

Local Government & Community Development Department



Punjab Cities Program
Situation & Gap Analysis
of
Municipal Services infrastructure & service delivery
in
Kot Addu Town



Punjab municipal Development Fund Company

Section-1 City Background

1.1. Status of the Town

Kot Addu is tehsil headquarter under the control of Muzaffargarh District located in the southern part of Punjab province. The town is located in flood plain of River Indus at its left bank and the lands around this town are affected by flood water when the Indus River goes in very high floods. The Town is located on Multan-Attock- Rawalpindi section of railway track and serves as a junction wherefrom the train service is available for Multan, D.G. Khan, Attock and Rawalpindi.

The tehsil of Kot Adu is a prominent commercial and industrial hub and under mentioned industries are located in this zone;

- Pak Arab Oil Refinery (PARCO)
- Kot Adu Power Company
- Lal-Peer Thermal Power Station
- Sheikho Sugar Mills
- Fatima Sugar Mills
- Gillani flour Mills

1.2. Location

Kot Addu Town is located at east of the Indus River at distances of about 100 km from Multan, 80 km from D.G.Khan, 60 km from Muzaffargarh, 60 km from Layyah and 16 km from Taunsa Barrage.

The area around the Town is a flat flood plain and is ideal for agriculture. Two main canals (Muzaffargarh Canal, and Taunsa-Panjnad link canal) off taking from Indus River, are flowing at the northern and eastern side of this Town

The geographical coordinates of the Town are: N 30° 28' and E 70° 58'.

1.3. The Climate

Kot Addu has an arid climate with very hot summers and mild winters. The highest ever recorded temperature was approximately 51 °C, and the lowest recorded temperature was approximately –1 °C. The average rainfall is roughly 127 millimeters.

1.4. Demographic status

The population census report of year 2017 has not been published by Government of Pakistan. However the provisional data available for this census shows the population of 129,703 persons for the city within municipal limits. A land scan process was done to estimate the population of entire inhabited areas of city in close approximation which was found to be 221,477 persons in the year 2017 with an annual growth rate of 3.7% and it is expected to rise to 318,376 persons in the year 2027. Some scanty inhabitation around the town has developed outside the municipal limits of the city and the municipal limits may need to be extended.

1.5. Data collection

The formats for the data collection about the municipal services were designed and sent to the Municipal Committee. After receipt of these formats, the city was visited to;

- 1) Verify and correct the data provided by the Municipal Committee.
- 2) Update the descriptive maps of all the services in consultation with MC staff & Public Health Engineering Department local staff.
- 3) Identify the required improvements and extension of the municipal services infrastructure.
- 4) Identification of Public Private Partnership projects already executed.
- 5) Identify the capacity of the key officers to undertake the PPP projects and collaborative projects with other government agencies and MCs.
- 6) Public opinion surveys regarding the delivery of municipal services.

1.6. Situation analysis and Gap analysis

Situation analysis of the existing municipal services infrastructure and the quality of service delivery was done. Gap analysis was done to identify the problems, bottlenecks and shortcomings in the infrastructure itself and its operation & maintenance for each municipal service along with the correction/updating of descriptive maps which has been described in the following sections.

Section-2 Water supply system

2.1. Existing situation

Kot Addu was equipped with water supply system in the year 1975 which was closed after 5-6 years because the residents did not take connections because the town is located in fresh water zone recharged by River Indus from the west side and two main canal on the north and east side

PHE Department should not have gone for execution of another water supply system over here as it was not need based. In spite of closure of the old scheme and without investigating the reasons thereof, PHE Department planned a comprehensive water supply system in the Town which was administratively approved for Rs 188.781 million on 19.10. 2007 and technically sanctioned for Rs 206.581 million.

The scheme was funded for four years from 2007 to 2011. Total amount of Rs 202.280 million was released out of which Rs 197.283 million were utilized and after that the funding was stopped leaving some components of the system as incomplete. The system was not taken over by Municipal committee till to date. Different enquiries was conducted with respect to its non-completion and non-commissioning but no funds were provided to make the system operative. As such the heavy amount of over 197 million has been blocked/wasted without any benefits to the residents.

The scope of work for the scheme along with works completed is given below;

S.N.	Description of Work	Total scope of work	Work completed	Left over work
1	Tube well	20 Nos	20 Nos	0
2	Pump House 12x12'	20 Nos	20 Nos	0
3	Pumping Machinery			
	For Tube Wells	20 sets	20 sets	0
	For Intermediate pumping station (IPS)	15 sets	15 sets	0
4	Transmission Mains 16" to 32" dia AC pipe	33655 Rft	32913 Rft	0
5	Distribution system	250578 Rft	244967 Rft	0
7	Staff Quarter	3 Nos	1	2 Nos
8	Boundary wall	1300 Rft	1252 Rft	0
9	OHR 50,000 Glns	3 Nos	1 No	2 Nos
10	GST 263,000 Glns	6 Nos	5 Nos	1 No
11	Railway crossing	2 Nos	1No	1 No
12	Ext: Electrification for Tube wells	Power connections were installed on 23.3.2012 and were disconnected on 15.10.2013 due to non-payment of energy bills. The transformers and energy meters were removed by MEPCO.		
13	Power connections on IPS			
a	IPS in Boys High school	Power connection was installed on 11 th April 2012. The transformer did not work and was removed by MEPCO on 19 th April, 2012 which was never replaced.		

b	IPS in Kauray Khan	Power connection was installed on 7 th May, 2014 and disconnected on 11 th November, 2014 because of nonpayment of bills.
c	IPS Iqbal park	PHED was to provide 400 KVA transformer which was never provided due to short funding and hence the power connection was never installed.

