation of pumping stations will help safe drainage of sewage water from 193,000 households
	Replacing of approx. 40 km Sewer pipes	Replacement of 12.5 km sewer including	Replacement of 30 km sewer including	Rehabilitation of sewer and unblocking of drains will help safe drainage of sewage water from 193,000 households.

DMF Outputs	Civil Work Deliverables (based on Para 13, RRP)	City		Descriptions
		Sahiwal	Sialkot	
		unblocking of local drains	unblocking of local drains	
	Supervisory control and data administration (SCADA)	Installation of SCADA system	Installation of SCADA system	Installation of SCADA system will help in efficient service delivery
	Construction of centralized wastewater treatment plant	Construction of STP with laying of trunk mains and gravity lines	Not applicable	The STP will provide for ecologically safe disposal of 91,000 m ³ of sewage water per day
	Trunk Sewer and Drainage System	Laying of trunk sewer	Laying of trunk sewer	Provision of efficient sewerage and drainage for both cities to optimize system O&M cost
	Equipment for Improvement in Sanitation			Equipment for wastewater management, improvement of drainage system, improved collection, segregation, transportation and safe disposal of solid wastes
Output 3 Urban Public Spaces	3 Bus terminals and transport management system of both cities	Construction of 2 city bus terminals	Construction of bus terminal	Construction of bus terminals will provide better transportation to approx. passengers every day. These will also will expand business opportunities for local shopkeepers, vendors, and companies. It would also help increasing the revenue from bus terminals at the rate of 10% per annum.
	6 km Street improvement	Renovation and upgradation of at	Renovation and upgradation of	The improved streets will introduce the concept of modern multiuse public space

DMF Outputs	Civil Work Deliverables (based on Para 13, RRP)	City		Descriptions
		Sahiwal	Sialkot	
		least 3 km city streets	at least 3 km city streets	management
	2.5 km Riverbank paths	Not applicable	Upgradation and beatification of approx. 2.5 km of riverbank	In addition to providing improved public open spaces to the residents, this would also assist reducing flood risk to approx. 45,000 households.
	7 km Green belts	Upgrading 2 greenbelts	Upgrading 1 greenbelt	The green belts, in addition to providing aesthetic pleasure to citizen, will promote healthy environment and serve as carbon sinks and lungs for the cities.
	11 Parks	Upgrading 6 parks (fencing; and development of jogging tracks, parking areas, sports grounds, cafeteria, theatre, and toilets)	Upgrading 5 parks (fencing; and development of jogging tracks, parking areas, sports grounds, cafeteria, theatre, and toilets)	The upgraded parks will serve more than 5,000 families a day, providing them healthy sporting activities and public spaces to get together enhancing social cohesion.

Source: Asian Development Bank. DMF=Design and Monitoring Framework.

* The items mentioned in above table are variable depending upon the detailed design report prepared by EPCM consultant. In any case, the consultant will be bound to design, tender and provide resident supervision of projects amounting to \$ 200 million.

10.4 DELIVERABLE WITH TIMELINES

10.5 TIME DURATION OF PROPOSED CONSULTANCY



		<p>Punjab Growth Strategy Targets</p> <ul style="list-style-type: none"> • 8% annual GDP growth • Increasing Private Sector Investment from \$ 8 billion to \$ 17.5 billion • Achieving all Millennium Development Goals • Narrowing security gaps • 2,000,000 skills graduates • Increase exports by 15% per year • 1 million quality jobs every year <p>Key outcomes</p> <ul style="list-style-type: none"> • Human capital and skills development • Overcoming energy shortages • Institutional reforms and good governance • Gender mainstreaming • Equitable regional development • Export-led growth • Productivity enhancement <p>The project needs an EPCM consultant for Engineering, Procurement, Construction and Management Services of different project components.</p>
	b) Consultancy Period	The allowable period of Consultancy for EPCM will be of 8 years & 2 months from the date of “Commencement of Services”.
	c) Man Power Requirement	<p>The Consultant shall provide, for the duration of the entire assignment, a team of national and international experts who are experienced in Planning, Design, Procurement, Management and Construction Supervision as per scope of the project included in TORs (attached as Appendix-A&C).</p> <p>Further, as per the 1st revision of PC-II, the allocated person months was 1058.6 against 126 sanctioned positions. In the 2nd revision of PC-II, the person months are increased up to 2,842 against 180 sanctioned positions. However, in the instant PC-II (3rd revision), the allocated person months increase upto 3,723.93 against 186 sanctioned positions. Detail of which is given in Appendix-B&D).</p>
4.	Expected Major	<ul style="list-style-type: none"> • The project has the following major outputs

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

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
International (Key Experts)								
Team Leader/ Urban Space Development Specialist	1.00	8.00	1.00	3.00	1.00	3.00	1.00	3.00
Senior Procurement and Contracts Management Specialist	1.00	8.00	1.00	1.00	1.00	1.00	0.00	0.00
Design Engineer	1.00	8.00	1.00	2.00	1.00	2.00	1.00	2.00
Smart City Specialist /Engineer	0.00	0.00	1.00	0.50	1.00	0.50	0.00	0.00
Sub-Total International Experts	3.00	24.00	4.00	6.50	4.00	6.50	2.00	5.00
National (Key Experts)								
Deputy Team Leader [also work as the Engineer / Project Manager]	1.00	36.00	1.00	34.50	1.00	43.20	1.00	43.20
Deputy Team Leader / Project Manager			0.00	0.00	1.00	28.00	1.00	51.25
Senior Resident Engineer / The Engineer			0.00	0.00	2.00	80.22	2.00	127.07
Manager Coordination Design			1.00	21.00	1.00	21.00	1.00	23.00
MIS Team Lead			0.00	0.00	1.00	3.00	1.00	3.00
Design Engineer (W&S and sewerage infrastructure)	1.00	24.00	1.00	9.00	1.00	9.00	1.00	9.00
Sanitation Expert/Public Health Engineer			1.00	21.50	1.00	21.50	1.00	27.50
Solid Waste Management Expert	1.00	10.00	1.00	6.00	1.00	6.55	1.00	6.55
Design Engineer (Mechanical)			1.00	3.75	1.00	3.75	1.00	3.75
Sociologist			1.00	7.00	1.00	7.00	1.00	7.00
Environmental Expert			1.00	7.50	1.00	14.00	1.00	15.54
Plumbing Design Expert			1.00	0.50	1.00	0.55	1.00	0.55
Senior Architect			2.00	4.25	2.00	4.25	2.00	4.25
Architect	1.00	2.00	1.00	5.00	1.00	7.41	1.00	9.41
Senior Urban Space Developer	1.00	18.00	1.00	8.00	1.00	8.00	1.00	8.00
Town Planner			1.00	1.00	0.00	0.00	0.00	0.00
Design Engineer (Structure)	1.00	6.00	1.00	7.50	1.00	7.82	1.00	9.32

