



**URBAN POLICY & PLANNING UNIT
PLANNING & DEVELOPMENT DEPARTMENT
GOVERNMENT OF KHYBER PAKHTUNKHWA**

Draft TERMS OF REFERENCE (ToRs)

For

**PREPARATION OF INTEGRATED MASTER PLAN FOR WATER SUPPLY,
SANITATION, STORMWATER DRAINAGE AND SOLID WASTE MANAGEMENT
FOR THE CITY OF MINGORA AND DI KHAN.**

1.0 Background

Pakistan has one of the highest population growth rates in the world. Over the next two decades, the urban population in Pakistan is likely to increase by 140 per cent (Figure 1). This dramatic increase will add another 80 million to the urban population in the country, bringing the total urban population to 130 million. The year 2030 will also be a major landmark in Pakistan's development as a nation. For the first time in 83 years, the urban population will constitute 50 per cent of the total population. From nearly 50 million urbanites today, Pakistan will be home to a massive urban population living in very high-density cities, which would be struggling to meet the demand for municipal services.

The rapid pace of urbanization in Pakistan, particularly in Khyber Pakhtunkhwa poses unique challenges for delivering municipal services in urban areas. The brisk increase in population is not matched with an adequate increase in municipal infrastructure and services. The lag between the supply and demand of municipal services has resulted in a host of public health and environmental problems in urban areas. At the same time, the state of municipal services in non-urban areas is equally precarious.

1.1 Establishment of Water Supply and Sanitation Companies in KP

To provide quality municipal services and integrate the fragmented water and sanitation related municipal functions into one entity, the government of Khyber Pakhtunkhwa, realized the need to establish city wide single autonomous water and sanitation companies in all seven divisional headquarter cities of KP including Peshawar, Mingora, Mardan, Abbottabad, Kohat, Bannu and DI Khan. All these Water and Sanitation Companies are registered with the Securities and Exchange Commission of Pakistan (SECP), under section 42 of the companies Ordinance, 1984 for efficient delivery of Water Supply, Sanitation, and Solid Waste Management Services to around 4 million consumers of the seven divisional headquarter cities of KP.

1.2 Water Supply and Sanitation Company, Mingora

Mingora (Swat) is the second largest city after Peshawar, the Provincial Capital of Khyber Pakhtunkhwa. Mingora city is rapidly urbanizing and according to 1998 Census Report population of the city was 321,995 which grew to 599,040 with annual growth rate of 3.31%. While, the growth in the municipal infrastructure is far behind the population growth rate and the result is low quality of municipal services. Further, due to the eruption of militancy in the area, it severely struck almost all the infrastructure and auxiliary retarded the already slow pace of implementation of physical infrastructure projects. The district is comprising of 65 Union Councils, of which 9 union councils form the Mingora urban area. Due to explosive population growth rate coupled with millions of daily commuters it has exerted tremendous pressure on the existing municipal infrastructure of the city and the situation is rapidly deteriorating, require urgent attention for easing the situation and transforming the city into engine of social and economic growth.

In the absence of an integrated Master Plan for Water Supply, Sanitation and Solid Waste Management, the investment made municipal service on ad-hoc basis and the result is the haphazard construction of water supply schemes without proper need assessment

with marked un-served and over-served areas. The water mains, apart from being very old consisting of CI/PVC/GI pipes mostly installed during the State of Swat era and after, lying deeply under the streets and some are passing in the houses. There are numerous leaks which are difficult to be detected. Several lines are passing in the drains and due to intermittent supply, the sewage water gets in to the lines thus contaminating it.