2.2.1 Water supply Zones

The city is divided into four zones, Zone-A, Zone-B, Zone-C & Zone-D with respect to intermediate pumping stations and is shown in the map.

2.2.2 The water source & storage

The city has contaminated shallow sub soil water which is unfit for human consumption. Muzaffargarh canal is flowing at the eastern periphery of the city with adequate discharge. 20 Nos. tube wells have been installed on this canal near Noor Shah Road.

Right bank of Muzaffargarh Canal	10 Nos
Left bank of Muzaffargarh Canal	10 Nos
Total No of tube wells	20 Nos

All of these tube wells and pump houses stand completed. Water from these tube wells was to be pumped into the ground storage tanks constructed at three locations and was to be distributed through overhead reservoirs and a network of distribution system;

S.N.	Location	Ground storage tanks					Overhead reservoirs				Reasons for non-construction of the reservoirs
		Provision in scheme			Actually constructed		Provision in the scheme		Actually constructed		
		Nos	Capacity each (gallons)	Total capacity (gallons)	Nos	Total capacity (Gallons)	Nos	Capacity (gallons)	Nos	Total capacity	
1	Kauray Khan	1	200,000	200,000	1	200,000	1	50,000	0	0	Bearing capacity problem at site
2	Iqbal park	3	200,000	600,000	2	400,000	1	50,000	1	50,000	Site for one GST not available
3	Boys high school	2	200,000	400,000	2	400,000	1	50,000	0	0	Site for one OHR not available
	Total	6		1,200,000	5	1,000,000	3	150,000	1	50,000	
Not constructed		01 No with capacity of 200,000 gallons					2 Nos with capacity of 50,000 gallons each				

2.3 Problems and gaps in the system

The scheme is facing under mentioned two main issues, which are required to be resolved.

2.3.1 Commissioning of the scheme

- The scheme became unfunded in the year 2011-12 when it had neither been completed nor commissioned. Some components of the scheme such as one GST, two OHRs and two

staff quarters could not be completed due to short funding and that is why the scheme remained incomplete.

- These non-constructed components are required to be completed for commissioning of the scheme.
- The main bottlenecks in the commissioning of the scheme are the power connections on tube wells and intermediate power stations. At this stage the power connections are neither available on tube wells nor on IPS and that is why over Rs 197 million investment is at stake without any benefits to the residents. The power connections will have to be reinstated on tube wells as well as on three intermediate pumping stations, which will involve lot of additional costs.

2.3.2 Handing over of the system to Municipal Committee Kot Addu

a) Fresh underground water in Kot Adu

As stated above Kot Addu town is located on the left bank of River Indus in its flood plain and hence the subsoil water is quite fresh with shallow spring level but contains contamination because of multiple factors. Harnessing of shallow water is not so costly and that is why every house is using shallow underground water through their own motorized pumps without knowing its effects on their health.

b) Undertaking by defunct TMA Kot Adu

The defunct TMA Kot Addu had given an undertaking vide their No 398/TMO/IMA dated 5.10.2006 that the scheme would be taken over after completion by PHED subject to the condition that the roads and street wherein these pipelines will be laid should be restored to their original condition.

c) Possibility of taking over of the scheme by MC Kot Addu

MC is reluctant to take over the scheme because damages to the water supply pipelines have taken place during the installation of gas pipe lines. Further due to fresh ground water, the inhabitants are not convinced to take the connections and due to poor financial condition MC is not able to bear the O&M expenses of the scheme.

2.4 Consequences of further investment on the system

After discussions with public representatives, key MC Officers and residents of the Town, it has been concluded that the investment already done on this scheme is a wasteful expenditure as no resident is willing to take the connection. Completion and commissioning of the system will require large expenditure and even after doing that residents are not expected to take this water for their use.

2.5 Recommendations

- Under the circumstances further investment on this scheme will be again a wasteful expenditure and no agency should do that. However instead of that, ultrafiltration plants can be installed wherefrom potable water for drinking purposes can be taken by the residents. As informed by MO (I&S) the existing two filtration plants maintained by MC and one by PARCO are working satisfactorily and people are fetching their drinking water needs from these plants.

- The existing installations of the scheme are being stolen away and it is apprehended that all of these will be lost with passage of time. Hence it is recommended that the installations which can be reused either by MC or by PHED should be removed from site and kept in stores against some inventory by the removing agency. This includes the pumping machinery of tubewells & intermediate pumping stations with allied piping, specials and electrical components, collector and transmission mains and any other removable component. In this way some of the investment can be saved. The matter is required to be taken up with Government for saving the apprehended losses.

Section-3 Sewerage system

3.1. Existing situation

3.1.1. Coverage

The Town has very less coverage of Sewerage System wherein only the main and branch sewers have been laid and the lateral sewers have been provided in very small area of the Town. The Town is mostly served by the surface drains discharging into the main and branch sewers.

The sewerage system is drained through four disposal stations which are in poor condition. Most of the streets and bazars are flooded with waste water and particularly the area along the railway line is always under waste water stagnation. Most of the waste water is being used for broad irrigation and some of it is being discharged in the Sultan Distributory passing through the Town.

No gully grating chambers have been provided in the system and the waste water is being discharges without treatment.

