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OFFICE OF THE COMMISSIONER, MULTAN DIVISION MULTAN

No.Dir: (D&F)/DDWP/135/23

Dated 21 /11/2023

Bubject:

ADMINISTRATIVE APPROVAL

In exercise of Powers delegated under the Punjab delegation of Financial Powers at 2016 (Effective from the 1st July, 2016) at Sr. No. 8 under Part-I Common to all Departments of Livithe Government of the Punjab, Finance Department Notification No. FD (FR) II-dated 01.07.2017 and re-constitution of Divisional / District Development Committees read Finance Department Letter No. FD (FR) II-5/82, dated 24-01-2017, Administrative Approval approached to the following development schemes relating to Municipal Committee and to be executed under Punjab Cities Programme (PCP) during the current financial 2023-24:

Market State of the State of th	utro a sentino	ta for Stantal	(Rs. in Million)
Name of Scheme	Approved Cost	Executing Agency	Gestation Period
Solarization of Disposal Stations in Burewala City	133.854	Municipal Committee Burewala	June 2024

The above schemes were considered and approved by the Divisional Development and Party in its meeting held on 13.11.2023.

Administrative Approval is further subject to observance of all codal, procedural, and justary, addit requirements and conditions noted in the minutes of the DDWP. The expenditure thus involved will be debited subject to strict observance of financial tarties and codal formalities.

The responsibility for feasibility, correctness and authenticity of all designs, togs, plans, technology used, calculations, quality and quantity, successful implementation, and any irregularities lies on the executing agency, consultants and PMDFC

Furthermore, scheme involving acquisition, transfer and mutation in case of private sovernment land involved for a scheme must ensure mutation, transfer and acquisition of a favor of the Government or concerned administrative department before the accement of work on ground. Work order shall not be issued until mutation / transfer of land client department / agency has been successfully completed. In case of failure, Client accent & executing agencies shall be held solely liable and face all the consequence.

The expenditure involved will be chargeable to Major & Minor Head of the settive scheme during the year 2023-24. Final responsibility of rates, provisions, quantities as shall rest with the authority competent to accord technical sanction and executing and instructions must be observed.

Page 1/2

No commitment is to be made, liability be created, work be allotted or executed without it allotted or executed without prior approval / clearance as per law /policy / codal & legal or other department / government agency earlier. No work shall be executed in any privately developed land/ housing scheme. Expenditure shall not be incurred executed in any privately developed land/ housing scheme. Expenditure shall not be incurred executed in any privately developed land/ housing scheme. It is a per law /policy / codal & legal or other executions agencies shall a littles of the competent authority. If done so, the client department & executing agencies shall or a little of the competent authority. If done so, the client department & executing agencies shall or a little of the competent authority. If done so, the client department & executing agencies shall or a little of the competent authority. If done so, the client department & executing agencies shall or other executions.

The responsibility for feasibility, correctness and authenticity of all designs, plans, technology used, calculations, quality and quantity, successful implementation, tog any irregularities lies on the executing agency, consultants and PMDFC

The executing agency concerned will be responsible for observance of all procedural, legal, financial, budgetary and audit requirements / formalities.

(ENGR. AAMER KHATTAK)
COMMISSIONER / CHAIRMAN (DOWP)
Multan Division, Multan

(3&F)/DDWP/135/23

Dated. 2.1 .11.2023

y forwarded for information and necessary action to:-

etary Govi. of the Punjab, Planning & Development Board, Lahore, Americany Govi. of the Punjab, Finance Department, Lahore.

Secretary Govt. of the Punjab, LG&CD Department, Lahore.

4. Deputy Commissioner, Vehari.

5. Superintending Engineer, Highway Circle, Multan.

3. Superintending Engineer, Building Circle, Multan.

Superintending Engineer, Haveli Canal (Irrigation), Multan.

Administrator, MC, Burewala.

Chief Officer, Municipal Committee∉Burewala

Deputy Director (Development), Vehari

11. PS to Commissioner, Multan Division, Multan.





MoIUS

CHIEF OFFICER
MUNICIPAL COMMITTEE BUREWALA



بلديم مستحكم --- پنجاب مستحكم



OFFICE OF THE MUNICIPAL COMMITTEE BUREALA

No. 1026/MC(B)

Dated: 11 12/2023

To:

The Chief Engineer (South), Punjab Local Govt, Board Multan

Subject: -

TECHNICAL SANCTION.

