



# PUNJAB INDUSTRIAL ESTATES

DEVELOPMENT AND MANAGEMENT COMPANY

A Company setup under Section 42 of the Companies Ordinance, 1984 (now Companies Act, 2017)



PIE/VIE/NEPRA-1555

June 28, 2022

To,

The Registrar, NEPRA  
NEPRA Tower,  
Attaturk Avenue (East), Sector G-5/1, Islamabad.

Subject:

**APPLICATION FOR POWER DISTRIBUTION LICENSE FOR PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY (PIEDMC) OWNED BY GOVT.OF PUNJAB AT VEHARI INDUSTRIAL ESTATE.**

*Reference: NEPRA letter no. NEPRA/R/LAD-11/1997 Dated February 10, 2022, copy attached as annexure- A.*

Dear Sir,

The Chief Executive Officer being duly authorized representative of Punjab Industrial Estates Development and Management Company (PIEDMC), by virtue of power of Attorney / Board Resolution as stipulated in its 104<sup>th</sup> BOD Meeting dated 21<sup>st</sup> July 2016, to apply to National Electric Power Regulatory Authority, Islamabad, for the grant of Distribution License to the Punjab Industrial Estates Development and Management Company (PIEDMC) Govt. of Punjab at its Vehari Industrial Estate.

In continuation to the aforementioned NEPRA letter, please find attached application as per NEPRA Licensing Procedures Regulations, 2021 (AMECPR-2021) as notified vide SRO No. 760(I)/2021, on December 21, 2021, for obtaining the Electricity Power Distribution License for the Punjab Industrial Estates Development and Management Company (PIEDMC), at its industrial estate located in Vehari, Punjab.

A Demand Draft in the sum of Rs.2,844,806/- being the 'Non-refundable License Applicant Fee calculated in accordance with schedule II and PART I as per NEPRA SRO No. 760(I)/2021 is also attached with this application.



Moreover, PIEDMC (hereinafter the Applicant), vide this application hereby makes, constitutes, ordains, nominates and appoints M/s ASC Advisory and all its employees, agents and relevant persons (hereinafter referred to as the "Authorized Representatives/ Authorized Agents"), to act under our authority and on our behalf, and to do or execute or to represent, institute, or file applications, documents, attend hearings, remove objections, make statements, give evidence, affidavits on behalf of the Applicant, or to act in any legal capacity to pursue the attached application;

The application may please be processed at your end for the early issuance of Power Distribution License for PIEDMC at its Vehari Industrial Estate.

Thanking you and best regards.

**DA/As above:**



**(ALI MUAZZAM SYED)**  
**CHIEF EXECUTIVE OFFICER**

Copy to:-

1. The Chairman, PIEDMC.
2. The Chairman, NEPRA.
3. The Director General Licensing, NEPRA.
4. The Director General CAD, NEPRA.
5. The General Manager Technical, PIEDMC.
6. The General Manager Coordination, PIEDMC.
7. The General Manager Business & Development, PIEDMC.
8. The Chief Financial Officer, PIEDMC.
9. The Chief Engineer Electrical, PIEDMC.
10. The Company Secretary (Acting), PIEDMC.
11. The Project Director, VIE.



# PROSPECTUS



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### **Company's Introduction**

PIEDMC – Punjab Industrial Estates Development & Management Company - is a section 42 company incorporated under Companies Ordinance of 1984. It is an autonomous, not-for-profit entity owned by the Government of Punjab and is run by a Board of Directors (BOD) comprising of private sector industrialists and ex-officio members. Since inception, the accomplishments in the form of estates like Sundar Industrial Estate, Multan Industrial Estate & Quaid e Azam Industrial Estate serve as successful and completed model projects. Four of the PIEDMC'S Industrial Estates have already been declared as SEZs namely Quaid-e-Azam Business Park, Rahim Yar Khan Industrial Estate, Bhalwal Industrial Estate, Vehari Industrial Estate. Soon to be launched Bahawalpur Industrial Estate is in the process of SEZ declaration.

### **Vision & Mission**

It is a well-established fact that industrialization is the backbone for economic growth. With rapid, organized, methodical and efficient industrialization there is an increase in GDP, employment opportunities and above all improvement in wellbeing of the masses nationwide.

Our mission is to provide world class quality infrastructure, enhance business friendly environment, boost confidence and freedom for local and foreign investors to flourish their business activities mutually benefiting themselves, as well as economic growth of Pakistan & specially Punjab.