3.1.2. Sewer lengths

The length of old sewers as per information given by the Municipal Committee, are given below; these are approximate lengths and may vary if actually measured at site;

Table3.1 Approximate lengths of existing sewers

Sewer dia. (inch)	9	12	15	18	21	24	27	Total length in Km
Length in Km	0	3.25	0.50	3.0	0.25	0	0	
Sewer dia (inch	30	33	36	42	48	54	66	7 Km
Length in Km	0	0	0	0	0	0	0	

3.2. Existing pumping / disposal stations

The detail of each pumping station already working in the city is given below;

Location	No. of collect Tanks	No. of pumps	Discharge each (cusecs)	Total discharge (cusecs)	Motor BHP	Working status	Force main /S. carrier			Ultimate disposal
							Size (inch)	Length (ft)	Condition	
Pattal Disposal	03	04	4.0	18.5	25	Poor	2'×2'	1900'	Fair	Broad irrigation
		01	2.5		15					
Mandi Maweshi	02	02	4.0	12.0	25	Poor	2'×2'	400'	Fair	Sultan Distributory
		01	4.0		60					
Noor Shah	01	02	4.0	12.0	40	Fair	12'' & 24'' dia	6000'	Poor	Broad irrigation
		01	4.0		40					
Zia Colony	01	01	1.0	1.5	20	Poor	2'×2'	1200'	Poor	Broad irrigation
		01	0.5		15					

Churkal road	01	01	0.25	0.25	10	Poor	2'×2'	500'	poor	Noor shah disposal works
Dupsari (abandoned)	01	02	2.5	5.0	15	Poor	2'×2'	100'	Poor	Broad irrigation

The pumping units shown in blue (4 Nos) are the centrifugal pumping units whereas all other (14 Nos) are submersible pumping units. Pumping unit from Dupsari disposal station has been removed. Most of the pumping machinery has been repaired frequently because the submersible pumping units do not suit the local conditions e-g most of the system comprises of open drains and the submersible pumps get choked with the floating materials. Ultimately the motors experience frequent damages.

Pumping station at Dhupsari is being operated through a diesel dewatering set which will not be effective and ultimately it will also choke the sewers.

3.3. The main issues and problems in the system

The main problems and bottlenecks confronted by the city are given below:

3.3.1. Damaged & surcharging sewers

Some of the sewers and sullage carriers have been choked or damaged and are resulting in surcharging and overflowing of waste water thus damaging public as well as private property. These sewers will require replacement. The detail is given below:

S.N.	From	To	Component	Length (feet)	Size (inch)	Problem	Solution
1	Durani Chowk	Sherazi street	Sullage carrier	500	24"×24"	Damaged	Replacement
2	Sherazi street	Pattal road disposal works	Sewer	4,000	12"	Choked	Replacement

3.3.2. Areas flooded with waste water

Under mentioned areas of the city are usually subjected to waste water flooding because of sewer surcharging and overflowing.

1- Ghaman Shah	2- Area along the railway line	3- Zia colony
4- Buzdar town (partly)	5- Madni colony	6- Gulshan Uman
7- Canal colony	8- Sindhi basti	9- Scheme No.5
10- Naqdad (partly)	11- Ward no.3 & 4	12- Basti Lalazar Colony

3.3.3. Un-served areas

The following areas of the city have not been provided with sewerage system as yet.

1- Dhupsari (Partly)	2- Basti Chananwali	3- Basti Gadion wali
4- Mandi Mawaishian	5-, Basti Naqad Abad (partly)	6- Mari wala
7- Ward No.7	8- Millat colony	9- Stadium colony
10- Tibba Sultan wala	11- Nooray wala Mohallah	12- Zeshan colony
13- Ghareeb Abad	14- Mohallah Gar	15- Chah Badar wala
16- Chah Shamaswala	17- Pattal basti	18- Maulana basti (partly)
19- Basti Maujuthi	20- Munshiwali basti	21- Gulshan Iqbal (partly)
22- Ghari Quraishwali basti	23- Lodi town	

3.4. Problems in the system and the requirements

Under mentioned repairs and replacement in the components of the existing sewerage systems are required for functioning of the system although provided in very small area of the Town.

3.4.1. Disposal/pumping stations (Repairs required in the civil structures)

Sr. No.	Location	Repair of Collecting tanks	Repair of screening chambers	Repair of pump houses
		NO'S	NO'S	NO'S
1	Pattal Disposal	3	1	2
2	Mandi Maweshi	2	1	1
3	Noor Shah	1	1	1
4	Zia Colony	1	1	1
5	Dupsari Disposal	1	1	1
6	Churkal road	1	0	New construction required
	Total	9	5	6

3.4.2. Pumping machinery

Location	No. of pumps	Discharge each (cusecs)	Motor BHP	Replacement of pumping units
				Nos.
Pattal Disposal	04	4.0	25	02
	01	2.5	15	-
Mandi Maweshi	02	4.0	25	01
	01	4.0	60	01
Noor Shah	02	2.5	15	-
	01	4.0	40	01
Zia Colony	01	4.0	40	01
	01	1.0	20	01
	01	0.5	15	01

Churkal road	01	0.25	10	-
Dupsari (abandoned)	02	2.5	15	-
Total Nos.				08

Blue rows show centrifugal pumping units. The condition of the pumping machinery is very poor because of frequent repairs. Submersible pump motor winding is not durable which is one of the major cause of heavy expenditure on sewerage system.

3.4.3. Desilting of sewers, collecting tanks and sullage carriers

- 1) Manual desilting of sewer manholes is being done by MC but it is not so effective unless the silt from the barrel of the pipes is removed. For this purpose 2 No sewer desilting winch machines are required to eliminate the flooding of sewer line.
- 2) MC is not de-silting the collecting tanks due to which the sewer lines are being choked. Hence winch machine for the de-silting of collecting tanks will be required to keep the collecting tanks free of silt.
- 3) Similarly the sullage carriers are not being de-silted properly by MC because of dearth of labor and cleaning machinery. These are also responsible for flooding of waste water in the city. Hence at least 01 No back-hoe machine for the de-silting of sullage carriers is required.

3.4.4. Sucker & jetting machines

01 No sucker and 01 No jetting machines are being used by MC to remove blockades and cleaning of sewers. The sucker & Jetting machine are quite old and requires repairs along with supply of pressure pipe for Jetting machine.