The WSSC Mingora started its operations in late 2017 with a limited budget component for Research Work (Master Planning), and even not in a position to perform routine maintenance work and hence, the company is unable to meet the expectation of the local community. For the provision of water supply the company has inherited 45 tube wells from the parent entity TMA, which is not sufficient for serving the existing 600,000 population of the city. Almost all the water supply and sanitation infrastructure is in a ruthless situation and requires immediate attention. In the city there is no proper sewerage treatment system and 99% of the sewerage water is directly drained into River Swat and its tributaries without any treatment, causing a serious environmental concern not only for the marine life of River Swat but also for the millions of people living in the downstream areas. To improve the service delivery, WSSC Mingora Swat is exploring the possibility of financial support from potential donors for both hard and soft component of the delivery system for improving the basic Municipal Services System of the City. The development of an integrated Master Plan for Water Supply, Sanitation, and Solid Waste Management will greatly improve the service delivery of MSSCM.

1.3 Water Supply and Sanitation Company, DI Khan

The City of DI Khan is a rapidly growing major urban centre in the southern part of Khyber Pakhtunkhwa. As per 1998 Census Report population of DI Khan city was 220,000 persons, while the current census shows that the population has grown to 360,000 persons with an annual increase of 2.69% which is substantially above the national average. Many pull, and push factors are responsible for this rapid rate of urbanization including the migration of Temporarily Displaced People (TDP's) as well as people from nearby villages also migrate to DI Khan for better livelihood opportunities and services. Further, due to changing socio-economic and environmental conditions it is extremely difficult for the concerned government department to provide quality municipal infrastructure to the residents of the city. The changing trends of urbanization in DI Khan represents important challenges in the provision of safe drinking Water Supply and Sanitation Services. The city is struggling with insufficient infrastructure and low water supply and sanitation coverage.

At present nearly 75% of the tube wells are non-functional. The pipes are mostly rusted. The coverage of water supply pipelining in urban areas of DI Khan is nearly 20%. In DI Khan ground water is the major source for the domestic purpose. In DI Khan the increased and unregulated private exploitation of ground water for domestic consumption have led to a decline in the water table and deteriorating the ground water quality. In DI Khan the provision of pipe water supply is low and most of the population depends upon hand pumps and motor pumps. Increased arsenic, nitrate and fluoride contamination is detected in drinking water in various localities in DI Khan. Generally, water pressure remains low in all water supply schemes. Due to intermittent supply and leaks in the water supply network, causing infiltration and contamination in the delivery system making it unsafe for drinking purposes.

To address all these issues, the provincial of Khyber Pakhtunkhwa established the Water and Sanitation Company, DI Khan (WSSC DI Khan). It is registered under the Companies Ordinance 1984 with the Securities and Exchange Commission of Pakistan under Section 42 of the Companies 1984. The rationale for setting up this company is to amalgamate, under one corporate entity, all drinking water, sanitation and solid waste management services in DI Khan city currently being provided by various government entities, such as Tehsil Municipal Administration DI Khan.

The development of an integrated Water Supply, Sanitation, Waste/Storm Water, and Solid Waste Management Master will provide tools to WSS Mingora and DI Khan to identify priority investment projects and ensure the provision of better municipal services to local people.

1.4 Objective of the Study:

The scale and complexity of urban problems are increasing everywhere and out of those most challenging is to meet the water and sanitation demands. The city of Mingora and DI Khan has grown many times in size and population, initially due to the influx of Afghan Refugees and subsequently Internally Displaced People (IDP's), the infrastructure was overburdened and got deteriorated. The standards of service have declined to a point where the population of the city receives water on an intermittent basis and of a quality which is not up to the standards of potability. Wastewater is discharged without licenses/treatment, thus causing significant environmental risks. The current infrastructure is insufficient, deteriorated and in haphazard conditions to meet the needs of Mingora and DI Khan. Therefore, the revamping of existing system and planning for future requirements is the dire need of the hour.

In this context, Urban Policy Unit (UPU), intends to hire consultants for preparation of Master Plan with 20-year planning horizon and identification/prioritization of projects for provision of physical infrastructure for water supply, sewerage, storm water drainage & waste water treatment and Solid Waste Management systems, with detailed designing and costing for the urban areas of the target cities (Mingora and DI Khan) for meeting the present & future requirements for efficient and effective service delivery. This broader goal will be achieved through the following specific objectives and activities.