Our vision is to put economic growth on fast track by utilizing the most modern tools n techniques by helping local and foreign investors to enjoy the safest and welcoming ground to kick start their business activities.

### **Key Objectives**

To translate above mission and vision following are the key parameters:

- Public Private Partnership
- Rapid industrialization
- Increase in GDP
- Creation of job opportunities
- Up-gradation of existing industrial estates
- Development of new Industrial Estates/ Business Parks
- Ensure efficient, cost effective and sustainable management of industrial estate(s)

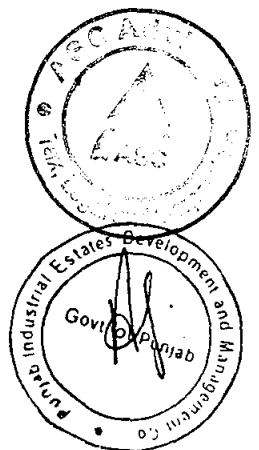
### **MAJOR PROJECTS UNDER THE UMBRELLA OF PIEDMC:**

#### **UPGRADED PROJECTS**

- Quaid-e-Azam Industrial Estate, Kotlakhpat Lahore (QIE)
- Multan Industrial Estate Phase -I, Multan (MIE-II)

#### **COMPLETED PROJECTS**

- Sundar Industrial Estate, Lahore (SIE)



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- Multan Industrial Estate Phase -II, Multan (MIE-II)
- Bhalwal Industrial Estate, Bhalwal (BIE)
- Vehari Industrial Estate, Vehari (VIE)
- Rahim Yar Khan Industrial Estate, Rahim Yar Khan (RIE)

#### **ONGOING PROJECTS**

- Quaid-e-Azam Business Park, Sheikhpura (QABP)
- Bahawalpur Industrial Estate, Bahawalpur (BWPIE)-Launching Soon

#### **ONE WINDOW SERVICE CENTER**

For efficient and timely delivery of customer's requirements, PIEDMC has established one of its kind One Window Service Center in the heart of the city at Quaid-E-Azam Industrial Estate. It is approachable and convenient for industrialists to meet the desired requirements in terms of setting up their industry in PIEDMC's industrial estates.



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## 10. Financial Plan

Sr. No.	Source	Amount (Rs)
a)	<b>Equity</b>	
	i) Sponsors own fund	<u>478,034,123</u>
	ii) Federal Govt.	-
	iii) Provincial Govt.	-
	iv) DFI's/banks	-
	v) General Public	-
	vi) Foreign equity	-
	vii) NGO's/beneficiaries	-
	viii) Others.	-
b)	<b>Debt.</b>	
	i) Local	-
	ii) FEC	-
	iii) Interest Rate	-
	iv) Grace period	-
	v) Repayment period	-
	vi) Loan repayment schedule	-
c)	<b>Already allocated</b>	-
d)	<b>Net Requirement</b>	



## Executive Summary

After taking the management control and upgrading of Multan Industrial Estate and Quaid-e-Azam Industrial Estate, the PIE introduced industrial estates in Raiwind, Bhalwal and Rahim Yar Khan and now introduced Vehari Industrial Estate (VIE) in District Vehari. The purpose of this estate is to create new jobs, reduce poverty, encourage industrialization in Punjab and resultantly increase the GDP of the country.

Under the Pakistan Environmental Protection Act 1997 (PEPA-97), clause 12, it is required that the proponent of any development project will have to submit an IEE or EIA report to the concerned Environmental Protection Agency/Department to obtain approval prior to start of construction or operation of the project. The objective of the Environmental Impact Assessment (EIA) study is primarily to document the existing baseline environmental conditions of the project area, establish the potential impacts of the project construction and operation on the physical, ecological and human environments, and propose the mitigation measures for the adverse impacts.

The policy framework for EIA is principally derived from the Pakistan National Conservation Strategy (1992). The principal applicable laws and regulations, in respect of EIA, are the Punjab Environmental Protection Act-1997 (as amended in 2010), the Pakistan Environmental Assessment Procedures (2000), and the NEQS (Self Monitoring and Reporting) Rule, 2001. The institution involved in the administrative action pertaining to the environmental aspect of the project is the Environmental Protection Department, Punjab.