3.5. Completion of the incomplete disposal station

The work on the disposal station near crossing of the Qureshi More Road with Sultan Distributary in the southern part of the Town, was taken in hand which has been stopped because of litigation. Waste water is being pumped from the last manhole which is surcharging and choking the 18" dia outfall sewer. Solution to this issue should be sought to save the sewer. The waste water is presently being disposed –off in the Sultan Distributary.

3.6. Provision of gully grating chambers

No gully grating chambers have been provided in the sewerage systems to trap the silt and the floating materials. As such all these materials are flowing into the sewers along with heavy quantity of silt and is the main reason of chocking the sewers.

The gully grating chambers to connect the surface drains with the sewers are required to be provided in the entire sewerage system.

3.7. Submersible pumping units

- 14 Nos submersible pumping units have been installed in various disposal works which a being damaged frequently because of jamming of pumps due to entry of the floating materials in the pumps. This inducts high currents in the motor resulting in their frequent damages. This type of motor costs high for rewinding and drops in efficiency

due to poor rewinding by the locals because it requires higher technology not available locally.

- The decision of installation of the submersible pumping units in a sewerage and drainage system comprising of mostly the surface drains, was not correct as these systems cannot afford these types of pumps. The problem will persist until these units are changed.

3.8. Sullage carriers

The sullage carriers of all disposal works need repairs through certain lengths which should be got done.

3.9. Extension of the facility to un-served areas

The Town is in a deplorable condition as far as drainage of waste water is concerned. A comprehensive sewerage system is required to be designed and executed to resolve the issue of flooding in the served as well as un-served area.

3.10. Waste water treatment

Waste water from all zones is being disposed-off without treatment which is polluting crop, and water bodies. Waste water treatment plants are required to be constructed to lower down the BOD level as per National Environmental Quality Standards (NEQS).

3.11. Consumer connections

No consumer sewer/drain connection survey in the Town has been conducted up till now. Hence the exact number of these connections cannot be estimated at this stage.

3.12. Tariff structure

MC is charging waste water tariff since 2013-14. However the rates for the same have been revised to Rs. 500 & 1000 per annum for domestic and commercial connections respectively in 2018. MC Officers need to give attention to collection of revenue to reduce the subsidies of the service.

3.13. Operation & maintenance cost vs revenue recovery

The operation & maintenance cost of the sewerage system for the last five years along with the revenue recovery is given below;

O&M Expenditure vs Revenue Recovery (million Rs) (includes manpower, electricity, repairs/replacement & supplies)						
Year	2013-14	2014-15	2015-16	2016-17	2017-18	Total for 5 years
O&M expenditure	14.773	18.598	19.612	16.312	28.723	98.018
Revenue earned	0.166	0.098	0.105	0.056	0.6	1.025
Percentage recovery vs O&M cost	1.12%	0.53%	0.54%	0.34%	2.38%	1.045%
Subsidy injected	14.607	18.50	19.507	16.256	28.123	96.993

3.14. Manpower deployed

The manpower deployed presently for operation & maintenance of the system against the total regular strength of 40 persons, is given below.

Pump operators	21
Drivers	2
Supervisors	1
Sewer men	8
helpers	2
Total	34

MC has sufficient manpower because of small sewer network.

3.15. Service delivery level

The service delivery is not satisfactory. Firstly the sewerage system has been provided in a very small area of the Town and secondly it is not being properly maintained. The service delivery is poor because of;

- Silting up of main sewers.
- Absence of gulley grating chambers which is allowing the silt and the floating materials to enter in the sewers. This forms the main reason for chocking of sewers and flooding of the roads and streets.
- In unserved areas the streets and open spaces are subjected to waste water flooding.

3.16. Remedy to the main issues

Interventions described below are required to be implemented for relieving the flooded areas.

- a) Design and construction of a comprehensive sewerage system.
- b) Rehabilitation of the disposal/pumping stations and sullage carriers for the present till the new system is constructed.
- c) Solution to the incomplete disposal works pending due to litigation.
- d) Construction of waste water treatment plants.

Section-4 Solid waste management

4.1. Existing situation

4.1.1. Available resources

a) Equipment & Machinery

Under mentioned collection and transportation machinery is available with MC to handle the solid waste;

S.N	Equipment/machinery	Total available Nos	In working condition	Requiring repairs
1	Trolleys	4	4	4
2	Tractors	5	5	5
2	Container carrier	2	2	2
3	5.0 m3 containers	12	12	10
4	Front blade tractor	1	1	1
5	Front end loader	1	1	1
6	Water bowsers with tractor	2	2	2
7	Rikshah	12	12	0

The existing machinery is neither sufficient nor cost effective and efficient giving rise to low efficiency of collection and disposal of the waste and as a result of that MC is facing higher waste management cost as well as complaints regarding the insanitary conditions in the city. Efficient and cost effective machinery is needed to increase the efficiency of collection and transportation for improving the sanitary conditions and lowering down the operation and maintenance costs.

b) Manpower Deployed

The manpower deployed for collection, transportation and disposal of the solid waste is given in the table below. As indicated by MC Officers, this manpower is not sufficient to serve the entire city at the given standards.

Slot	Sanctioned strength	Existing strength	Vacant slots	Manpower on Daily wages
Sanitary workers	214	188	26	0
Vehicle drivers	7	7	0	0
Supervisors	1	1	0	0
Sanitary inspectors	1	1	0	0
Others	52	51	1	0
Total	275	248	27	0

The Town has un-satisfactory solid waste management system. Limitation in resources is described as under;

Reasons for poor service

- a) MC is facing shortage of vehicle drivers and other service staff.
- b) The equipment and machinery is neither efficient nor adequate to serve the entire city
- c) No landfill site is available for dumping of solid waste. Currently waste is being dumped in open spaces along railway line opposite Railway Station, near Mumtaz park, along GT road and basti Channan wali which is totally unhygienic.
- d) The waste is being openly dumped without compaction and provision of earth covers which is creating all sort of hazards say; pollution of underground water, vector and vector borne diseases, obnoxious smell and highly insanitary conditions.