- To provide Potable Drinking Water supply (Metered) on 24/7 which can meet demand and supply of the population under jurisdiction of WSS Mingora and DI Khan through the year 2038.
- To provide proper sewerage collection system from household to treatment facilities and disposal of sewage as per national environmental quality standards (NEQS).
- To improve solid waste management for achieving 100% door to door collection at primary level, secondary solid waste collection frequency up to 80% and treatment of solid waste through alternative options (WtE, Composting, resale etc. up to 80% and 20% landfilling).

1.5 USAID Financial Assistance Under Municipal Services Program (PIL – 04) for the Proposed Activity:

The USAID is committed to support Khyber Pakhtunkhwa – Municipal Services Program (KP–MSP). KP-MSP aims at devising a holistic mechanism for KP water resource management. One of its component is to enhance municipal services in the major cities of KP including Mingora and DI Khan. In the above backdrop, USAID under PIL – 04 is providing financial assistance to Urban Policy Unit for preparation of an integrated Water Supply, Sanitation and Solid Waste Management Master Plan for WSS Mingora and DI Khan to strengthen its governance capability in WATSAN services delivery. The project activities were determined keeping in view various operational and management requirements of WSS Mingora and DI Khan after intensive deliberations and consultations with all relevant stakeholders.

2.0 Project Key Information:

Project Location	Mingora and DI Khan
Project Name	Preparation of Integrated Master Plan for Water Supply, Sanitation, Wastewater and Solid Waste Management including sewage Treatment Plants & Storm water drainage
Donor(s)/ funding sources	USAID/PIL – 04
Project duration	18 months (September 2018 – December 2019)
implementing agency and partners	UPU/WSS Mingora and DI Khan
Beneficiaries	1 million residents of all Urban UCs under the jurisdiction of WSS Mingora and DI Khan

3.0 Scope of the Work:

The consultant would prepare a Master Plan with 20-year planning horizon and identification/prioritization of projects for provision of physical infrastructure for water supply system, storm water drainage system, sewerage system including the sewage treatment plants and Solid Waste Management with detailed designing and costing for the urban areas of the target cities, to meet the present & future requirements for efficient and effective service delivery. The scope of consultant services to be rendered by the consultant firm would comprise the following specific activities including preparation of reports like Project Inception reports, survey reports, mapping including spatial maps, layout plans(Existing and proposed) and maps, detailed design reports, and drawings. The consultant will also submit monthly progress reports, quarterly reports, QA/QC reports, annual reports, and project completion reports. Moreover, the consultant will be responsible for seeking necessary legal and departmental approvals required for compilation and completion of the Master Plan including:

- a. **Assessment of Groundwater Aquifer(s):** The Consultant must conduct an assessment of the status of the groundwater aquifer(s) used by DI Khan and Mingora for water supply with respect to physical characteristics, changes in piezometric head (water level in confined aquifers, referenced to sea level), and changes in water level (depth to water level in unconfined aquifers, referenced to sea level) over time, annual withdrawals, water quality, annual recharge rates, and locations of recharge inflow. If not available, the Consultants will prepare for the relevant aquifer(s) a simple groundwater model using standard public domain modelling software, such as MODFLOW, or with approval of the UPU contract for its preparation.
- b. **Environmental Concerns:** The consultant must include as part of the detailed assessment, the identification of any potential environmental concerns. The assessment must include an initial screening for potential environmental impacts using the Environmental Review and Assessment.
- c. **Baseline Data:** The Contractor must collect pertinent baseline data relevant to each component of the project. Baseline data must include, but not necessarily be limited to: the number of beneficiaries (disaggregated by sex and age group); TMA/WSSC staff employed and actually available for operation and maintenance of the drinking water and drainage/sewerage systems, and solid waste management. The contractor must also verify the data obtained at the time of assessments about the number of beneficiaries, staff of various categories, number of water connections (legal and illegal), the condition of machinery and equipment, and etc. Details of current staff, electricity usage, and repair and maintenance bills for each component of the water and sanitation system of the towns is to be recorded in sufficient detail for an economic analysis at a later stage of the task order.
- d. **Land Ownership:** In those cases where the drinking water and sanitation infrastructure needs to be extended and additional land is required, the contractor will determine the status of discussions between the land owners and the Local Government and Rural Development Department (LGRDD). The procurement of needed additional land will be arranged by the GoKP LGRDD with proper documentation of the land in the name of the Towns of the project cities. The Contractor shall not pay for land or land documentation costs.
- e. **Assessment of Existing Structures:** The Contractor must conduct an assessment of existing drinking water and sanitation infrastructure with regard to structural integrity based on visual observations and, where possible, comparison of “as built” to design specifications. Causes of deterioration in existing infrastructure – such as poor construction practices, use of substandard materials, or lack of adequate maintenance – must be noted to help in the development of improved guidelines for new construction.