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Design Engineer (Electromechanical)	1.00	10.00	1.00	5.50	1.00	5.73	1.00	6.73
Senior SCADA Expert			1.00	2.50	1.00	2.77	1.00	5.77
SCADA Expert	1.00	8.00	1.00	5.00	1.00	5.00	1.00	6.50
Design Engineer (HVAC)			1.00	3.00	1.00	3.00	1.00	3.00
Fire Fighting Expert			1.00	2.50	1.00	2.50	1.00	2.50
Groundwater Expert			1.00	8.00	1.00	8.00	1.00	8.00
Geophysicist / Electrical Resistivity Expert			1.00	2.75	1.00	2.75	1.00	2.75
Irrigation Expert			1.00	3.50	1.00	3.50	1.00	3.50
Horticultural Expert			1.00	4.75	1.00	4.75	1.00	4.75
GIS Expert			1.00	5.50	1.00	5.50	1.00	5.50
Senior Geotechnical Expert			1.00	2.22	1.00	2.31	1.00	2.31
Geotechnical Expert			1.00	8.37	1.00	8.37	1.00	8.87
Economist 1			1.00	6.00	1.00	6.00	1.00	7.00
Design Engineer / Planner (Transport)	1.00	18.00	1.00	6.70	1.00	6.97	1.00	6.97
Procurement and Contracts Specialist	1.00	24.00	1.00	24.00	0.00	0.00	0.00	0.00
Contract Specialist			0.00	0.00	2.00	83.85	1.00	64.91
Sr. Contract Specialist			0.00	0.00	0.00	0.00	1.00	19.00
Claim Expert			1.00	4.00	1.00	0.74	1.00	0.74
Resident Engineer (Civil)	2.00	40.00	2.00	40.00	2.00	54.95	2.00	54.95
Resident Engineer (Electromechanical)	2.00	20.00	2.00	0.00	0.00	0.00	0.00	0.00
Construction Manager Building (Civil)			1.00	18.00	1.00	38.00	1.00	66.38
Sub-Total National Experts	14.00	216.00	36.00	288.79	38.00	509.94	38.00	628.52
Sub-Total Key Experts (Int'l + National)	17.00	240.00	40.00	295.29	42.00	516.44	40.00	633.52
National (Non-Key Experts)								

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Office Engineer			0.00	0.00	1.00	28.00	1.00	49.54
Planning Engineer			0.00	0.00	1.00	28.00	1.00	43.85
Assistant Design Engineer (W & S & Sewerage)	2.00	48.00	3.00	55.50	3.00	55.50	3.00	57.50
Water Supply Expert / Public Health Engineer			1.00	19.50	1.00	19.50	1.00	22.50
Assisstant Sanitation Expert/Public Health Engineer -I			1.00	19.50	1.00	19.50	1.00	21.50
Assistant Sanitation Expert/Environmental Engineer			1.00	19.50	1.00	19.50	1.00	24.50
Assisstant Sanitation Expert/Public Health Engineer - II			1.00	15.50	1.00	15.50	1.00	15.50
Chief Quantity Surveyor	2.00	36.00	2.00	37.50	2.00	28.50	2.00	35.00
Chief CAD Officer (W&S)			1.00	10.50	1.00	10.50	1.00	13.50
Assistant Solid Waste Expert-1			1.00	7.00	1.00	7.41	1.00	7.41
Assistant Design Engineer (Mechanical)			1.00	5.00	1.00	5.00	1.00	5.00
Chief CAD Officer (Mechanical)			1.00	1.14	1.00	1.14	1.00	6.14
Assistant Sociologist			2.00	5.75	2.00	5.75	2.00	5.75
Plumbing Engineer			1.00	1.00	1.00	1.00	1.00	1.00
Assisstant Plumbing Engineer			1.00	1.50	1.00	1.50	1.00	1.50
Assistant Architect-I			1.00	4.00	2.00	12.00	2.00	11.96
Assistant Architect-II			1.00	4.50	1.00	4.50	1.00	4.50
Assistant Architect-III			1.00	8.00	1.00	8.00	1.00	8.00
Assistant Architect-IV			1.00	3.00	1.00	3.00	1.00	3.00

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Chief Quantity Surveyor (Architect) - I			1.00	6.00	1.00	6.77	1.00	6.77
Chief Quantity Surveyor (Architect) - I			1.00	5.00	1.00	5.00	1.00	5.00
Chief CAD Officer (Architect)-I			2.00	5.50	2.00	7.50	2.00	7.50
Chief CAD Officer (Architect)-II			1.00	3.50	1.00	3.50	1.00	3.50
Chief CAD Officer (Architect)-III			1.00	4.50	1.00	4.50	1.00	4.50
Chief CAD Officer (Architect)-IV			1.00	7.50	1.00	7.50	1.00	7.50
Assistant Structure Engineer - I	2.00	12.00	2.00	7.50	2.00	7.50	2.00	9.00
Assistant Structure Engineer - II			2.00	12.00	2.00	13.23	2.00	13.23
Chief CAD Officer (Structure) - I			1.00	7.00	1.00	7.32	1.00	8.32
Chief CAD Officer (Structure) - II			1.00	5.50	1.00	5.50	1.00	6.00
Chief Quantity Surveyor (Structure)			1.00	6.00	1.00	6.00	1.00	6.00
Assistant Design Engineer (Electrical) - I			2.00	6.25	2.00	6.61	2.00	8.61
Assistant Design Engineer (Electrical) - II			1.00	1.50	1.00	1.50	1.00	1.50
Chief Quantity Surveyor (Electromechanical)			1.00	2.50	1.00	3.00	1.00	4.50
Chief CAD Officer (Electromechanical) - I			1.00	2.00	1.00	2.00	1.00	3.00
Chief CAD Officer (Electromechanical) - II			1.00	1.50	1.00	1.50	1.00	1.50
Assistant Design Engineer (HVAC) - I			1.00	3.00	1.00	3.00	1.00	3.00
Assistant Design Engineer (HVAC) - II			1.00	3.00	1.00	3.00	1.00	3.00
Assistant Geophysicist / Electrical Resistivity Expert			1.00	2.00	1.00	2.00	1.00	2.00