4.2. Un-served and partially served areas

The entire city is not served with solid waste collection and disposal. 34% area of the city is fully served, 22% is partially served and 44% is un-served as marked on the map. In partially served areas service is rendered intermittently depending upon availability of manpower and transportation machinery.

a) Partially served areas

No regular service is rendered in the under mentioned areas. The main complaints are attended by sending the machinery & labor once or twice a week.

1- Sanima road	2- Alshams Colony	3- Tibba Karbala
4- Nooray wala	5- Bismillah Colony	6- Ghareeb Abad
7- Zia colony	8- Bhutta Colony	9- Dhup sari
10- 5-Marla Scheme	11- Khark wala	12- Khyban e faiz
13- Basti Naqad Abad	14- Madrsa Kashif ul aloom	15- Old sabzi mandi
16- Larr wala	17- Tableegi Markaz	18- Sindhi Basti
19- Madni town	20- Buzdar town	21- Lodhi town

b) Unserved areas

Under mentioned areas are still unserved;

20- Basti Bahadri	21- Mohallah Bahadri wala	22- Mohallah Chah Hoot wala
23- Pattal Basti	24- Mohallah Chah Badar wala	25- Mohallah Mari wala
26- Mollana Chowk	27- Basti Kat	28- Basti Chaman wali
29- Basti Godian wali	30- Basti Laar	31- Monshi wali basti
32- Basti Manjuthi	33- Mohallah Farooq e Azam	34- Ghari Quresh wali basti
35- Sindhi Basti	36- Kapco colony	

4.3. Solid waste Generation & Disposal

The solid waste management efficiency along with present dumping sites are given below;

Total waste generated per day		Total waste collected (Tons)		% Efficiency of disposal	Name of dumping sites with distance in Km from the city center			
Cubic meters	Tons	Cubic meters	Tons		SiteNo-1	SiteNo-2	SiteNo-3	SiteNo-4
104	52	46	23	44%	Along railway line opposite station	Near Mumtaz Park	Along main road near canal colony	Near Basti Channan wali
Distance from city center (Km) [*]					0.5-km	0.2-Km	0.3-Km	1.0 Km
Open dumping= O Landfill= LF					O	O	O	O

*All these dumping sites are almost within the Town.

4.4. Landfill development

Approximate area of 10 acres will be required for the next 10 years for construction of landfills for safe and sanitary disposal of the solid waste of the Town. MC is trying to procure land in surroundings of the Town for landfill. The suitability of the landfill site will be determined after detailed surveys and design of the project by catering the requirement of the environmental standards in vogue in Punjab.

4.5. Vehicle parking Area:

The detail of the site available for construction of parking area for the equipment and machinery is given below;

Location	Description	Unit	Area
Near Stadium Colony	Existing and proposed vehicle parking	Kanal	2

4.6. Levying of sanitation fees

No sanitation fee has been levied by MC and the entire expenditure given below is being met from MC's own resources and the PFC share being given by Provincial Government.

4.7. Solid waste management financials (million Rs)

Year	2013-14	2014-15	2015-16	2016-17	2017-18	Total for 5 years
O&M Expenditure	70.670	74.909	81.973	42.680	62.189	332.421
Sanitation fee/month per house hold	0	0	0	0	0	0
Subsidy injected	70.670	74.909	81.973	42.680	62.189	332.421

MC should levy the sanitation fee to meet the expenditure on solid waste management or at least to lower down the subsidy presently being injected.

4.8. Service delivery

- At the average, the service delivery level is not good with 44% efficiency. Some portion of the city is either un-served or partially served because of shortage of sanitary staff and machinery & equipment whereas the existing machinery and equipment is inefficient having costly operation and maintenance.
- Currently waste is being dumped in open spaces along railway line opposite Railway Station, near Mumtaz Park, along Layya-Qureshi More road and basti Channan wali which are located almost within the Town.
- The dumped waste is resulting in totally unhygienic and insanitary conditions right in the Town by creating hazards like obnoxious smell, sub soil water pollution and breeding of vectors causing water borne and vector diseases.

Section-5 Roads

5.1. City Roads Hierarchy

The roads in the city and emerging from the city have under mentioned hierarchy;

S.No	Name of the road	Owner department
1	Kot Addu Layyah road	Punjab Highway Department
2	Kot Addu Qureshi More road	Punjab Highway Department
3	All other roads in the city	Municipal Committee roads

5.2. Detail of the MC roads

The inventory of the major roads belonging to Municipal Committee Kot Addu with name, approximate length, paved width, type of pavement and condition has been given in table below:

SN	Name of road	From	To	TST, asphalt	ROW (ft)	Paved width (ft)	Approx. length (Km)	Condition
1	Bypass Noorawala	Tibba Sultanpura	DG Khan Railway Phatak	T.S.T	20	12	2.0	Poor
2	Phattak Road	Bhallah Howi Chowk	Mudrasa sulfiwala	T.S.T	25	12	3.0	Poor
3	Bukhi Road	Noor Shah Chowk	Sindhi Basti	T.S.T	40	16	1.5	Poor
4	Sindhi Basti Road	Sindhi Basti	Sabzi Mandi	T.S.T	20	12	6.0	Poor
5	Pirhar Road	Girls College	Pattal disposal	T.S.T	20	12	2.0	Poor
6	Basti Katwali Road	Peer Bashir Market	Basti Kat	T.S.T	20	12	1.0	Poor
7	AC office link Road	DSP office	Madrassa Mazaharul aloom	T.S.T	14	10	1.0	Poor
8	Koray khan road	Koray khan Chowk	GT Road	T.S.T	12	12	1.0	Poor
9	Noor Shah Road	Thana Chowk	Dupsari	Asphalt	50	30	5.0	Good
10	Nooray wala Road	Nooray wala Phatik	Khaga Chowk	T.S.T	20	12	1.5	Poor
11	Gamman Shah Road	Gamman Shah	Tajamal wala School	T.S.T	20	12	1.0	Poor
12	Bokhari Road	GBS	Arra Khadim Shah	T.S.T	20	14	1.0	Poor
13	Mini Bypass	Shumali Phatak	Kali Pull	T.S.T	30	20	3.0	Poor
14	Doctors road	GT Road	Bukhi Road	T.S.T	20	12	1.0	Poor
15	Street Ch. Attulhaq	GT Road	Bukhi Road	T.S.T	20	12	1.0	Poor
16	MNA Street	Mini Bypass	GT Road	T.S.T	14	12	0.5	Poor
17	Shah Shamas Road	Chakardari road	GPS Akbar nagar	T.S.T	20	12	0.5	Poor
18	Chakardari road	DG Khan Railway Phatak	Superior college	T.S.T	30	14	1.5	Poor
19	Manzoor Tawana road	Stadium	Noor Shah road	T.S.T	20	12	5.0	Poor

5.3. Existing situation and gaps

Only one road named as Noor Shah Road is in good condition and all other primary and secondary roads/streets need rehabilitation and resurfacing as given below;

5.4. Resurfacing & Rehabilitation of roads

Three roads in the Town with TST wearing coat need resurfacing. Rest of total of 15 roads need rehabilitation including widening and improvement whereas Noor shah road is in good condition recently rehabilitated by Punjab Highway Department.

5.4.1. Resurfacing of roads

The below given roads have developed potholes and broken edges and at some of the locations these are totally damaged. These roads require repairs and resurfacing.

Sr. No	Name of road	ROW	Length	Width
		Ft	Km	Ft
R1	Bypass Noorawala	20	2	12
R2	Pattal road	25	3	12
R3	Nooraywala road	20	1.5	12

5.4.2. Widening & improvement of roads

Below given roads need widening and improvement as indicated by MC.

Sr.#	Name of road	From To	ROW	Length	Road width	
					Existing	Proposed
					Ft	Ft
W1	Sindhi Basti Road	Sindhi Basti to Sabzi Mandi	20	6.0	12	16
W2	Pirhar Road	Girls College to Pattal disposal	20	2.0	12	16
W3	Basti Katwali Road	Peer Bashir Market to Basti Kat	20	1.0	12	16
W4	AC office link Road	DSP office to Madrassa Mazahar ul aloom	14	1.0	10	14
W5	Koray khan road	Koray khan Chowk to GT Road	12	1.0	12	12
W6	Bukhi road	Nooray Shah chowk to Sindhi basti	40	1.5	12	16
W7	Gamman Shah Road	Gamman Shah to Tajamal wala School	20	1.0	12	16
W8	Bokhari Road	GBS to Arra Khadim Shah	20	1.0	14	16
W9	Mini Bypass	Shumali Phatak to Kali Pull	30	3.0	20	24
W10	Doctors road	GT Road to Bukhi Road	20	1.0	12	16
W11	MNA Street	Mini Bypass to GT Road	14	0.5	12	14
W12	Shah Shamas Road	Chakardari road to GPS Akbar nagar	20	0.5	12	16

W13	Chakardari road	DG Khan Railway Crossing to Superior college	30	1.5	14	16
W14	Manzoor Tawana road	Stadium to Noor Shah road	20	5.0	12	16
W15	Street Ch. Attaulhaq	GT road to Bukhi road	20	1.0	12	16

Section-6 Parks and open spaces

6.1. Existing situation

- a) Kot Addu City has four parks namely Iqbal Park & Gulshan Mumtaz Park, Tayyaba Park & Tooba Park and all of these parks are in poor condition. The recreation facilities are either missing or maintained in a very poor condition.
- b) No open space is available in the Town.

6.2. Rehabilitation of the existing parks

The detail of existing facilities in all four parks along with those which need to be rehabilitated are given in the table below. On the other hand some important facilities are missing and need to be provided for giving recreation opportunities to the resident of this far flung Town. The detail of all the required interventions to be made in these four parks for upgrading them is given blow;

S No	Name of Park	Iqbal Park	Gulshan Mumtaz Park	Tayaba Park	Tooba Park
1	Location	Layyah-Qureshi More road	Near South Railway Phathak	Noor Shah Road	Near northern railway crossing
2	Area of Park in acres	0.5 acres	1.04 acres	1.13 acres	2.4 acres
3	Plantation of ornamental trees	Required	Required	Required	Required
4	Provision and fixing of Brackets and lights on the existing light poles	Required	Required	Required	Required
5	Provision and installation of Service cables and LT Control panels	Required	Required	Required	Required
6	Toilets & toilet fixtures	Required	Required	Required	Required
7	Irrigation system	New system required	New system required	New system required	New system required
8	Provision of sprinkler lawn watering system	Required	Required	Required	Required
9	Lakes	No lake is there.	No lake is there.	No lake is there.	No lake is there.
10	Swings & outdoor games	Not required due to space issue	Installation of new children outdoor games	Installation of new children outdoor games	Installation of new children outdoor games
11	Benches	Provision of new concrete benches			
12	Sewerage system	Provision of new drainage system for the proposed toilets			
13	Drinking water	Provision of drinking water facility			
14	Cafeteria	Construction of cafeteria in four parks			
15	Parking lots	Rehabilitation of existing parking lots to provide more space and parking facilities			
16	Restraints for entry of the	The entry gates of four parks should be provided with podiums			

	vehicles in the parks	and stairs on both sides to add beauty to the entrance and provide a restraint for entry of the vehicles which should not be allowed in the parks.
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6.3. Conversion of open spaces to parks

Municipal Committee Kot Addu currently has no open space for conversion in to Parks. Recently MC Kot Adu removed the encroachments in some areas of the Town and status (ownership of land) of these locations is not yet clear. MC intends to construct park on these lands subject to the availability of land from encroachment sites.