Kindly find enclosed herewith a estimate for Punjab Cities Programe of Solorizatin of Disposal Stations in Burewala City Amounting to **Rs.133.854 Million** for favour of Technical sanction which may be returned to this office well in time please.

Municipal Officer, (Infrastructure)

Municipal Committee Burewala

Fine

LOCALGOVERNMENT& COMMUNITYDEVELOPMENT DEPARTMENT



PUNJAB CITIESPROGRAM (PCP)

PC-1

FOR

SOLARIZATION OF DISPOSAL STATIONS IN BUREWALA CITY

EstimatedCost.Rs 133.854 M

December 2023

MUNICIPALCOMMITTEEBUREWALA



PC-IFORMFOR

SOLARIZATION OF DISPOSAL STATIONS IN BUREWALA CITY Table of Contents

Sr. No.	Description	Page No.
1	PC-I Form	1-14
2	Annexure-A Location map	15
3	Annexure-B PV Design and Cost Estimate	16 – 52
' 4	Annexure-C Technical Specifications	53 - 62
5	Annexure-D Financial Analysis	63
7	Annexure-EProject Implementation Schedule	64
8	Annexure-F Design & Drawings	65 - 71

PC-IFORMFOR

SOLARIZATION OF DISPOSAL STATIONS IN BUREWALA CITY

ProjectSerialNumber

Sector

:Infrastructure

SubSector: Energy

1. Name of the Project	SOLARIZATION OF DISPOSAL STATIONS IN BUREWALA CITY		
2.Location	Burewala (Punjabi and Urdu: אָנרבעוּל), is a city of Vehari District in Punjab, Pakistan. The city of Burewala is the headquarters of Burewala Tehsil, an administrative subdivision of the district. It is the 34th largest city of Pakistan by population. Thecitycoordinatesare30°09'33"Northlatitude,and72°40'54"Eastlongitude. LocationmapofthecityisattachedinAnnexure-A		
3. Authorities Respo	onsible for		
i- Sponsoring	GovernmentofthePunjab(throughWorldBankFunding)		
ii- Execution	MunicipalCommitteeBurewala		
ii- Operation and Maintenance	MunicipalCommitteeBurewala		
v-Concerned Provincial Department	LocalGovernmentandCommunityDevelopmentDepartr	nentPunjab	
a. Plan Provision	Palacina Asserta. Pro 1911		
. If the project is	Punjab Cities Program (PCP) is a World Bank Function of 236.00 million USD and comprises of below m	ded Program with a ton nentioned components.	
included in	Total loan from World Bank	200 million USD	
medium	Component-1 Infrastructure Development (PforR)	180 million USD	
term/five-year	Component-2 Technical Assistance	20 million USD	
plan, specify	MCs share (20% of PforR component):	36 million USD	
actual allocation	Total Program's cost	236 million USD	
- If not included in the current plan,		ist for in	

what warrants its inclusion and how it is now proposed to be accommodated	Not applicable
iji If the project is proposed to be financed out of block provisionindicate	The Project is being financed by World Bank as Donor along with 20% co-financing from the Program Municipal Committees and is not proposed to be financed out of Block Allocation.
4b- Provision in the current year PSDP/ADP	The project is included in the Punjab Cities Program which is reflected in ADP 2023-24 at General Serial No-1673 with provision of Rs 537.66million as Technical Assistance Component
t s	From the recent Past the energy crisis is adversely affecting the life of the common lot. The Federal Government and Provincial Government are extending all priority to the energy sector to enhance production but due to restrained economy the total potential especially in hydroelectricity could not be undertaken by the Government. Under the situation PMDFC is exploring alternate energy options such as solar. To address the issue of non-availability / totally unreliable and expensive electricity in the Water Sector across all over the province PMDFC has proposed Solar Energy technology. The details related to the annual energy consumption and available roof/land space for Solar PV Generation Plant were collected. While carrying out the feasibility study all possible design tools / techniques have been adopted to initially assess the requirement of each site. Then the designed optimum solutions related to solar PV were verified while using the relevant software simulations and then the final Solar PV configurations was recommended based on one year energy profile extracted from energy meter readings etc.
Description, and jus	tification, of Project
Describe the project and indicate existing facilities in the area to justify the establishment of the project.	One of the major challenges in Pakistan is the energy crisis. In view of the prevailing energy crisis in the country resulting into excessive load shedding and low voltage, there is a need to look into the possibilities of using alternative energy sources, in particular carbon free energy like solar energy, wind energy and geothermal energy. Currently departments in Punjab are practicing use of electric energy from national grid, which is not only unreliable but is also extremely costly. PMDFC is cognizant of the energy situation in the country and intends to start use of alternate power sources, in particular the solar energy. Pakistan Geographical location and weather condition favors maximum sun light during the day and is ideal for solar energy production and use. Electricity is the basic operating key for services