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Assistant Irrigation Expert			1.00	3.50	1.00	3.50	1.00	3.50
Chief CAD Officer (Irrigation)			1.00	3.00	1.00	3.00	1.00	3.00
Assistant Horticultural Expert - I			1.00	4.00	1.00	4.00	1.00	4.00
Assistant Horticultural Expert - II			1.00	1.00	1.00	1.00	1.00	1.00
Chief CAD Officer (Horticulturalist)			1.00	6.00	1.00	6.00	1.00	6.00
Senior Survey Engineer - I	2.00	20.00	1.00	8.25	1.00	8.52	1.00	9.02
Senior Survey Engineer - II			1.00	7.25	1.00	7.39	1.00	7.39
Assisstant Geotechnical Expert - I			1.00	5.14	1.00	5.14	1.00	5.14
Assisstant Geotechnical Expert - II			1.00	4.99	1.00	4.99	1.00	4.99
Chief CAD Officer (Geotech)			1.00	2.77	1.00	2.77	1.00	2.77
Assisstant SCADA Expert			1.00	3.00	1.00	3.27	1.00	7.27
Assisstant Economist			1.00	1.56	1.00	1.56	1.00	1.56
Assistant Design Engineer / Planner (Transport) - I			1.00	3.00	1.00	3.23	1.00	3.23
Assistant Design Engineer / Planner (Transport) - II			1.00	1.00	1.00	1.00	1.00	1.00
Chief CAD Officer (Transport)			1.00	2.50	1.00	2.77	1.00	2.77
Office Engineer / Planning Engineer			1.00	35.00	1.00	39.41	1.00	39.41
Manager Admin			0.00	0.00	1.00	28.00	1.00	30.85
Sr. Manager Admin			0.00	0.00	0.00	0.00	1.00	19.00
Web Developer			0.00	0.00	2.00	13.52	2.00	13.52

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Android Developer			0.00	0.00	2.00	5.41	2.00	5.41
GIS Developer			0.00	0.00	1.00	4.88	1.00	4.88
GIS Analyst			0.00	0.00	1.00	1.75	1.00	1.75
Assistant Resident Engineers (Civil)	4.00	80.00	3.00	60.00	9.00	296.44	9.00	415.25
Assistant Resident Engineers (Civil)			1.00	20.00	1.00	21.87	1.00	20.77
Assistant Construction Manager (Civil)-Building			1.00	17.00	1.00	35.48	1.00	42.00
Assistant Resident Engineers (Electromechanical)	2.00	36.00	2.00	16.00	0.00	0.00	3.00	31.00
Material Engineer	2.00	20.00	2.00	36.00	2.00	56.00	2.00	75.36
Site Inspector			6.00	120.00	28.00	720.57	31.00	1092.05
Chief CAD Officer			0.00	0.00	1.00	24.00	1.00	30.18
Lab Technician			0.00	0.00	2.00	48.00	2.00	45.28
Surveyor			0.00	0.00	10.00	224.00	10.00	219.74
Construction Supervisor			2.00	36.00	2.00	72.77	2.00	107.01
Electrical Engineer			1.00	6.00	1.00	17.06	1.00	19.93
Fire Fighting and Plumbing Expert			1.00	4.00	1.00	11.75	1.00	4.95
HVAC Expert			1.00	3.00	1.00	14.96	1.00	10.07
SCADA/Electrical Low Voltage (ELV) Engineer			1.00	4.00	1.00	14.61	1.00	10.67
Chief Quantity Surveyor			1.00	18.00	5.00	176.15	5.00	232.49
Construction Supervisor MEP			1.00	6.00	1.00	21.11	1.00	32.60

DETAIL OF PERSON MONTHS

Staff Position	Original PC-II		1st Revised PC-II		2nd Revised PC-II		3rd Revised PC-II	
	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)	Person No.	Duration (Person-Month)
Sociologist (For Social Safeguard Compliance During Execution)			1.00	12.00	0.00	0.00	0.00	0.00
Environmental Scientist (For Environmental Compliance During Execution)			1.00	12.00	1.00	0.78	1.00	0.78
Health, Safety and Environment Expert			0.00	0.00	2.00	48.00	2.00	80.73
Sub-Total Non-Key Experts	16.00	252.00	85.00	772.10	139.00	2325.41	146.00	3090.40
Sub-Total Key + Non-Key Experts (Int'l + National)	33.00	492.00	125.00	1067.39	181.00	2841.84	186.00	3723.93

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
A	Key Expert (National)		
1	Deputy Team Leader (DTL) / Project Manager	Experience:	Preferably 15 years' experience as Deputy Team Leader/Project Manager on major infrastructure projects of civil works (water, sanitation, buildings, roads etc), contract management, processing of claims and implementation.
		Qualification:	Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering/Transportation Engineering/Environmental Engineering/Construction Management/Project Management or equivalent.
		Responsibilities:	<p>He/She will be responsible for overall project management related to design and construction supervision and ensuring that the project is implemented in accordance with the required specifications and drawings. He/She will be responsible to assist the Team Leader for all issues when required.</p> <p>Responsibilities of the Deputy Team Leader/Project Manager will include, but are not limited to the following:</p> <ul style="list-style-type: none">• Act as the Team Leader during the absence of Team Leader;• Responsible for overseeing quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;• Render necessary advice and assist the client in contract administration and procurement issues/assignments/contractual claims;• Assist the PMU in resolving any contractual issues;• Provide assistance to the Employer in dispute resolution as per provisions in the conditions of contract;• Keeping the Employer informed of contractual and claims issues by direct contacts and through discussions and correspondence;• Participate in the Dispute Board meetings to explain and discuss issues raised by the Contractor/Employer or Dispute Board;• At the end of the construction activities, guide and ensure that the team prepares a comprehensive Construction Completion Reports inclusive of 'as-built drawings' as appropriate;• Act as project manager in ADB small work contracts;• Recommend extension of time for completion and other claims in accordance with the