3.1 Master Plan for Water Supply:

S. No.	Activities	Timeline
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1	<p>1.1 Preparation of integrated Water Supply Master Plan with 20-year planning horizon and identification/prioritization of projects for provision of disaster resilient physical infrastructure for water supply with detailed designing and costing for the urban areas of the target cities of Mingora and DI Khan to meet the present & future requirements for efficient and effective service delivery.</p> <p>1.2 Review of existing relevant studies already undertaken for target cities.</p> <p>1.3 Diagnostic analysis & surveys, data collection and carrying out requisite studies regarding water supply for master planning horizon up to the year 2038.</p> <p><u>1.4</u> Population projections, service area projections, water demand projections, new source identification (surface water), and future requirement of the target cities.</p> <p><u>1.4.1.5</u> Provision of standard specification to be adopted for water supply system and appurtenances including detailed drawings</p>	Within three months of signing of the Contract Agreement
2	<p>2.1 Assessment/mapping, design / redesign and recommendations regarding existing distribution network.</p> <p>2.2 Preparation of detailed assets management plan including description of the status of assets/equipment and inventory of existing water supply systems.</p> <p>2.3 Detailed engineering designing and costing including PC-1s of the short term and medium-term projects including rehabilitation/up-gradation of existing water supply network.</p> <p>2.4 Study of coverage area with served and un-served areas, number of consumers per tube well and capacity of each tube well.</p> <p>2.5 GIS based detailed base maps of the target cities showing the existing distribution networks, water supply components, improvement components and service areas.</p> <p>2.6 Master plan must include Short Term Infrastructure Investment Programs (SIPs), Medium Term infrastructure investment Programs (MIPs) and Long-Term Investment Programs (LIPs).</p> <p>2.7 Prepare terms of reference for the preparation of priority investment projects.</p> <p>2.8 Justification of selection of system improvement and projects (based on needs, cost effectiveness, constructability, reliability, operation, maintenance, etc.).</p>	Within six months of signing the Contract Agreement

3	<p>3.1 The consultant will prepare a report on the existing studies carried out for the hydrological and hydro geological study for target cities regarding the ground water aquifer status and depleting due to over-exploitation and reduction in recharge and submit detailed report along with consideration and implication for sustainable water supply and ground water recharge from the rain water/storm water for the study area.</p> <p>3.2 Study of private extraction of ground water and strategy for its elimination.</p> <p>3.3 Identification of alternate water supply source and recommendation in integration with the existing system.</p>	Within nine months of signing the Contract Agreement
4	<p>4.1 Preparation of GIS based maps for existing water supply services, networks, components and alternate future sources and improvements in multi-layer system for whole study areas. UPU will provide latest satellite imageries for Base/GIS mapping and the consultant will do ground truthing/field verification of the base maps.</p>	Within twelve months of signing of agreement.
5	<p>5.1 Based on the priorities identified (short term, medium term and long term) develop action plan for Master Plan implementation.</p>	Within Fifteen months of signing the Contract Agreement