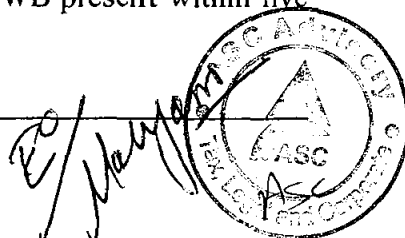
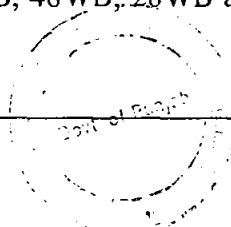
According to the Pakistan Environmental Assessment Procedures (2000) by the PEPA for environmental approval, the VIE plant falls under Category B (Manufacturing and Processing) of Schedule II, which requires EIA for environmental approval prior to any construction. According to the Guidelines for Self Monitoring and Reporting by Industry (2001) prepared by the Environmental Standards Committee for the implementation of the NEQS, the VIE falls under Category A of Schedule I and Schedule II for monitoring and monthly reporting of environmental parameters of effluent and gaseous emissions respectively to the EPD.

The methodology adopted for conducting EIA study includes orientation session, development of the data acquisition plan, review of the existing data, sources and tools of data collection, primary data collection surveys (reconnaissance survey, socioeconomic survey), sources of secondary information and impact assessment matrices.

The area around the project site is flat. The project area is predominantly an uncultivated area and falls under seismic zone 2A with peak horizontal ground acceleration is 0.08 to 0.16. The climate is generally arid, characterized by hot summers and cool or cold winters, and wide variations between extremes of temperature. The quality of drinking water is contaminated with microbial contamination. The ambient air quality data show that the atmosphere of the area is generally good as all the concentration values of the pollutants are below recommended values. The ambient noise levels vary at different locations at different timings.

No forests are found in the project area. Terrestrial fauna are found in the project area but there are no endangered/rare species and protected areas.

There are five settlements namely 24WB, 30WB, 48WB, 28WB and 26WB present within five km of the project site.



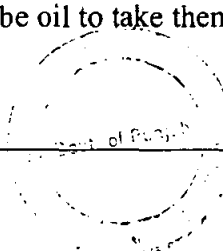
Most of the people in these settlements live under nuclear family system. The male to female ratio is 1:19. There are altogether 14 government and private schools for boys and girls. The principle earning occupations include agriculture and wage labour. The land owners of the area tend to grow wheat, fodder crops, vegetable, and fruit plants. Livestock is mainly raised for transportation, food and farming purposes. The income levels of most of the people in the area are reasonable. Most of the houses are constructed in bricks and permanent roofing structures. No community water supply schemes are laid out in these settlements. The quality of ground water is generally good.

Electricity is provided to all the settlements through MEPCO. There is no natural gas supply in the area and the people mostly use cow dung and wood as fuel for cooking and heating. The main mode of transport for local villagers is public bus and wagons. The sanitary conditions are unsatisfactory with most of the people discharging their wastewater and solid waste into open drains and open land. Health of the people is good. The project site is accessible through Khanewal road. There are 09 mosques, 05 madrassa, 1 church, and 2 graveyards. None of the monuments/sites, of archaeological or historical importance, exist in the area. No recreational site of regional or national importance is found in the area. The local people opine that industrial development should take place with the aim to promote job opportunities and improve existing infrastructure.

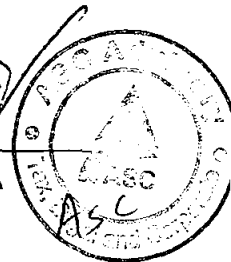
The major environmental impacts of the proposed project will be due to the constructional and the operational activities. The constructional phase impacts are: generation of dust due to transportation of construction materials in uncovered form, open storage of construction materials, earthwork operations, preparation of concrete at batching plants, movement of construction machinery and construction materials transport vehicles, exhausts of the construction machinery, and construction materials transport vehicles mostly using diesel as fuel; noise due to movement of construction materials transport vehicles and construction and erection of electrical and mechanical equipment; generation of domestic wastewater and solid waste; job opportunities; public health and safety of local population. The operational phase impacts are wastewater generation, solid and liquid wastes generation, air pollution, noise and the OHS issues.

During the operational phase, the wastewater will be generated from the municipal and industrial sources. The solid wastes will mainly comprise empty containers of used lube oil, and chemicals, metal scrap, discarded mechanical parts, and domestic solid waste from all the industries in the VIE. Solid waste will also be produced from commercial and institutional activities in the VIE. The air pollution sources will be mainly generators, boilers, and vehicles. The plant noise and the vehicular noise are the two major sources. The plant noise is normally generated from the moving and rotating parts of the machinery (such as conveyor belts), boilers and generators. Generally, well maintained vehicles have noise within the NEQS level of 85 dBA. The OHS issues mainly concern with the use of the OHS equipment by the plant workers.