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<p>conditions of contract in consultation with the employer;</p> <ul style="list-style-type: none"> • Issues the completion certificates in coordination with the Employer of the completed sub-projects and performance certificates upon completion of DNP period; • Assist the Employer in preparing responses to audit objections and queries of the financiers or other Government Authorities; and • Coordinate with all concerned Employer's organizations on project issues. • Any other task assigned relevant to the assignment.
2	Senior Resident Engineer / The Engineer	Experience:	Preferably 15 years' experience as Resident Engineer/Senior Resident Engineer/Project Manager on major infrastructure projects of civil works (water, sanitation, buildings, roads etc), contract management, processing of claims and implementation.
		Qualification:	Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering/Transportation Engineering/Environmental Engineering/Construction Management/Project Management or equivalent.
		Responsibilities:	<p>The responsibilities of Senior Resident Engineer (SRE) / The Engineer will include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Responsible for ensuring that the consulting team prepare all the designs and specifications and carries out construction supervision and contract administration of all the civil works and goods for the project assuming the role of "the Engineer" and undertakes all tasks as defined under FIDIC General Conditions of Contract for Construction; • To overall manage all the construction sites through designated Resident Engineers and other allied construction supervision staff of the consultants; • Responsible for managing the consultants' activities ensuring compliance to detail provided in the construction drawings and strict adherence to the technical specifications through Resident Engineers; • To assist the DTL/Project Manager and PMU in all contractual, construction, claims and progress related issues; • To monitor progress of works in line with the approved construction schedule and recommend action for removal of bottlenecks if any. • Recommend extension of time for completion and other claims in accordance with the

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities
		<p>conditions of contract in consultation with the resident engineer;</p> <ul style="list-style-type: none"> • To conduct Project kick-off meeting with all stakeholders; • Responsible for holding meetings with the Contractor on contract and claims issues; • To review and implement the following through resident supervision staff: <ul style="list-style-type: none"> • Contractor's Work Plan. • Layout Plan and its Setting Out at Site. • HSE Plan and Environment Management Plan • Quality Control Plan. • Shop Drawings. • Pre-shipment Inspections. • Pre-Commissioning Procedure. • Commissioning Procedure. • As-Built Drawings. • O & M Manuals. • Asset Management Plan at Handing Over stage. • To discuss with concerned stakeholders, review and implement any recommended changes and modifications in drawings and specifications; • Review the CVs of Contractor's proposed staff, interview them and recommend to DTL on their approval or otherwise; • Review and recommend the Material Approval Sheets and conduct factory visits and site tests on materials and equipment; • To exchange correspondence with the Contractor on HSE, EMP, Quality, Progress, Technical, Financial and all other Project related affairs; • Maintain cohesion and coordination between Supervision Staff, CIU and Contractor to carry out the work in a smooth, cordial and professional manner; • To monitor the progress as per approved Work Plan and advise for the necessary actions to make up any delays; • To overall manage the supervision of all quality tests required on site; • To check contractor's Interim and Final Payment Certificates as verified by the Resident Engineers; • To review and recommend As-Built Drawings for approval by the Project Manager and PMU; • Compilation of Daily, Weekly and Monthly Progress Reports; • Periodic site visits of the construction sites as per requirement;

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> • Prepare and Implement the Minutes of Project Meetings; and • Responsible for preparing a comprehensive Project Completion Report (PCR). • Manage provision of support to the PMU/CIUs and ensure liaison with the Punjab Province administration, City Commissions, the Project Steering Committee (PSC), ADB, the Local Government and Community Development Department (LG&CDD) and other relevant stakeholders' through Resident Engineers and associated staff at site. • Ensure maintenance of consolidated project accounts, prepare statements and progress reports in collaboration with the site staff as desired by Client. • Any other task assigned relevant to the assignment.
3	Manager Coordination Design	Experience:	Preferably 15 years of professional experience out of which at least 05 year as managerial experience urban development / infrastructure projects. The candidate must have demonstrated ability to manage teams composed of different field of engineers. Excellent communication (written and oral) skills in English and strong inter-personal skills will be considered an asset.
		Qualification:	Bachelor in Civil Engineering or Masters in Environmental Engineering / Environmental Sciences or equivalent.
		Responsibilities:	<p>He/she will be fully responsible for coordination of design work among all the design experts and specialists for design of various components and bidding/contract documents of assigned projects. His input will be required for the overall project (PICIP) till completion of design phase.</p> <p>Responsibilities as a Manager Coordination Design will include, but is not limited to the following:</p> <ul style="list-style-type: none"> ▪ Ensure that the design team undertakes the design activities in timely manner and reports/documents are being comprehensively reviewed by the relevant experts. ▪ Ensure preparation of detailed and quantitative progress reports. ▪ Keep the Employer informed of technical issues and progress of all works by informal and formal meetings and correspondence and assist in any project issue which the design team may require. ▪ Ensure implementation of environment and social safeguards requirements through relevant experts.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> Any other task assigned relevant to the assignment.
4	Sanitation /Public Health Engineer/WTTP Expert	Experience:	Preferably 10 years work experience as Sanitation Expert with proven experience in sanitation (wastewater) designing for urban development projects.
		Qualification:	Bachelor degree in Civil/ Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for Site Identification and design of WATSAN & WWTPs in Sahiwal and Sialkot cities. Any other task assigned relevant to the assignment.
5	Design Engineer (Mechanical)	Experience:	Preferably 12 years work experience as mechanical engineer on water and wastewater projects with proven experience in urban development, water and sanitation infrastructure design.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for design and prepare specification of mechanical equipment's. Machinery to be used in solid waste management, sewerage and water supply maintenance systems. Any other task assigned relevant to the assignment.
6	Sociologist	Experience:	Preferably 10 years work experience as Sociologist with proven experience in preparing resettlement action plans for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ Sociology or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for preparation of Land Acquisition and resettlement plan (LARP) of Bus Terminal, social due diligence reports (DDR's) of Parks & bus terminals and PLGA Lahore etc. Also assist in site identification of WWTPS in both cities. Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
7	Environmental Expert	Experience:	Preferably 10 years work experience as Environmental Expert with proven experience in preparing Environmental Management Plan (EMP) for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ City & Regional Planning or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: He/she will be responsible for preparation of Environmental Management Plans (EMPs), Environmental, Health and Safety (HSE) Plans and DDRs of Parks, Bus Terminal, PLGA Lahore etc. Any other task assigned relevant to the assignment.
8	Plumbing Expert	Experience:	Preferably 15 years work experience as Civil engineer/plumbing expert with proven experience in plumbing design of buildings.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design, plumbing expert will undertake the following tasks: ▪ He/she will be responsible for engineering design of plumbing of PLGA Lahore. He/she will also be responsible to prepare engineering drawings, cost estimate and relevant part of PC-I. Any other task assigned relevant to the assignment.
9	Town Planner	Experience:	Preferably 12 years work experience in the strategic planning and implementation of urban public spaces. 5 years' working experience in similar urban sector development projects in countries with similar geographic conditions.
		Qualification:	Bachelor degree in Town Planning/ Architecture or Masters/equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, Deputy Team Leader (DTL), Manager Coordination Design and Senior Urban Space Developer will undertake the following tasks: ▪ Detailed landuse planning of open spaces, bus terminals etc. ▪ Provide the necessary inputs for the elaboration of the guide drawings to be included in the tender documents as well as for the preparation of the detailed Cost estimates. ▪ Any other task assigned relevant to the assignment.
10		Experience:	Preferably 12 years work experience as mechanical engineer with proven experience in