3.2 Sewerage system & Storm water drainage System:

S. No.	Activity	Timeline
1	<p>1.1 Preparation of detailed Master Plan with 20-year planning horizon and identification/prioritization of projects for the provision of disaster resilient physical infrastructures for sewerage system & sewage treatment plants, sanitation and storm water drainage system with detailed designing and costing along with PC-1s, for the urban Mingora and DI Khan, to meet the present & future requirements for efficient and effective service delivery.</p> <p>1.2 Review of the existing Studies/Master Plans related to Sewerage including sewage treatment plants, sanitation and drainage system.</p> <p>1.3 Population projections, service area projections, present and planned land use plan and future sewerage & storm water drainage demand; and waste water treatment plants requirement for the city of Mingora and Kohat.</p> <p>1.4 Preparation of proposal for integration of sanitation of non WSS areas like Cantonment Boards, Universities etc. Diagnostic analysis Primary and Secondary data collection (door to door surveys) and carrying out requisite studies regarding sewerage system including sewage treatment plants & storm water drainage system for master planning horizon up to the year 2038.</p> <p><u>1.61.5</u> Provision of standard specifications for component and detailed drawings for adoption</p>	<p>With in THREE months of signing the Contract Agreement</p>
2	<p><u>2.22.1</u> Identifying capacity of the existing sewerage system and Preparation of detailed description of the status of assets (storm water drains, sanitation drains, sewers, sewerage system and sewage treatment plants – where applicable), equipment and inventory of existing sewage, wastewater and storm water drainage systems including STPs.</p> <p><u>2.32.2</u> Detailed engineering designing, costing and PC-1s for rehabilitation of existing sewerage & storm water drainage infrastructures including sewage treatment plants(STPs).</p> <p><u>2.42.3</u> Comprehensive engineering proposal for the separation of sewage or sewerage system from open / storm water drains within the jurisdiction of the Water and Sanitation Companies of Mingora and Kohat.</p> <p><u>2.52.4</u> Design of primary, secondary and tertiary drainage and Sewerage network projects including costing and PC-1s along</p>	<p>Within six months of signing of agreement.</p>

	<p>with identification of new routes of drains/sewers and maps, showing start to final route in the city and in the district up to planning horizon of 2038.</p> <p><u>2.62.5</u> Coverage area of each trunk and main sewer and suggest & design alternate solution.</p> <p><u>2.72.6</u> Master plans must include Short Term Infrastructure Investment Programs (SIPs), Medium Term infrastructure investment programs (MIPs) and Long-Term Investment Programs (LIPs).</p> <p><u>2.82.7</u> Prepare terms of reference for the preparation of priority investment projects.</p> <p><u>2.92.8</u> Justification of selection of particular system improvement and projects (based on needs, cost effectiveness, constructability, reliability, operation, maintenance, etc.).</p>	
3	<p>3.1 Preparation of GIS based detailed base maps for sewerage and drainage system, along with identification of starting-disposal routes, point, catchment areas of all drains and sewer lines including the coverage area of each sewage zone/district and catchment of proposed sewage treatment plants, in multi-layer system for the target cities. UPU will provide latest satellite imageries for Base/GIS mapping for carrying out the activity, while the consultant will do ground truthing for verification.</p>	<p>Within nine months of signing of agreement.</p>
4	<p>4.1 Develop action plan for implementation of Master Plan proposals.</p>	<p>Within fifteen months of signing of agreement.</p>

3.3 Master Plan Solid Waste Management:

S. No.	Activities	Timeline
1	<p>1.1 Review of the existing Master Plan(s) and various relevant studies already undertaken for Mingora and DI Khan District related to Solid waste management system.</p> <p>1.2 Population projections, service area projections, present and planned land use and future integrated solid waste management requirement for Mingora and DI Khan city.</p>	<p>Within THREE months of signing the Contract Agreement</p>

