WORKING PAPER FOR PDWP

Part-A - Project Profile

1.	**Project Title**	**Supply and Installation of Postpaid AMR Water Meters in Sialkot & Sahiwal City – PICIIP 06**
2.	**Location**	Sahiwal & Sialkot
3.	**Sponsoring Agency**	Government of the Punjab (through Asian Development Bank (ADB))
4.	**Executing Agency**	Local Government & Community Development Department
5.	**Operation & Maintenance**	Municipal Corporation Sahiwal & Sialkot
6.	**Proposed Cost**	Rs. in Million **Cost Before Pre-PDWP**: 486.88 **Cost After Pre-PDWP**: 422.83 **Difference**: **-64.05 (-13%)**
7.	**ADP 2024-25 (G.Sr.No.1015) Umbrella PC-I**	Revised Allocation: Rs. 11,810.0 million (L.C: 10.00 M + F.C: 11,800.0 M)
8.	**Gestation Period**	12 months Till March 2026

9. Background of the Project:

The Government of Punjab's (GoPb's) vision is to develop cities with upgraded sustainable infrastructure and connectivity for faster economic growth and higher productivity, with an enhanced opportunity for inclusive growth and sustained quality of life for its citizens. The GoPb signed a loan agreement with the Asian Development Bank (ADB), which became effective in 2018, covering Phase I of PICIIP, with an estimated program cost of USD 250 million, of which ADB will fund USD 200 million and the GoPb USD 50 million. Phase I of PICIIP is being implemented in the cities of Sialkot and Sahiwal. PMU hired the services of Engineering, Procurement and Construction Management (EPCM) consultants which is a JV of NESPAK and Artelia Group, France. EPCM Consultant prepared comprehensive Master Plan for next 25 years of Sahiwal and Sialkot related to Water and Sanitation Sectors. Master plan was approved in 12.09.2019 by District Planning and Design Committee and priority projects are identified for execution under the PICIIP and for future investments. The project of wastewater treatment has also been proposed under the said master plan.

LG&CD Department has submitted PC-I at the cost of Rs. 486.88 million with gestation period March 2026.

10. Brief Description of the Project:

In order to reduce the unnecessary water usage/ water conservation and to ultimately reduce the O&M expenditures to be incurred on tube-well operation and wastewater disposal, water flow meters were proposed to be installed. However, it was decided by the Client and ADB during meeting held on 23.12.2019 that a separate consultancy namely Operational Design and Business Model (ODBM) will propose the installation of domestic water meters along with its type and technology based on their final study/ consumer survey. Therefore, house hold water meters were not made part of the PC-1's prepared by EPCM consultants for Sialkot and Sahiwal cities whereas bulk flow meters were included which are currently being executed under PICIIP in supervision of EPCM consultants.

PMU hired services of Operational Design and Business Model Consultancy (ODBM) consultants which is a JV of RAMBOLL and Asian Consulting Engineers. ODBM Consultant was tasked to propose installation of domestic water meters along with its type and technology based on their final study/ consumer survey. Consequently, ODBM consultant carried out Willingness to Pay surveys and submitted "Water Meter - Pilot Basis Sialkot City (Final Technical Memorandum – 06)" and "Water Meter - Pilot Basis Sahiwal City (Final Technical Memorandum – 06)" to the PMU containing methodology, type, specifications and locations for installing water meters in Sialkot and Sahiwal cities. This instant PC-1 form is being prepared based on the reports submitted by the

ODBM consultant for Sahiwal and Sialkot cities. According to the Willingness to Pay (WTP) Survey report and Technical Memorandums, following are the findings:

i. 56% of the respondents of WTP survey of Sahiwal having water supply connections and paying their bills showed consent for installation of water meters. Initially, water meters may be installed in UC-12 Fareed Town.
ii. 4 % of the respondents of WTP survey of Sialkot having water supply connections and paying their bills showed consent for installation of water meters. Initially water meters may be installed in UC-06 Model Town.
iii. Prepaid water metering has its benefits, such as reduced billing disputes and improved revenue collection for MCs, it also presents various challenges and disadvantages that need to be carefully considered, especially in terms of emergency access, security risks, level of service and financial implications for low-income customers.

Considering above, it is proposed that prepaid customer metering may not be implemented under this phase of PICIIP for Sahiwal and Sialkot Cities. However, after successful of operation of postpaid meters and DMAs, pilot projects of prepaid meters may be carried out in the already metered areas for its efficacy.