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
	Design Engineer (HVAC)		design of Heating Ventilation and Air Conditioning (HVAC) systems for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for Heating Ventilation and Air Conditioning (HVAC) Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal. ▪ Any other task assigned relevant to the assignment.
11	Fire Fighting Expert	Experience:	Preferably 10 years work experience as Mechanical Engineer with proven experience in design of firefighting equipment for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering, or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for Firefighting Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal etc. ▪ Any other task assigned relevant to the assignment.
12	Ground Water Expert	Experience:	Preferably 10 years work experience as Ground Water Expert with proven experience in assessment of quality and quantity of ground water for urban development projects.
		Qualification:	Bachelor degree in Civil Engineering/ Bachelor degree in Geology/ Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ Responsible for preparation of groundwater study report for WATSAN projects in Sahiwal & Sialkot cities. ▪ Also responsible for design of tubewell for water supply in parks and bus terminal etc. ▪ Any other task assigned relevant to the assignment.
13	Geophysicist /Electrical Resistivity Expert	Experience:	Preferably 10 years work experience as ERS/Electrical Resistivity Expert with proven experience in carrying out electrical resistivity survey.
		Qualification:	Bachelor degree in Geophysics or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			He/she will be responsible for Planning, data execution / processing / interpretation and reports preparation of geophysical investigations/groundwater exploration for water supply system of both cities. Any other task assigned relevant to the assignment.
14	Irrigation Expert	Experience:	Preferably 10 years work experience as Irrigation Expert with proven experience in design of sprinkler/irrigation system.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will provide design of sprinkler/irrigation system to be installed in the parks. ▪ Preparing operation and maintenance guidelines for high efficiency irrigation systems. ▪ Preparation of Cost Estimates. ▪ Preparation of Specifications for irrigation system. ▪ Any other task assigned relevant to the assignment.
15	Horticultural Expert	Experience:	Preferably 10 years work experience as Horticulture Expert with proven experience in design of horticulture for urban development projects.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will be responsible for landscape/horticultural design of parks in Sahiwal and Sialkot, cost estimate and specifications etc. ▪ Any other task assigned relevant to the assignment.
16	GIS Expert	Experience:	Preferably 10 years work experience as GIS Expert with proven experience in preparing GIS maps for different urban development projects.
		Qualification:	Bachelor degree in Science with M.Sc. in Space Science or equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: <ul style="list-style-type: none"> ▪ He/she will responsible for preparing GIS maps for water supply and sewerage systems. ▪ Carrying out Image Processing, Digital Image Classification, Land use and Land cover map development. ▪ Map Preparation and Development of Final Layouts.

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> Any other task assigned relevant to the assignment.
17	Senior Geotechnical Expert	Experience:	Preferably 12 years work experience as Geotechnical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	Responsible for preparation of geotechnical recommendations for structural design. Responsible for construction materials studies, identification, planning, field investigation and laboratory programs execution and results evaluation. Any other task assigned relevant to the assignment.
18	Geotechnical Expert	Experience:	Preferably 12 years work experience as Geotechnical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc. / equivalent.
		Responsibilities:	Responsible for preparation of borehole logs, collection of field data, compilation of results and assistance in preparation of geotechnical recommendations for structural design of different buildings of the project including PLGA, Lahore, Parks in both cities, Sahiwal Bus Terminal & WATSAN works etc. Any other task assigned relevant to the assignment.
19	Economist	Experience:	Preferably 10 years work experience as Economist on conducting traffic studies for urban development projects.
		Qualification:	Bachelor in Economics/ Agriculture Economics or Masters/equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks: Responsible for preparation of financial and economic studies for different components of the project i.e. parks, bus terminal, PLGA, Lahore and WATSAN works etc. Any other task assigned relevant to the assignment.
20	Contract Analyst/ Claims Expert	Experience:	Preferably 10 years work experience in contracts and claims management of urban development projects.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./ equivalent.
		Responsibilities:	Under the supervision of the Project Team Leader, DTL and Manager Coordination Design will undertake the following tasks:

Annex-E Duties and Responsibilities

S/No.	Title	Experience, Qualification and Responsibilities	
			<ul style="list-style-type: none"> He/she will be responsible for Contract administration of the works and goods contracts, taking timely contractual actions related to cost, time and quality controls in accordance with the provisions of the contract agreement and contract closure etc. Any other task assigned relevant to the assignment.
21	Construction Manager Civil-Building	Experience:	Preferably 12 years work experience as Civil engineer with proven experience in construction works of Buildings.
		Qualification:	Bachelor degree in Civil Engineering, or M.Sc./equivalent.
		Responsibilities:	<p>Under the supervision of the Project Team Leader, will undertake the following tasks:</p> <ul style="list-style-type: none"> He/she will be responsible for evaluation and certification of construction works and process contractor payment certificates, variation order and claims. Evaluate construction schedule of contractor and work methodology and sequence in accordance with sound engineering practice. Review and approve the building materials and sources of building materials and issue progress monitoring reports. Any other task assigned relevant to the assignment.