2	<p>2.1 To assess the state of the physical infrastructure and make recommendations for rehabilitation and expansion up-to planning horizon of 2038 towards Integrated Waste Management System and meet the relevant national and international standards of solid waste management.</p> <p>2.2 Study and proposal for existing disposal operations with machinery provision for safe disposal with limited environmental nuisance.</p> <p>2.3 Study and propose at least two garbage transfer stations state of the art in south and north of the city to enhance waste collection and reduce traffic on main roads as well to waste disposal site.</p> <p>2.4 Study the waste characterization of the municipal solid waste and propose the treatment / recycling technologies (Waste to Energy/Refuse Derived Fuel/Composting/Sanitary Landfilling).</p> <p>2.5 Propose feasible landfill sites by suitability analysis for Mingora and DI Khan and conduct EIA.</p> <p>2.6 Study the existing solid waste scavenging practices and propose legalized framework for collecting recyclable to retain the same market workforce (scavengers).</p>	Continuous however will be completed with six months of signing of agreement.
3	<p>3.1 Identify and enlist the commercial consumers with high revenue generation potential through field surveys (census of the commercial establishments) i.e. Commercial plazas, Hospitals, restaurants, hatcheries, wedding halls, hotels and car service stations in the city and to draft strategy for revenue generation.</p> <p>3.2 Master plans must include Short Term Infrastructure Investment Programs (SIPs), Medium Term investment programs(MIPs) and Long-Term Investment Programs (LIPs).</p> <p>3.3 Justification of selection of system improvement (based on needs, cost effectiveness, constructability, reliability, operation, maintenance, etc.) along with PC-1s.</p> <p>3.4 Preparation of GIS based base maps, identification potential routes for waste disposal vehicle movements, geo-tagging of locations for solid waste bins and containers and development of a detailed Asset Management System.</p> <p>3.5 UPU will provide latest satellite imageries for GIS mapping/base maps that will be up-dated by the consultant through field surveys.</p>	Within nine months of signing the contract.
4	<p>4.1 Develop action plan for implementation of Solid Waste Management proposals of the Master Plan.</p>	Within twelve months of signing of agreement.

4.0 Methodology:

The consultant will outline a detailed methodology for conducting the study, broadly focusing on:

- 3.1 Desk review of existing documents/studies/reports related to Water Supply, Sanitation (Sewerage system, Storm Drainage system) and Solid Waste Management with specific emphasis on Mingora and DI Khan.
- 3.2 Inclusive consultation with all relevant stakeholders including UPU, WSS, PHED, Local Government, elected representatives, general population and other relevant stakeholders/departments.
- 3.3 Field Visits, Focus Group Discussion, actual measurements, engineering surveys/baseline surveys (door to door filed data collection), assessments and mappings/drawings in the field for data collection and analysis.
- 3.4 Knowledge repository (lessons learnt, what went well, what went wrong, replication/scale up of the activity to other areas under similar programs).
- 3.5 Developing and Submission of methodology report to UPU along the team deployed for each activity and sub-activity.
- 3.6 Reporting: MPR, QPR, Annual Report, Completion Report.

5.0 Deliverables

The consultant will submit five copies of each draft report for review and comments and five copies of the approved deliverable (one original and four copies). Reports should be submitted to UPU both in soft and hard in 5 sets along with GIS Maps (editable) and animated presentations.

Main outputs	Indicative delivery date
1. Inception report comprising the following <ul style="list-style-type: none">○ Work plan○ Understanding of ToRs○ Methodology/implementation strategy○ Propose any Innovation in the described scope of work.○ Desk review and gaps Identification in the existing studies /plans (if any).○ Project/activity team	Within one month of the signing of agreement. On approval IR Payment of 10% of the contract value.
2. Assets Management: Preparation of detailed description of the status of assets / equipment and inventory of existing water supply systems, Sewerage & sewage System and drainage system including Sewage Treatment Plants(STPs) and Solid Waste Management system.	Within six months of the signing of agreement
3. Mapping: Preparation of GIS based maps for existing water Supply Networks and infrastructure, sewerage and drainage	Within 12 months of the

system, along with identification of starting to disposal routes, points, catchment areas of all drains and sewer lines including the coverage area of each sewage zone, district and catchment of existing and proposed sewage treatment plants, in multi-layer system for the whole district.	signing of agreement
4. Draft Completion Report (should also contain a segment on lessons learnt and future strategy).	Within 15 working days of the project end
5. Final Completion Report.	Within 15 working days of the comments furnished on the completion report
<ul style="list-style-type: none"> ▪ Orientation and Capacity Building/trainings/workshops on components of master plan and implementation strategy of Master Plan. 	Before the approval of Final Completion Report.