Existing capacity of services and its supply

Currently, no consumer water meters are installed in MC Sialkot and Sahiwal.

Supply – demand gap

Component	Existing	Proposed
Consumer Water Meters	0	8,257 Nos.

11. Scope of the Work

- Consumer Water Meters (Sialkot) = 3,526 No
- Consumer Water Meters (Sahiwal) = 4,731 No

12. Objectives of the Project

i. Maximizing the efficiency of the water supply system by creating self-sustaining Water Zones and District Meter Zones (DMZs) & District Meter Areas (DMAs).
ii. Instituting a robust water measurement and monitoring system at the distribution and consumer end to minimize Non-Revenue Water (NRW).
iii. Bulk and Domestic Metering in order to minimize water losses and to increase the revenue generation.
iv. To reinforce the viability of financial position.
v. Optimization of water use i.e., water conservation.
vi. Establishing remote water monitoring system.
vii. Assist in identifying billing gaps in customers.
viii. Checking authorized and unauthorized consumption of customers.
ix. Availability of historic data, activity logs and reports of bulk customers.
x. Capability of analysis for future planning by the use of statistics and data log

13. Project Justification

This project is justified because of the following direct or indirect benefits which will result after its implementation:

i. Responsible consumption as consumers will be aware of their usage and its associated costs resulting in Water Conservation.
ii. 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.
iii. Meters will provide valuable data that can be used to promote water conservation. When consumers will be aware of their consumption patterns, they will more likely to take steps to reduce water usage and use water more efficiently, leading to lower overall consumption and a better environmental impact.

iv. 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.

v. Water meters will help identify leaks in the distribution network or within consumers' properties. Early detection of leaks not only saves water but also prevents potential property damage and financial losses for both consumers and MCs.

vi. 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.

vii. Water conservation is crucial for environmental sustainability. Water meters contribute to reducing the stress on local ecosystems, protecting water sources, and promoting the responsible use of a finite resource.

14. Relationship of the project with the sector policy/growth strategy:

The vision of the Government is to make urban centres the engines of national growth, centres of economic activity and knowledge, and focal points for cultural change. The overall program for PICIIP is in line with Pakistan Vision 2025, Govt. of Pakistan, Punjab Growth Strategy 2018 and Punjab Urban Development Sector Plan 2018. The proposed investment program for PICIIP is based on the Government of Pakistan's (GOP) Vision 2025 which aims at transforming the urban areas into creative eco-friendly sustainable cities through improved city governance, effective urban planning, efficient local mobility infrastructure and better security to make urbanization an important driver of growth. Similarly, the Punjab Growth Strategy 2018 envisions sustained improvement in living standards in cities. It is linked to Sustainable Development Goals (SDG-11 Sustainable cities and communities) which states "to make cities inclusive, safe, resilient and sustainable". Projects to be executed under this program are an integral part of the Development Profile of the province. GoPb will co-finance the project by allocating USD 100 M in the next 10 years.

15. Other major ongoing & potential projects in the sector:

- PCP
- PRSWSSP
- DREAMS - I

16. Annual Operating Cost

Rs. 4.260 million.

17. Capital Cost Estimate

The summary of the project cost is given below;

(Rs. in Million)

Sub head	Description	Cost Before Pre-PDWP	Cost After Pre-PDWP	Difference
a	Consumer Flow Meter - Sahiwal	252.064	226.929	-25.135
b	Consumer Flow Meter - Sialkot	193.59	178.66	-14.93
	Sub Total	**445.654**	**405.589**	**-40.065**
g	Add 3% Contingencies (Civil Works Only	13.369	12.167	-1.202
i	1% for Non CPEC Project (F.No.2/14/2022-CPEC Dated 06.07.2022)	4.456	4.055	-0.401
j	Add 0.25% Awareness Charges	1.114	1.013	-0.101
k	5% (PRA charges)	22.282	0	-22.282
	Total	**486.88**	**422.824**	**-64.056**

18. Financial Phasing of the Project:

Sub head	Description	2024-25	2025-26	Total
a	Consumer Flow Meter - Sahiwal	94.48	132.44	226.92
b	Consumer Flow Meter - Sialkot	70.57	108.09	178.66
	Sub Total			0
g	Add 3% Contingencies (Civil Works Only	4.95	7.22	12.17
i	1% for Non CPEC Project (F.No.2/14/2022-CPEC Dated 06.07.2022)	1.65	2.41	4.06
j	Add 0.25% Awareness Charges	0.42	0.60	1.02
	Total	**172.07**	**250.76**	**422.83**

19. Period of Implementation:

Project implementation period is 12 months.