S/No	Title	Experience, Qualification and Responsibilities	
B	Non-Key Expert (National)		
1	Planning Engineer/Office Engineer	Experience:	Preferably 08 years work experience as Environmental Engineer/Office Engineer.
		Qualification:	Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be responsible for coordination and technical correspondence between the Client and the Consultant, preparation of monthly progress reports, quarterly reports, annual report and project completion report etc. Any other task assigned relevant to the assignment.
2	Water Supply Expert/Public Health Engineer	Experience:	Preferably 08 years work experience as Water Supply Expert /Public Health Engineer with proven experience in water supply designing for urban development projects.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for mapping of existing infrastructure, sectoral assessment, master planning and detailed design of water supply and sanitation systems in Sahiwal and Sialkot Cities. Any other task assigned relevant to the assignment.
3	Assistant Sanitation Expert/Public Health Engineer	Experience:	Preferably 05 years work experience as Sanitation Expert /Public Health Engineer with proven experience in water supply and sewerage system designing for urban development projects.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for mapping of existing infrastructure, sectoral assessment, master planning and detailed design of water supply and sanitation systems in Sahiwal and Sialkot Cities. Any other task assigned relevant to the assignment.
4	Chief CAD Officers (W&S)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for water and sanitation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (W&S) will undertake the following tasks: He/she will be responsible for preparation of water supply, sewerage and drainage network drawings. Any other task assigned relevant to the assignment.
5	Assistant Solid Waste Management Expert	Experience:	Preferably 05 years work experience solid waste management planning and designing.
		Qualification:	Bachelor degree in Civil Engineering / Environmental Engineering / Waste management or related subject or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Solid Waste Management Expert will undertake the following tasks: Responsible for preparation PC-1 and detailed cost estimate for Solid waste management, Water supply and sewerage equipment/machinery in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
6	Assistant Design Engineer (Mechanical)	Experience:	Preferably 05 years work experience as mechanical engineer.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Mechanical) will undertake the following tasks: Responsible for preparation of specifications of mechanical equipment requirement for different components of the project i.e. tubewells, disposal stations, SWM, Water and Sewerage equipment and machinery etc. Also responsible for preparation of cost estimates etc. Any other task assigned relevant to the assignment.
7	Chief Quantity Surveyor (Mechanical)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for mechanical component in urban development projects.
		Qualification:	Certificate in Mechanical Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Mechanical) will do the following tasks: He/she will be responsible for preparation of Mechanical drawings. Any other task assigned relevant to the assignment.
8	Assistant Sociologist	Experience:	Preferably 05 years work experience as Sociologist with proven experience in preparing resettlement action plans for different urban development projects.
		Qualification:	Bachelor degree in Environmental Engineering/ Environmental Sciences/ Sociology or M.Sc./equivalent.
		Responsibilities:	Provide assistance to Sociologist in preparation of Land Acquisition and resettlement plan (LARP), due diligence reports (DDR), of Parks, Bus terminals & PLGA Lahore etc. Carry out random visit to sites and ensure social safeguard compliance during execution of the project. Any other task assigned relevant to the assignment.
9	Assistant Plumbing Expert	Experience:	Preferably 05 years work experience as plumbing expert with proven experience in plumbing design of buildings.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering or Masters/equivalent.
		Responsibilities:	He/she will assist plumbing design expert in Plumbing Design of PLGA Lahore and other building structure for the project in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.
10	Assistant Architects	Experience:	Preferably 05 years work experience in the building design for urban sector development.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Architecture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible for design of parks, bus terminals and associated buildings etc. Any other task assigned relevant to the assignment.
11	Chief Quantity Surveyors (Architectural)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for architectural component in urban development projects.
		Qualification:	Diploma of Associate Engineers or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible to prepare quantities and estimation of architectural design items of parks, bus terminals and PLGA Lahore. Any other task assigned relevant to the assignment.
12	Chief CAD Officers (Architectural)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for architectural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Architect will undertake the following tasks: He/she will be responsible for preparation of architectural drawings. Any other task assigned relevant to the assignment.
13	Chief CAD Officers (Structure)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for structural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Structures) will undertake the following tasks: He/she will be responsible for preparation of structural drawings. Any other task assigned relevant to the assignment.
14	Chief Quantity Surveyors (Structure)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for structural component in urban development projects.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Structure) will undertake the following tasks: Responsible for structural design estimation of PLGA Lahore, Bus Terminal and all buildings covered under Parks and WATSAN.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
			Any other task assigned relevant to the assignment.
15	Assistant Design Engineer (Electrical)	Experience:	Preferably 05 years work experience as electrical engineer.
		Qualification:	Bachelor degree in Electrical Engineering, preferably M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Electrical) will undertake the following tasks: Provide assistance to Design Engineer Electrotechnical in detailed electrification design of all parks, bus terminal, PLGA Lahore and different buildings covered WATSAN work etc. Any other task assigned relevant to the assignment.
16	Chief Quantity Surveyor (Electromechanical)	Experience:	Preferably 10 years work experience as Quantity Surveyor with proven experience in preparing cost estimates for electromechanical component in urban development projects.
		Qualification:	Diploma of Associate Engineers or B.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer Electromechanical will undertake the following tasks: He/she will be responsible for preparation of bill of quantities and estimation of electromechanical equipment for various components of the project. Any other task assigned relevant to the assignment.
17	Chief CAD Officers (Electromechanical)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for structural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (Electromechanical) will do the following tasks: He/she will be responsible for preparation of Electromechanical drawings. Any other task assigned relevant to the assignment.
18	Assistant Design Engineer (HVAC)	Experience:	Preferably 05 years work experience as mechanical engineer with proven experience in design of Heating Ventilation and Air Conditioning (HVAC) systems for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Design Engineer (HVAC) will undertake the following tasks: Provide assistance to Design Engineer (HVAC) in preparation for Heating Ventilation and Air Conditioning