5.0 Expression of Interests (EOIs)

For Expression of Interests (EOIs) is based on KPPRA criteria based on:

6.0 Proposal Evaluation Criteria

Proposal evaluation criteria is as follows:

- 80% weightage to Technical Proposals whereas, 20% weightage to Financial Proposal will be given.
- The participating organization must score at least 70% score to qualify.
- Non-Responsive bidders will not be considered (criteria for non-responsiveness will be given in the “Expression of Interest”).

7.0 Consultant Profile

To be eligible for the assignment the consultant firm shall have the following skills and qualification:

7.1 Overall Experience & Qualification:

- At least 15 years' experience in Engineering/development sector with minimum of 5 years' experience in WATSAN sector, especially with donor funded/Public Sector projects/programs.
- Consulting firm having work experience with public sector institutions and have carried out similar nature of assignments within KP will be given preference.
- The firm shall have valid license with Pakistan Engineering Council (PEC) and must be registered with KPRA.
- The firm must have audited accounts for the last three consecutive years.
- The Firm must not be blacklisted by any department.

7.2 Human Resource

The consulting firm should have the following skilled professionals to undertake the proposed assignment. UPU will provide office space with necessary equipment in Peshawar while the firm will make their own logistics, accommodation and survey equipment required in the field (Mingora and DI Khan).

	Position	Nos	Experience
1	Team Leader	1	Minimum 15 years of experience WATSAN sector. Must have extensive working experience in project management and report writing.
2	Water Supply Specialist	1	Master's degree in environmental/water supply engineering with 10 years of related work experience
3	Environmental Specialist	1	Master's degree in Environment with 10 years of related work experience
4	Solid Waste Management Specialist	1	Master's degree in Environmental/Sanitary Engineering with 10 years of related experience
6	Senior Hydrologist	1	Master in Hydrology (Civil Engineer/Geo-Hydrology) with 10 years of related experience
7	GIS Specialist	1	Master's degree in GIS, Remote sensing with 10 years of related experience
8	GIS analyst	1	Master's degree in GIS, Remote sensing or Master in Geography with Diploma in GIS with 5 years of related work experience
9	Site Engineers	4	B. Sc in Civil Engineering with 5 years of related experience

10	Site Engineers	2	Master's/—B. —Sc in (Electro-Mechanical) Engineering with 5 years of related work experience
11	Surveyor	4	Diploma in Civil Technology with 5 years of related work experience
12	Quantity Surveyor	2	Diploma in Civil Technology /Quantity Survey with 10 years of related work experience
13	Quality Control Engineer	2	7 years of related experience
14	3D-CIVIL Operators	2	Diploma in 3 D Civil or any other relevant qualification with 5 years of related experience
15	Computer Operator	2	Diploma in Computer Science 3 years of related experience
16	Office and Field Assistants	4	2 years of related experience

7.0 Release of Payments

USAID is providing financial support to the above project activities; therefore, the consultant must adhere to the schedule of activities and the consultant must complete the project activities within the stipulated time (18 months after signing of contract). UPU will not be responsible for any delay on part of consultant and will not process any invoice after the proposed due date of any schedule activity.

- Payment will be disbursed based on approval of deliverables.
- Final instalment will be released upon approval of the “Final Completion Report”.

8.0 Activity/Project Point of Contact

Executive Director, UPU will be the overall “Focal Person” for the activity. He will be approached for seeking broader guidance and decision on policy and financial matters, whereas for routine day to day technical and operational matters, Urban Planner, will act as Co-Focal Person for the activity.