in almost all sectors of human life but due to the huge shortfall of electricity the solar electric system is considered the only viable solution. The project will provide a continuous flow of power supply to operate electrical motors which will further expedite the water supply and disposal station services without delay, so the ultimate benefits would be (i) Saving Electricity (ii) more independency and security (iii) Financial Savings (iv) The scheme will deliver socio-economic benefits to the community. It provides the community with better water and waste water infrastructure which will reduce the risk of urban flooding. There are certain merits and demerits of using both kinds of energy sources. The review of the comparison reveals that capital cost of solar energy system is more than the electric based energy cost, however the O&M cost of electric energy-based System is far more than the solar one. It can therefore be concluded that solar based technology is more economical on longer term basis.

ii. Technical
parameters i.e.
input and output
of the project.
Also discuss
technological
aspect of the
project.

Input of the project Rs: 133.854 million

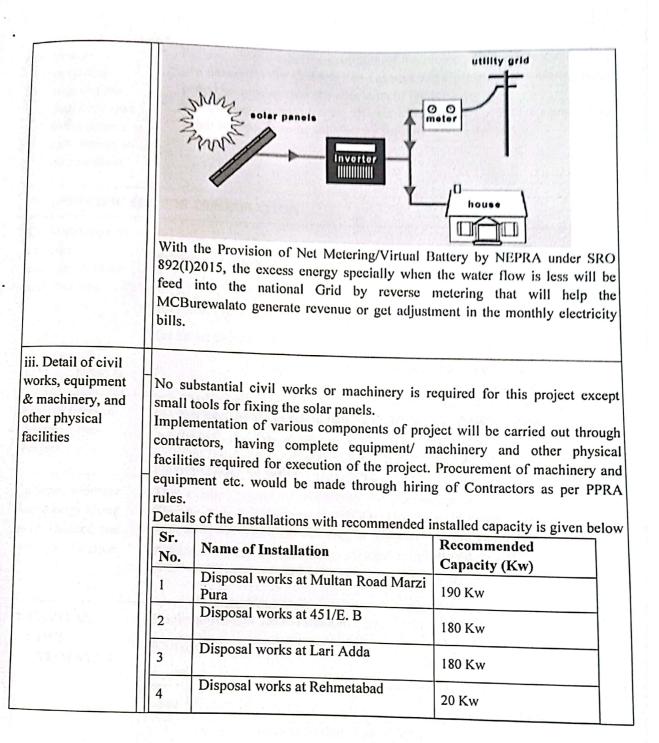
Output of the project: SOLARIZATION OF DISPOSAL STATIONS OF BUREWALA CITY

Outcome of the Project: Continuous supply of energy, operationalization of electrical motors/equipment's, reduction in CO2, Reduction burden on national grid and favorable environment help the water disposal services effective and ultimately plays vital role in the improvement of water and sanitation services.

Technical Aspect: The Grid interactive Roof Top mounted Solar Photo Voltaic system consists of mainly three (03) major components. The arrays of solar photovoltaic (SPV) modules, arrays mounting structure, the inverter or power conditioning unit(s) along with allied accessories.

The Solar PV arrays convert the solar energy into DC electrical energy. The array mounting structure holds the PV modules in required position and the DC electrical energy is converted to AC power by the inverter or PCU, which is connected to the utility power grid and generator set for reference voltages in case of unavailability of national grid. The AC power output of the inverter is fed to the AC distribution board through metering panel and isolation panel. The 220 V AC output of the system can be synchronizing with the grid and the power can be exported to the national grid depending upon solar power generation and consumption of critical load.