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
			(HVAC) Detailed Design of PLGA Building Lahore and Sahiwal Bus Terminal. Any other task assigned relevant to the assignment.
19	Assistant Geophysicist / Electrical Resistivity Expert	Experience:	Preferably 05 years work experience as ERS Surveyor with proven experience in carrying out electrical resistivity survey.
		Qualification:	Bachelor degree in Geophysics or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the ERS Expert will undertake the following tasks: Provide assistance to geophysicist in Planning, data execution / processing / interpretation and reports preparation of geophysical investigations/groundwater exploration for water supply system of both cities. Any other task assigned relevant to the assignment.
20	Assistant Irrigation Expert	Experience:	Preferably 05 years work experience in Irrigation with proven experience in design of irrigation system.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Irrigation Expert will undertake the following tasks: He/she will be responsible for design of irrigation system to be installed in the parks. Any other task assigned relevant to the assignment.
21	Chief CAD Officers (Irrigation)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for Irrigation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Irrigation Expert will undertake the following tasks: He/she will be responsible for preparation of Irrigation System drawings. Any other task assigned relevant to the assignment.
22	Assistant Horticultural Expert	Experience:	Preferably 05 years work experience as Horticulturalist.
		Qualification:	Bachelor degree in Agriculture or M.Sc./equivalent.
		Responsibilities:	Under the supervision of the Horticultural Expert will undertake the following tasks: He/she will be responsible for landscape/horticultural detailed design of parks in Sahiwal and Sialkot. Any other task assigned relevant to the assignment.
23	Chief CAD Officers (Horticultural)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for horticultural component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Horticultural Expert will undertake the following tasks: He/she will be responsible for preparation of horticultural drawings. Any other task assigned relevant to the assignment.
	Assistant Geotechnical Expert I	Experience:	Preferably 5 years work experience as Geo-technical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Civil Engineering/Geo-technical Engineering or M.Sc./equivalent.
		Responsibilities:	To assist geotechnical Expert in supervision of geotechnical investigation at site and preparation of geotechnical recommendations. Any other task assigned relevant to the assignment.
24	Assistant Geotechnical Expert II	Experience:	Preferably 5 years work experience as Geo-technical engineer with proven experience in geotechnical design for structural design of buildings and road projects etc.
		Qualification:	Bachelor degree in Civil Engineering/Geo-technical Engineering or M.Sc./equivalent.
		Responsibilities:	To assist geotechnical Expert in supervision of geotechnical investigation at site and preparation of geotechnical recommendations. To assist geologist in supervision of sample collection from test pits for subsequent laboratory testing and preparation of geotechnical recommendations. Any other task assigned relevant to the assignment.
25	Chief CAD Officers (Geotech)	Experience:	Preferably 5 years work experience as CAD Officer with proven experience in preparing drawings for borehole logs and geotechnical components in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	Under the supervision of the Geotechnical Expert will undertake the following tasks: He/she will be responsible for preparation of borehole logs, investigation layout and other related drawings etc. Any other task assigned relevant to the assignment.
26	Assistant SCADA Expert	Experience:	Preferably 05 years work experience as SCADA expert with proven experience in SCADA and telecommunication design of buildings.
		Qualification:	Bachelor degree in Electrical Engineering/ Electronics Engineering or Masters/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ He/she will assist SCADA expert in Design of SCADA and telecommunication Network for PLGA, Lahore, Parks and Bus Terminal etc. He/she will assist SCADA Expert in preparation of Design Documents, Engineer's cost Estimate and tender Documents. Any other task assigned relevant to the assignment.
27	Assistant Economist	Experience:	<ul style="list-style-type: none"> ▪ Preferably 10 years work experience as Economist on conducting traffic studies for urban development projects.
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor in Economics/ Agriculture Economics or Masters/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ He/she will assist in preparation of economic and financial plans, conduct traffic study and associated studies etc., under the supervision of economist. ▪ Any other task assigned relevant to the assignment.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
28	Assistant Design Engineer / Planner (Transport)	Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as design engineer for major road/ urban road projects with proven credentials in geometric design of highways/ urban roads.
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Civil Engineer/ Transportation Engineering or Masters/equivalent.
		Responsibilities:	<p>Under the supervision of the Design Engineer / Planner (Transport) will undertake the following tasks:</p> <ul style="list-style-type: none"> ▪ Provide assistance to design engineer (Planner Transport) in preparation of detailed design of Sahiwal Bus Terminal, Traffic Management Plan in both cities, design of parking facilities in parks. ▪ Any other task assigned relevant to the assignment.
29	Chief CAD Officers (Transport)	Experience:	Preferably 10 years work experience as CAD Officer with proven experience in preparing drawings for transportation component in urban development projects.
		Qualification:	Certificate in Civil Draftsman or equivalent.
		Responsibilities:	<p>Under the supervision of the Design Engineer / Planner (Transport) will do the following tasks:</p> <p>He/she will be responsible for preparation of transportation drawings.</p> <p>Any other task assigned relevant to the assignment.</p>
30	Assistant Construction Manager (Civil)- Building	Experience:	Preferably 05 years work experience as Civil Engineer for building projects with proven experience in construction management of buildings projects etc.
		Qualification:	Bachelor degree in Civil Engineer/ Structural Engineering or Masters/equivalent.
		Responsibilities:	<p>Under the supervision of the Construction Manager will undertake the following tasks:</p> <ul style="list-style-type: none"> ▪ Evaluate and certify construction works and process contractor's payment certificates, variation order & claims. ▪ Evaluate construction schedule of the contractor, work methodology etc. ▪ Review and approve the building material and source of building materials. ▪ Issue progress monitoring reports. ▪ Any other task assigned relevant to the assignment.
31	Fire Fighting and Plumbing Expert	Experience:	Preferably 10 years work experience as Mechanical Engineer with proven experience in design of firefighting equipment and plumbing for buildings.
		Qualification:	Bachelor degree in Mechanical Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Responsible for supervision of all firefighting and plumbing related work of PLGA Lahore.</p> <p>Any other task assigned relevant to the assignment.</p>
32	SCADA/ELV Engineer	Experience:	Preferably 05 years work experience as SCADA expert with proven experience in Supervision of SCADA and telecommunication system implementation of buildings.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	Bachelor degree in Electrical Engineering/ Electronics Engineering or Masters/equivalent.
		Responsibilities:	Responsible for Implementation and supervision of SCADA/ELV System design as per the specifications and drawings for PLGA Lahore. Any other task assigned relevant to the assignment.
33	Construction Supervisor	Experience:	Preferably 5 years work experience as construction supervisor with proven experience in supervisor of buildings projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Assist Construction Manager in supervision of structure and finishing work, checking of bar bending schedule, shuttering, reinforcement and concrete work. Checking out contractors IPC's and final bill. Any other task assigned relevant to the assignment.
34	Construction Supervisor (MEP)	Experience:	Preferably 5 years work experience as construction supervisor with proven experience in supervisor of buildings projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Responsible for mechanical, electrical and plumbing system implementation at PLGA Lahore building as per the specifications and drawings. Any other task assigned relevant to the assignment.
35	Site Inspector	Experience:	Preferably 3 years work experience as site inspector with proven experience in supervision of Water and Sanitation projects etc.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of assistant resident engineer will supervise site activities of contractor as per the drawings and specifications. Any other task assigned relevant to the assignment.
36	Lab Technician	Experience:	Preferably 3 years work experience as Lab Technician.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Under the supervision of Material Engineer carry out lab testing of material and site testing. Any other task assigned relevant to the assignment.
37	Surveyor	Experience:	Preferably 3 years work experience as surveyor.
		Qualification:	Diploma of Associate Engineering or B.Sc./equivalent.
		Responsibilities:	Responsible for supervision of the the survey work during execution of WATSAN Works. Any other task assigned relevant to the assignment.
38	Environmental Scientist	Experience:	Preferably 05 years work experience as Environmentalist.
		Qualification:	Bachelor degree in Civil Engineering/ Environmental Engineering/ Environmental Sciences or M.Sc./equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Carry out random visit to sites and ensure environmental compliance during execution of the project. ▪ Any other task assigned relevant to the assignment.
39	Manager Admin	Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as Manager Admin.