6.4. Expenditure on Maintenance of Parks

Under mentioned expenditure has been incurred on the upkeep of parks during the last 5 years.

(All figures in million Rs.)

Year	2013-14	2014-15	2015-16	2016-17	2017-18	Total for 5 years
O&M cost	2.876	4.192	5.004	3.076	3.568	18.716
Revenue earned	0	0	0	0	0	0
Subsidy injected	2.876	4.192	5.004	3.076	3.568	18.716

Section-7 Street Light

7.1. Existing situation

7.1.1 Lights in wards and streets

The ward wise street light detail in the Town is given below;

Ward No	Area	LED Bulb (30W)	Nos Operational	Mounting of lights
1	Mauza perhar sharqi shamali & janobi	15	8	On MEPCO pole
2	Chaker dari Road Gaman shaha Road	76	5	do
3	Seanema Road Mohala Gareeb Abad	82	4	do
4	Ferdous Seanema Road Gali Bilal Masjid	103	20	do
5	Mauzo peer har Sharqi gali shafee kanoul	56	8	do
6	Shaha Jamal Road basti cheer waqiya wali	50	9	do
7	Mouhala lal begi kipkiou Road	20	5	do
8	Thana Road Douctor manzoo wali gali	62	9	do
9	Itfaq Colony magreeb GT Road	25	7	do
10	Gali chaki babu Kahlil qaber stan laru wala	30	10	do
11	Gali Nawaz Muhammad arain taiba Park	26	5	do
12	Gali Sulman Pathan wali fundi Mausqi Road	100	30	do
13	Gali laru wali Rehmat Colony	26	9	do
14	Chah kaly wala Mauzo talai Hadir	28	5	do
15	Girls College Road Muncipal Stadum Road	30	10	do
16	Gali Doctor faiz gali Hafiz Barkat	30	6	do
17	Coucha Safeer Abas Gali Masjid gulzar	26	10	do
18	Gali Abdul gani Masjid gulzar Hawala ftahir ul alum	40	12	do
19	Falahi bazar gali shawala lal huwali	32	10	do
20	Railway Road mashraqi shawala gali lal huwali	70	25	do
21	Gali kerpara wali faraq Road	52	15	do
22	Gali Nazeer khouja Doctor faiz gali	70	25	do
23	Moudarsa anwaz islam Girls College Road	265	150	do
28	Gali Capatan wali gali tika hayat	70	30	do
24	Shamali Rulway Bhatak Magrabi rulwey	62	20	do
35	Nala kaushan road Magrabi rulway road	20	-	do
26	Gali Mudarsa Anwar islam Nazeer khan gali	28	10	do
27	Nala Hazar Roa Nala kaushan Road	18	10	do
	Total	1512	467	do

7.1.2 Street light on main roads

Street light facility on main roads of the Town is given below;

Sr. #	Name of road/street	Type of lights	No. of Lights
1	Railway Road	Energy saver bulb	5
2	Thana Chowk to Noor Shah Chowk	LED bulb	7
3	Bukhari Road	LED bulb	80
4	Tibba karbala road	Energy saver bulb	16
5	GT Road from THQ Hospital Road to PSO Petrol Pump	Energy saver bulb	65
		Total	173

7.2 Replacement/ Repair of the existing street lights

7.2.1 Replacement/ Repair of brackets, luminaries and other allied equipment

The lights on the under mentioned roads need repairs/ replacement because of importance of the roads

Sr. #	Name of road/street	No. of Lights
R1	Railway Road	5
R2	Thana Chowk to Noor Shah Chowk	7
R3	Bukhari Road	80
R4	Tibba karbala road	16
R5	GT Road from THQ Hospital Road to PSO Petrol Pump	65
	Total	173

Provision of new street lights

MC Kot Addu requires to provide new street light on the under mentioned main roads of the Town;

Sr. #	Name of road/street	Length (Km)
N1	GT Road from THQ Hospital Road to T-point Chowk	2.5
N2	Noor Shah Chowk to Sabzi Mandi Town	1.1

N3	GT Road from Tooba Park to Bukhari Chowk	2.3
N4	Main Bazar Road	0.4
N5	Pattal Road from Dorni workshop Chwok to Pattal Basit	1.8
N6	Bukhari Chowk to Layyah Phatak	0.4
N7	Mandi Mawashian Road from Noor Shah Chowk to Sindhi Basit Chowk	1.6
Total length in Km		10.1

7.3 Expenditure on street lights

Under mentioned expenditure on the Operation & Maintenance of the existing street lights has been incurred by MC Kot Adu during the last 5 years. This includes the energy cost, manpower cost and cost of repairs and replacements.

(All figures in million Rs)

Year	2013-14	2014-15	2015-16	2016-17	2017-18	Total for 5 years
O&M Expenditures	4.656	4.90	5.017	2.09	9.09	25.753

Section-8 Public Private partnership projects & Collaborative projects executed by MC

8.1. Execution of the projects

As informed by CO MC no project in the Public Private Partnership mode & Collaborative mode was executed by the Municipal Committee or defunct TMA Kot Addu. As such the capacity of the key officer and staff in this respect is not there.