The following diagram shows a typical layout of a solar electric system:



iv Indicate governess issues of the sector relevant to the project and strategy to resolve them	pe • T	or smooth and efficient execution of the project, the volume phases for the Construction contract and Opera eriod keeping in view the allocation of funds. The training program for the officers and field staff equirement to provide satisfactory level of service described.	tions and Management of MC is a mandatory
7 SPECIFIC SI	ECTOR	INFORMATION	
Detail description	(a) Solar PV Panels.		
of major equipment, items	(b) So	olar Inverters	
and structure	(c) Ca	ables /Wiring	
La ur'	(d) Pr	otection Hardware.	
	(e) Sn	nart energy Management and Remote Monitoring S	System
		(PV Design and Cost is attached at Ann	
1- 7		(Technical Specification attached at An	
Provide basis of	(a) Average Daily Insolation rate 5.25 kWh/m² i.e., Peak Sun Shine in Punjab.		
design of the	(b) Last one Year Energy Profile.		
project	(c) Roof / Ground Space		
Indicate alternate technology along with selected one with justification	Electr uninte	existing mode of electricity in Burewalais avairic Supply Company (MEPCO). However, in orderrupted electrical source in absence of conversions are proposed.	er to ensure cheap &
8-CAPITAL COST ESTIMATES	Regions	tani Rupees 133.854 million ils are attached as Annex – B)	
4	Ser	Description	Cost in Millions
i jo	1	Disposal works at Multan Road Marzi Pura	41.045
	2	Disposal works at 451/E. B	37.762
politica beneficiale and	3	Disposal works at Lari Adda	38.660
	4	Disposal works at Rehmetabad	7.539
		Sub-Total	125.008

The state of the	Environment & Social Management Plan (ESMP) Implementation Cost	95,600	
	Add 2% contingencies	2.500	
100	Add 5% PRA Total		
and the second			
Date of estimation of the Project Cost	December 2023	136 Fallen 1975	
Basis of determining the capital cost to be provided.	Market Survey	-v will by the 18th en.	
9- Annual Operating and Maintenance Cost After Completion of the Project	The proposed systems have expected life of more the warranty for PV Modules & 05 years for VFI equipment replacement cost is sighted during 15 years 1 year will be borne by the contractor as Defect L After the completion of the DLP the O&M will be the MC Burewala	D inverter) hence no rs. However, O&M for iability Period (DLP).	
10 - DEMAND ANI	SUPPLY ANALYSIS	Control and and another	
Existing Capacity of services and its supply/demand	There is an issue of non-availability or totally unreliable through conventional grid supplied electricity.	ele electricity provided	
Projected demand for 10 years.	Provisioning of Systems (Solar Energy System & Energy Efficiency Measures) in this scheme are carefully designed. Whereas the project analysis has been made for more than 15 years span, after completion of this scheme there will be no projected demand for 15 years.		
Capacity of the project being implemented in public/private sector. Supplydemand gap	On successful completion of this scheme supply availability of grid electricity will be diminished with solution.		

- anacity	Design has been dead to the		7
Design capacity and output of the	Design has been developed on the basis of	site survey, E	nergy Determination
proposed project.	of the site, availability of land space and	budget alloca	tion. To Provide the
proposed project:	Electrical Energy at cheaper rate. nd Mode of Financing	, un fire	
		4 7 1 811600	6 1 11 77/ 11
Sources of	Below given loan for the Punjab Cities Pro	ogram has be	en funded by World
financing	Bank for 16 PCP cities in Punjab.	THE WAY THE	Lace IIII LIGD
<u>Debt</u>	Total loan to Government of Pakistan/Punja		200 million USD
a) Indicate the	Component-1 for Infrastructure Developmen		180 million USD
local and	Component-2 for Investment Project Financing For		
foreign debt	capacity building of MCs & three Govt. organization and 20 million		
Loan	program management.		26 :11: HCD
	20% share of Municipalities is equivalent	and the same	36 million USD
	Total funds available for Infrastructure Deve		216 million USD
	This project will be funded under this finance	ing	BRANCE TO DO 1
b) Equity	A. Loan /Grant to MC		111 - Da 107 083
	The amount of loan converted to grant to	BurewalaCit	y Will be RS 107.005
	million. The financing of the project wil	l be as given b	elow:
			programme and the second secon
	Grant to Unit for the year 2023-24	PKR 107.0	83 million
	(80% of cost of PC-I)	Maria and an area	I THE COUNTY OF
April 10 Cale	20% Co-finance by MC	PKR 26.7	70 million
for-	(20% of the cost of PC-I)	THE STATE OF THE	
to the same of	Total available funds	PKR 133.	854 million
	(Total cost of PC-I)	ON THE PARTY OF	
	B. Project Cost: Rs 133.854 million		
		4 - f Doleigton/I	Duniah which will
	*The loan is from World Bank to Governmen	t of Pakistall	unjao, winen win
	trickle down to MC Burewala as grant.		OP funds. The World
c) Grants	No grant is being given by Government of Pu	njao out of Af	lown as grant to MC
	Bank loan to Government of Pakistan / Punja	b will trickle t	lowii as grant to Me
	Burewala		
d) Weighted cost of	Nil		
capital		TOWNSHIP A TALL OF	
12 -BENEFITS OF	THE PROJECT AND ANALYSIS	NA COLUMN	. 1Chalo
A. Quantifiable	 Promoting the use of solar energy in 	the communi	ty wellare as a whole
Benefits	benefit the community in many v	vays. The ad	vantages of making
B. Non-	people more aware of how they can	contribute to	the well-being of the
Quantifiable	environment are just as valuable as t		
Benefits	more so because the long-term benef	its of solar en	ergy as a whole mean
a. Socio –	that we all ultimately benefit.		
economic impact of	 MCBurewala is facing a financial c 	runch where i	it is hard for them to
WAS A SHORE THE SAME OF THE SA			