20. Manpower Requirement:

- LG&CD Department through PMU
- EPCM Consultant will supervise the execution as the Engineer and PMU will also monitor work at site through CIU.

21. Economic /Financial Appraisal:

Rs in Million

Financial Indicators	
Net Present Value (NPV) @ 12% Discount Rate	238.0
Financial Internal Rate of Return*	20.88%
Benefit/Cost Ratio (@ 12% Discount rate)	1.58
Project Payback Period (after construction period)	5.0
Investment Cost	422.83

22. Environmental Appraisal:

The proposed project involves very limited construction works, thus in general no considerable sensitivity of this project considering the scale of the project and potential environmental impacts are expected. The proposed project is recommended to be categorized as "Category 'C'" based on the rationale provided i.e., limited scope of work with no major construction activity, only installation is involved, scale of the project works with an assessment of the expected impacts also provided in the enclosed REA Checklist. Thus, Severity of expected impacts is negligible.

PART-B

Pre-PDWP meetings were held on 20.12.2024 under the Chairmanship of Member (LG/UD), P&D Board wherein the said project was discussed in detail. Observation conveyed to AD along with annotated replies furnished by AD is juxtaposed as under:

23. Observations of SI Wing P&D Board:

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
1.	At page 17 of PC-I "Executive Summary para-8" and page 52 "Conclusions & recommendations para vii", It has been	i. Yes, after completion of projects under PICIIP water supply will be available 24/7 in the areas where water meters are being	Noted

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
	stated that the consumers have less willingness for metered supply of water and the installation of consumer water meters will not bring any results unless 24/7 water supply is maintained with bulk metering and close loop assurance. AD should intimate that: i. Do MC Sialkot and Sahiwal intend to maintain 24/7 water supply in the areas where these water meters are being installed? ii. What are the total supply hours per day in both cities at present? iii. Are both MCs financially sound to afford 24/7 water supply? iv. Have bulk meters been installed for the areas under consumer metering as no bulk water meters are included in this PC-I?	installed. ii. At present, MC Sialkot is supplying water 24/7 to approximately 80% of the area in UC Model Town which will become 100% with the completion of water supply project under PICIIP. Similarly, in UC Fareed Town, Sahiwal, PICIIP water supply system is fully functional and is providing 24/7 water supply. iii. Water and Sanitation Services Companies (WSSCs) have been established in both cities with a business model which will gradually reduce dependency on Government of Punjab funding as low as 3% by the 15th year of operation. iv. 73 bulk flow meters in Sahiwal and 41 in Sialkot have been installed under the Water Supply Projects of PICIIP.	
2.	At page 83 and 122 of PC-I "Executive summary for Sialkot", No recommendations for consumer metering has been done in this summary.	Recommendation for consumer metering is provided in the Water Meter-Pilot Basis Technical Memorandums available at page 140-386 of PC-1.	Noted
3.	At page 440 & 520 "Proposed water rates" The water supplies of both cities are based on tubewells installed in the city. The slabs for the water rates and the tariff per gallon differs widely for both cities which should be justified.	The average of domestic tariff slabs for Sahiwal comes out to be 0.07/gallon, whereas, for Sialkot it is 0.055/gallon. EPCM consultants have assumed a uniform Domestic Tariff of PKR 0.07/gallon cost in the Financial Model Calculation of the PC-1 for both cities. This tariff rate has been taken as the average of slab rates proposed by OBDM consultants for simplification of Financial Analysis.	Noted
4.	At page 612 "Financial Analysis---Revenue recovery" i. The tariff for both of the cities is different with different slabs but for working of the revenue a uniform rate of Rs 0.07 to 0.14 per gallon has been assumed for both cities without considering the slabs and rates. ii. The revenue should be worked out keeping in view the slabs and rates for each slabs as proposed on pages 440 and 520 of PC-I	Same as replied for Observations at Sr. No. 03 above.	Noted
5.	At page 614 "Projected cash flow statement", In year-2 the water supply cost has been mentioned as Rs 129.54 million. The basis for this figure should be explained.	The financial model is updated	Noted
6.	At page 615 "Financial Analysis & economic ---Water cost" i. The financial analysis has been based on the capital cost and O&M cost of metering and the total revenue expected to be earned after	i. Considering it is a social project; the financial modeling has been carried out only considering the recovery of O&M cost and Cost of water extraction only. ii. Updated & Incorporated	Noted