Annex-E Duties and Responsibilities

S/No	Title	Experience, Qualification and Responsibilities	
		Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in BBA or MBA./equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Under the supervision of Project Manager responsible for all admin related matter of EPCM. ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience in the field of Occupational, Health & Safety.
40	HSE	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering/ Chemical Engineering / Environmental Sciences or M.Sc in the relevant field/equivalent.
		Responsibilities:	<ul style="list-style-type: none"> ▪ Responsible for compliance of Environmental Management Plan at site, deal with all HSE related matters and report to the Engineer. ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 08 years work experience as Environmental Engineer/Office Engineer.
41	Office Engineer	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering or M.Sc./equivalent.
		Responsibilities:	<p>Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be for coordination and technical correspondence between the Client and the Consultant, preparation of monthly progress reports, quarterly reports, annual report and project completion report etc.</p> <ul style="list-style-type: none"> ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 05 years work experience as Planning Engineer.
42	Planning Engineer	Qualification:	<ul style="list-style-type: none"> ▪ Bachelor degree in Environmental Engineering / Civil Engineering / Contract Management or M.Sc./equivalent.
		Responsibilities:	<p>Under the Supervision of Team Leader, Deputy Team Leader and Manager Coordination Design; He/she will be responsible for review/ evaluation of Work Programs of the Contractor for all lots, planning, scheduling and resource allocation as per the requirement of the Contract Agreement. Responsible for regularly updating the program of works and real time monitoring & control through Primavera.</p> <ul style="list-style-type: none"> ▪ Any other task assigned relevant to the assignment.
		Experience:	<ul style="list-style-type: none"> ▪ Preferably 8 years of experience as ARE or Senior engineer in respective field.
43	Assistant Resident Engineer Civil or Highway Design Engineer (1 No.)	Qualification:	<p>Bachelor's degree in Engineering in respective field preferably—or equivalent.</p>
		Responsibilities:	<p>Reports to the Senior Resident Engineer and will undertake the following tasks:</p> <ul style="list-style-type: none"> • Works directly with the Senior Resident Engineers to ensure timely implementation and efficient construction management of the Project; • Supervise day to day activities of the subprojects; • Ensure quality of work; and • Provide inputs to quarterly, semi-annual and annual reports as needed.
		Experience:	<ul style="list-style-type: none"> • Any other task related to the assignment

10.9 POSSIBILITY OF PROSPECTIVE PROJECT FINANCING AND IMPLEMENTATION THROUGH DIFFERENT MODES

N/A

10.10 RISK AND SENSITIVITY ANALYSIS AND PROPOSED MITIGATION MEASURES

N/A

10.11 FORWARD BACKWARD LINKAGES OF THE PROPOSE STUDY / SURVEY

10.12 EXPECTED OUTPUT OF THE PROPOSED FEASIBILITY STUDY / SURVEY

11. INDICATE STUDIES / SURVEYS ALREADY UNDERTAKEN:

N/A

12. CERTIFICATE

Focal Person Name: Muhammad Hamza Salick

Designation: Program Director

Email:

Tel. No.: 04237897602

Fax No:

Address: PMU-PICIIP 58 C-III Gulburg-III Lahore

The certificate is on a white sheet of paper with a spiral binding on the left. It features the Punjab Intermediate Cities Improvement Investment Program (PICIIP) logo at the top left and right. The text is as follows:

PUNJAB INTERMEDIATE CITIES IMPROVEMENT INVESTMENT PROGRAM (PICIIP)

Prepared by:

DIRECTOR PROCUREMENT & CONTRACTS
PUNJAB INTERMEDIATE CITIES IMPROVEMENT
INVESTMENT PROGRAM

DIRECTOR MONITORING & EVALUATION
PUNJAB INTERMEDIATE CITIES IMPROVEMENT
INVESTMENT PROGRAM

DIRECTOR ADMIN & FINANCE
PUNJAB INTERMEDIATE CITIES IMPROVEMENT
INVESTMENT PROGRAM

CHIEF ENGINEER
PUNJAB INTERMEDIATE CITIES IMPROVEMENT
INVESTMENT PROGRAM

DEPUTY PROGRAM DIRECTOR
PUNJAB URBAN DEVELOPMENT PROGRAM
LG&CD DEPARTMENT

PROGRAM DIRECTOR
PUNJAB INTERMEDIATE CITIES IMPROVEMENT
INVESTMENT PROGRAM
LG&CD DEPARTMENT

Recommended by:

SECRETARY
LOCAL GOVT. & COMMUNITY DEVELOPMENT
DEPARTMENT

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)