the project meet their expenditures. As the electricity costs are rising, cost of electricity is one of the Current Budgeted costs for Electricity Bills of Disposal stations and tube well is 42.50million. Installation of PV panels will produce electricity worth 37.1 million. It will take the MC out of its financial difficulties. Electric bills can be substantially less in comparison to the use of energy generated from fossil fuels. Over an extended period of time the financial difference of cheaper electric bills can become quite significant, enabling government to inject more of their money into the economy. Provisioning of uninterrupted solar based electricity will facilitate the operations of disposal stations and tube wells run without any interruption. Provision of electricity through alternate energy to the tube wells and disposal stations will enable the MC Burewalato deliver services at the most optimal level. There is no land acquisition or resettlement requirement as the proposed structures will be constructed on land owned by MC Burewala. Reduction of public frustration Improvement in local economy i.Environmental The recommended solar PV systems produce no emissions and results Impact in cleaner air and water for all. Using solar energy produces no air or negative/positive water pollution and no greenhouse gases. Solar energy is predictable and is most efficient considering current utility rates. In Pakistan, factories that burn fossil fuels to generate energy and power for homes and commercial sector rely on oil to generate the energy. As a result, Pakistan is dependent on oil that often comes from foreign nations to generate the electricity. However, if Pakistan adopt policies and implement more solar energy programs then, not as much oil would be needed in the country and thus the foreign currency reserve Pakistan spends on purchase of costly fuel from foreign nations would be reduced. No environment threat is involved. In fact, the project is meant to promote clean energy technology. Energy efficiency, carbon dioxide emissions, and proportion of forest land cover are indicators of environmental sustainability of an area. Although the developing countries produce a fraction of the world's carbon emissions, they can play their role by reducing greenhouse gases by using renewable Energy Technologies. Similarly, displaced greenhouse gas emissions carry significant global climate change benefits, towards which Pakistan has pledged action

under the UN Framework Convention on Climate Change. (UNFCCC).

Under UNFCCC, even every single LED home light can generate carbon credits per year. When properly assessed for their externalities Renewable Energy (RE) options can become economically competitive with conventional supplies on a least-cost basis. RE can thus supplement the pool of national energy supply options in Pakistan, expediting economic empowerment, security for a highly security place. Decentralized RE systems can also help reduce energy distribution losses and result in system-wide and national efficiency gains (e.g., as measured by energy intensity or energy use per unit of GDP). A growing renewable energy industry can afford new prospects for employment and business opportunities amongst manufacturers and service providers. Annual reduction of 812 MTCo2 shall be achieved from the generation of 820,800KWhr units from Solar / Clean Energy. **Economic Benefits** (Discussed at Annex D) **Employment Employment Analysis** generation Direct Employment (Direct and a) Planning and Design of projects indirect) The planning and design of the project has been done in house by PMDFC who have appointed staff and experts in infrastructure and related disciplines along with their support staff. The same PMDFC staff will also provide supervision of the project to verify and certify the items of works to be executed under this PC-I. b) Execution of the Project a) PMDFC PMDFC has the project monitoring and supervisory role and the company has enough experts and staff to complete this assignment. PMDFC has already deployed under mentioned staff for these projects: on Civil Engineers Accounts, administration and audit personnel Urban planners GIS experts Support staff like computer operators, vehicle drivers, office boys and guards. Procurement experts Communication experts Environmental and social experts Contract management experts