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
	installation of meters which is not correct. ii. Both MCs are presently recovering the water revenue on flat rates from existing consumers. The analysis has to be based on the increase in revenue due to installation of water meter and not on the total revenue iii. As such the FIRR & NPV worked out at this page do not present the true financial picture of the project. iv. The Financial Analysis should be redone as proposed above. v. The economic analysis has not been worked out by quantifying the indirect benefit to the target group.	iii. Updated & Incorporated iv. Updated & Incorporated v. The financial analysis has been undertaken only as there are no direct economic benefits which are quantifiable that can be used to further check the economic viability.	
7.	At page 616 "Payback period" As such the payback period is also incorrect and should be based on the difference of revenue between existing revenue and revenue after installation of meters.	Updated and Incorporated.	Noted
8.	At page 636 "O&M cost of meters" i. The meters will require repair and replacement with passage of time. This cost has not been included in the O&M cost which should be done and analysis repeated. ii. This is evident from the O&M details that 10 meter readers will work for 72 days a year i-e 6 days a month. What these persons will do in the rest of 20 days a month? Is it not inefficient deployment? iii. Will it not be better that these persons should be deployed for reading of the water meters throughout the month in case the mechanical water meters are installed as suggested in observation No-15.	i. The Ultrasonic water meters do not require operation and maintenance, and the specified battery life is greater than 10 years. ii. As per practice, the O&M agencies across Punjab usually utilize the already available water operators for such tasks. PICIIP has only projected the tentative O&M costs and no O&M cost provision has been taken in the cost estimate. iii. Ultrasonic meters are a better option than the mechanical water meters.	Noted
9.	At page 653-655 "Rate of flow in meters" As given in the rate analysis on these pages, water meters of DN-15, DN-20 & DN-25 have the same flow rate. Then what is the difference amongst them except the inlet and out let size?	DN-15 is being used for residential connections, DN-20 for commercial connections and DN-25 for large commercial and industrial connections. The nominal flow rate 2500 liter/h and minimum flow rate 10 liter/h are mentioned as a range and will vary as per the corresponding diameter of the water meter. This range is specified so that a wide range of brands can fulfill these values to encourage competitive bidding process.	Noted
10.	At page 662 "Invertor AC 1.5 tons" The rate provided by the vendor including GST for 1.5 ton invertor AC is 354,682 which is on much higher. The market rate for this AC varies between Rs 180,000 to 230,000 including GST. Hence the rate should be rationalized.	The rates of "Invertor AC 1.5 tons" has been rationalized as advised to PKR 224,200 including GST.	Noted

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
11.	"Other rates" From the rate of Invertor AC it has transpired that the quotation obtained by the AD contains inflated rates. Hence a second thought should be given to all the rates used in the cost estimates.	The rates used in the cost estimate are either MRS rates or determined through a transparent process of obtaining competitive market quotations attached with the PC-1. The submitted rates have been revised to reflect the latest issued MRS of 1st Biannual 2025.	Noted
12.	At page 562 "Brass threaded valves" The rates given for various sizes are very high and should be rationalized. Good quality indigenous made ball valves may be used as these will not involve frequent opening and closing.	As the ball valve has been included in the latest issued MRS of 1st Biannual 2025, therefore the "Brass threaded valves" have been replaced with the appropriate ball valve item from the MRS as advised	Noted
13.	At page 563 "Check valves" These rates are also higher and should be rationalized.	The submitted rates have been revised to reflect the latest issued MRS of 1st Biannual 2025.	Noted
14.	At page 565 "Installation of meters and other appliances", The cost of supply and installation of the meters and other appliances has been figured out separately. AD may reply if: i. Are the meters and other appliances to be procured as goods? ii. Will the contract for supply of water meters and other appliance and their installation be executed separately? In that case the installation contractor will not take the responsibility of the commissioning and quality of water meters and other appliances which may malfunction after installation. iii. Hence AD is advised that the procurement should be done for supply and installation of all meters and other installations. iv. For this purpose the cost estimate should be prepared for supply and installation combined and not separately.	i. Yes, the meters and allied equipment will be procured as goods. ii. No, the same contract for supply and installation testing commissioning training will be carried out. The bifurcation in the cost estimate has been carried out to match the standard bidding document for Goods issued by the Asian Development Bank.	Noted
15.	"Installation of mechanical water meters" i. It has been stated for both cities that the consumers have very less willingness for installation of water meters and they are more inclined towards flat rates. ii. It is further assumed that both MCs may not be able to maintain 24/7 water supply as is usually the case in all MCs due to reduced income resources. iii. Under these conditions installation of sophisticated system directly may not be advisable. It will be better to install the mechanical water meters of the specifications given at page-281 & 282 of the PC-I (both visual & AMR outputs). When it is experienced that the consumers	i. The willingness to pay reports attached with the PC-1 clearly indicates that the greater percentage of citizens are willing to install the water meters in case of improved water supply. ii. As these water meters are an inherent part of the PICIIP outcomes, therefore 24/7 water supply will be available to the citizens once successful handing taking over of the water supply projects being executed under PICIIP have been carried out. iii. The ultrasonic water meters have been adopted after approval of the Technical Working Group which comprises of representation from all expert O&M agencies. Furthermore, a technical comparison is attached for reference	Noted