8.2. Capacity of the MC staff for handling such projects

MC staff has no capacity to plan, design and execute the projects in PPP mode or collaborative mode.

Section-9

Budgetary provisions on development of services infrastructure & O&M Cost

9.1. Development expenditure

The expenditure incurred on the development projects from year 2013-14 to the 2017-18 & source of financing is given below

(All figures in million Rs)

S.No	Description	2013-14	2014-15	2015-16	2016-17	2017-18
		Actual	Actual	Actual	Actual	Budgeted
A	Expenditure on Development Projects	128.377	124.318	71.81	27.697	60.00
	Source of Financing of Development Projects	Own source revenue	ADP grants	PFC share	PPP	Others (Specify)
		Yes	Yes	Yes	Nil	Nil
9.2. Expenditure on Operation & maintenance of municipal services The expenditure incurred on the O&M of all municipal services by MC/TMA Kot Addu from year 2013-14 to 2017-18 along with revenue recovered from these services and the subsidies injected to operate these services, is given below;						
B	Expenditure on O&M of services and revenue generated (All figures in Million PKR)					
S.No	Description	2013-14	2014-15	2015-16	2016-17	2017-18
		Actual	Actual	Actual	Actual	Budgeted
1	<u>Water supply</u>	Since 1985 no water supply system was available in this own. As mentioned earlier the system installed in 2011 -12 has never been made functional.				
<u>Sewerage/drainage</u>						
2	Sewerage /drainage	14.773	18.598	19.612	16.312	28.723
	Revenue earned	0.166	0.098	0.105	0.056	0.6
	% revenue earned vs O&M charges	1.1%	0.5%	0.5%	0.35%	2.4%
	Subsidy injected	14.607	18.50	19.507	16.256	28.123
<u>Solid waste management</u>						
3	O&M cost	70.670	74.909	81.973	42.680	62.189
	Revenue earned	Nil	Nil	Nil	Nil	Nil
	Subsidy injected	70.670	74.909	81.973	42.680	62.189
	<u>Parks</u>					
4	O&M cost	2.876	4.192	5.004	3.076	3.568
	Revenue earned	Nil	Nil	Nil	Nil	Nil

	Subsidy injected	2.876	4.192	5.004	3.076	3.568
5	Slaughter houses					
	O&M cost	-	2.22	2.32	2.51	2.95
	Revenue earned	-	0.12	0.30	0.32	0.21
	Subsidy injected	-	2.10	2.02	2.19	2.74
6	Street Light					
	Expenditure	4.656	4.90	5.017	2.09	9.09
	Revenue earned	This is not a charged service				

Section-10 Manpower deployment & shortage

The manpower deployed by MC Kot Addu as office staff is given below. The manpower deployed in the Municipal Services has also been given in the respective sections.

S.No	Description	Sanctioned Regular strength	Actual Regular deployment	Regular Vacant Slots	Employed on daily basis	Shortage of regular personnel
A	Office staff					
1	Key officers (BPS-17 & above)	5	2	3	0	3
2	Sub engineers	3	1	2	0	2
3	Support staff (BPS-16 & below)	126	113	13	0	13
	Total office manpower	134	116	18	0	18
B	Municipal services					
1	Water supply	17	17	0	0	0
2	Sewerage	40	34	6	0	6
3	Solid waste management	275	248	27	0	27
4	Parks	16	15	1	0	1
5	Roads	6	4	2	0	2
6	Street lights	10	10	0	0	0
7	Slaughter houses	2	2	0	0	0
	Total municipal services (B)	366	330	36	0	36
	Grand Total (A+B)	500	446	54	0	54

Section-11

Summary public opinion surveys regarding the municipal service delivery

S. No.	Name of Service	Total persons interviewed	Opinion of the persons interviewed				Average consumer opinion
			Poor (Nos)	Fair (Nos)	Good (Nos)	Excellent (Nos)	
1	Water supply quantity	7	No service Available				-
2	Water supply quality	7	No service Available				-
3	Sewerage	7	5	0	2	0	Poor
4	Drain cleaning	7	5	0	2	0	Poor
5	Street sweeping	7	3	0	3	1	Good
6	Solid waste collection & disposal	7	5	0	2	0	Fair
7	Condition Parks & play grounds	7	3	0	4	0	Good
8	Slaughter house functioning	7	2	0	5	0	Good
9	Street light functioning	7	7	0	0	0	Poor
10	General condition of roads	7	5	0	2	0	Poor
11	Complaint attending capability	7	5	0	2	0	Poor

Section-10 Public opinion Surveys
Summary of public general view over service delivery

Format for Public general view over service delivery

S.No	Name of person interviewed	Muhallah or colony	Water supply		Sewerage	Drain cleaning	Street sweeping	Solid waste collection & disposal	Roads	Parks & play grounds	Slaughter houses	Street light	Complaint addressal
			Quantity	Quality									
1	Ghulam Asgar	Korray Khan	NA	NA	poor	poor	good	poor	good	good	good	poor	Good
2	Dr. Kamran	Ward No.1	NA	NA	poor	poor	poor	poor	poor	poor	poor	poor	poor
3	Idrees Niazi	Zeshan colony	NA	NA	poor	poor	Excellent	poor	poor	poor	good	poor	Poor
4	Arif Khan	Shams colony	NA	NA	poor	poor	poor	good	poor	good	good	poor	Poor
5	Ahsan Ali	Tibba Sultanpura	NA	NA	good	good	good	good	good	good	good	poor	Good
6	M. Afzal	Tibba Sultanpura	NA	NA	good	good	good	poor	poor	poor	good	poor	Poor
7	M. Shimla	Janubi Phatak	NA	NA	poor	poor	poor	poor	poor	good	poor	poor	Poor