	b) Municipality BurewalaMC has regular staff like engineers, sub engineers and other administrative & accounts keeping staff which will be responsible for execution of the project and contract management. No additional staff will be needed for execution of this project
	c) Contractor The contractor responsible for execution of the sub project will employ skilled and unskilled labor on this work.
	 Indirect Employment Indirect employment for production of material The implementation of sub-projects will generate the jobs for operators, electricians, guards etc.
ii.Impacts of delays on project cost and viability	Delays in the project will cause cost over-run of the project. The sensitivity analysis table given in Annexure-D the net present value of the project will reduce if the delay causes the total cost of the project to rise by 10 percent.
12-Implementation	Schedule
a) Indicate starting and completion date of the project	From the Approval of the Project = 18 Months (6 Months Construction Phase + 12 Months O&M (DLP))
b) Item wise/year wise schedule in line chart	The Gant chart has been attached to Annexure-E
13- Management St	ructure and Manpower Requirements
i. Administrative Arrangements for the Implementation of the Project 3-tmp Indic and	 i. Planning & design of the project The project has been designed by PMDFC and it will also carry out the supervision of the project. ii. Preparation of Cost Estimation The cost estimates have been prepared by the PMDFC based on estimated quantities.
dar. proj) Item :: wise och	 iii. Execution of the project The project will be executed by Municipal CommitteeBurewalaan supervised by PMDFC. The technical staff & experts in PMDFC wi oversee, co-ordinate and collaborate in the project planning, design an implementation through their experts in head office located in Lahor and regional offices. The reporting of progress to LG & CDD & World and Park and Park

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- MO (1&S) of the municipal committee has been designated as Project Manager /Engineer in Charge of the project. The supervision of the works will also be carried out by these municipal officers along with their support engineering staff. All supervisory staff is available with MC.
- The Procurement Committee of MC Burewalawill do the procurement of works and goods as per PPRA Rules.

iv. Verification of quantities included in PC-I

The works will be supervised by the PMDFC staff by assuring the quantity and quality of works. Payments will be made by the MC Burewalaafter these contractor claims have been entered in the measurement books by the Project Manager/Engineer in Charge and pre audited as per LG Works Rules.

ii- The manpower requirements by skills during execution and operation of the project.

ii- The

skills durit

ecutio

peration

a) PMDFC Experts and Staff

For rendering assistance in implementation of infrastructure projects in 16 MCs, PMDFC has the experts and staff in the required fields. In order to facilitate the Program Units, three regional offices have been established by PMDFC at Gujranwala, Faisalabad and Multan/Khanewal.

b) Contractor's Technical Staff, Skilled & Non skilled labor

The contractors will employ the supervisory technical staff and skilled & non skilled labor for execution of works. The works will be supervised by experienced Engineers and sub engineers and the number of slots for engineers and skilled and non-skilled will depend upon the type and quantity of work and its period of completion. Details of the staff requirement will be checked during bidding process as per the guidelines of PEC.

c) Repair & Maintenance of the Project

MC has its own regular staff which has been deployed for Repair and maintenance of the municipal services infrastructure. However, it has been observed that the existing staff is not adequate to repair and maintain the services in a manner which can give good service delivery. Hence it is proposed to;

- Fill up the presently vacant slots
- Recruit additional staff as per need of the infrastructure after obtaining the sanctions from the competent authorities.

14-Additional projects /decisions required to optimize the investment being undertaken

Shortage & Frequent transfers of Provincially Appointed Staff

MC is facing shortage in provincially appointed and locally appointed cadres. This will seriously affect the pace of progress of the program and the implementation of the infrastructure projects may be delayed. Provincial Government should fill-up the vacant staff immediately for optimizing the investments and capacity building in MC.

Certified that the project proposal has been prepared on the basis of guidelines provided by the Planning Commission for the preparation of PC-I for social sectors projects

	Burewala		Administrator
Forw.	A.J	Stamp & Signatures	BUREWALA
	Chief Officer Municipal Committee Burewala	Stamp & Signatures	CHIEF OFFICER Municipal Committee
Check	Municipal Officer (Infrastructure) Municipal Committee Burewala	Stamp & Signatures	MUNCIPAL OFFICER INFRASTRUCTURE Municipal Committee Burewala
prepared b	PMDFC	Stamp & Signatures	program where prints Ches Program where