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
	have accepted the metering system then these may be converted to AMR system. iv. The operation and especially the maintenance of the sophisticated water meters and equipment may be a challenge for MCs especially when the consumers have a trend not to accept the metering of water. In that case they may have a trend to damage the meters. In case of mechanical water meters the meters readers will move from door to door to collect the readings. Any damage or malfunction can be easily noticed by them whereas in case of remote data collection it may not be possible. v. AD should give due consideration to the above pointed out issues and revise the PC-I on merits.	indicating that the ultrasonic water meters are the optimum option among mechanical, ultrasonic and electromagnetic water meters.	
16.	"Intermingling of the PC-I and appendices" i. The PC-I has been intermingled with the appendices and annexures. This is giving difficulty in appraisal of the project and is against the norms of PC-I preparation. ii. The PC-I should be a separate documents and the Annexures and appendices should be placed at the end of PC-I by giving references in the PC-I. Intermingling of these documents should be avoided.	The PC-1 available with the P&D board is the auto generated copy of the SMDP portal which could not be modified or altered by the PICIIP. For ease, an additional copy as originally prepared by the PICIIP has already been provided to the P&D Board	Noted
17.	Missing items of the PC-I Following item in the PC-I are missing: 1) Results based monitoring indicators 2) M)E Plan 3) Risk mitigation plan 4) Procurement plan	The requisite documents are attached	Noted
18.	At page 557 "Abstract of cost" i. The contingencies should be reduced to 2%. ii. 1% charges for Non-CPEC project should be deleted. iii. Public awareness charges should be deleted.	i. Given the unique nature of the project, 3% contingencies is essential and is therefore requested for approval. ii. Instant project is International Competitive Bidding project so any international bidder can also participate in the Bidding Process. This 1% cost has been taken in compliance with the SOPs issued by the Home Department Government of Punjab vide Letter No. SO(CS)2-18/2023 dated 23.09.2024. iii. 0.25% for public awareness is critical to the project's success as it involves metering of an essential commodity which is being historically charged on flat rates.	Noted
19.	It is observed that the gestation period of the project is 12 months whereas it is	The project was anticipated to be awarded by Mar-2025 and thus the gestation period is	Noted

Sr. No	COMMENTS OF P&D	Reply of LG & CDD /PICIIP	Remarks
	mention that March 2026. Same needs to corrected	mentioned as Mar-2026. Now the project is anticipated to be awarded by June-2025 with anticipated completion by June-2026.	
20.	Contingency may be reduced to 2%.	Already replied under Sr. No. 18 above.	Noted
21.	1% for non CPEC charges need to be justified.	Already replied under Sr. No. 18 above.	Noted
22.	0.25% awareness charges is to be deleted	Already replied under Sr. No. 18 above.	Noted
23.	Rates of NS item are to be rationalized	Already replied under Sr. No. 11 above.	Noted

24. Recommendations:

The scheme is placed before PDWP, for consideration, at a total cost of **Rs. 422.83/- million** with gestation period 12 months till March, 2026.