The mitigation measures for the construction phase issues include disposal of domestic wastewater, domestic solid waste management, dust suppression and noise control. To mitigate impacts during the operational phase, the management of the PIE should stick to the proposed measures to run the VIE in an environment-friendly manner. For solid waste management, monitoring of the solid waste with respect to its source, type and generation rate is essential. The municipal and industrial wastewater will be treated at the CETP. For liquid wastes, there can be a mutual agreement with the major suppliers of lube oil to take them back after use.



*Handwritten signature: Eo Maryam*

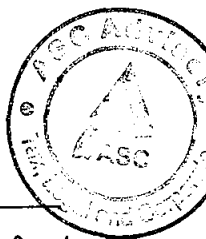




The noise control measures should be implemented both for the plant noise and the vehicles. For the plant noise, the management should take different measures such as noise measurement, audiometric testing, record keeping of medical tests and follow up, engineering controls, administrative controls, and training of employees. For vehicular noise mitigation, the vehicles maintenance program will be implemented for carrying out their regular maintenance.

The management shall develop environmental management plan to implement the mitigation measures proposed for the environmental impacts during the construction and the operation phases. The plan will include institutional measures, waste management plan and occupational health and safety planning, and establishment of environmental monitoring department to carry out water quality monitoring of the CETP, solid waste monitoring (VIE in general and land fill site in particular), air quality monitoring (VIE in general and the land fill site in particular), and noise monitoring.

EO  
Hassam



(THE COMPANIES ORDINANCE, 1984)

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A COMPANY LIMITED BY GUARANTEE  
HAVING A SHARE CAPITAL

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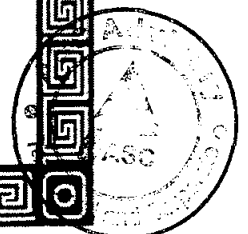
Memorandum

and

Articles of Association

of

PUNJAB INDUSTRIAL ESTATE DEVELOPMENT  
AND MANAGEMENT COMPANY



ASC

No. 1172 of 200 - 200

ELVIS PRESLEY'S SYMPHONY - *I hereby certify that*

SECRET

is this day incorporated under the Companies Ordinance of 1984, and that the company is limited by guarantee without addition of the word "limited" to its name.

ENCLOSURE (given under my hand at

THE GREAT EASTERN LIFE ASSURANCE CO. OF NEW YORK

Two Thousand  
ELEVEN

For Rs 20,000 (Twenty Thousand Only)

1748

DISTRICT OF COLUMBIA  
REGISTRATION OF STOCK COMPANIES

( ATTORNEY GENERAL )

District Officer

For Registrar

*Joint Stock Companies*

(CITY District Government,  
Lahore.

(002-6041) 101001

CONFIDENTIAL - UNCLASSIFIED



# Certificate for Commencement of Business

(Pursuant to section 146 of the Companies Ordinance, 1984)

Certified that the \_\_\_\_\_

Which was incorporated under the Companies Ordinance, 1984, on the \_\_\_\_\_

day of \_\_\_\_\_ 2003

and which has this day filed a duly verified declaration in the Prescribed form that the conditions of section 69 and 146 of the said Act, been complied with, is entitled to commence business.

Given under my hand at \_\_\_\_\_

This \_\_\_\_\_ day of \_\_\_\_\_

One thousand nine hundred and \_\_\_\_\_



(ATIQ-UR-REHMAN)

DISTRICT OFFICER  
ENTERPRISE & INVESTMENT PROMOTION  
LAHORE  
FOR JOINT STOCK COMPANIES  
LAHORE REGION.

DISTRICT OFFICER (IPWM)  
For Registrar Joint Stock Comp  
Lahore

THE COMPANIES ORDINANCE, 1984

(A COMPANY LIMITED BY GUARANTEE HAVING A SHARE CAPITAL)

ESTABLISHED UNDER SECTION 42  
OF THE COMPANIES ORDINANCE, 1984

MEMORANDUM OF ASSOCIATION

OF

PUNJAB INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY

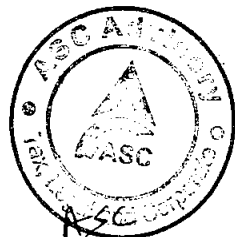
1. The name of "The Company" is Punjab Industrial Estate Development and Management Company, having a share capital, (hereinafter referred to as "The Company").
2. The registered office of "The Company" shall be situated in the Province of the Punjab, city of Lahore.
3. "The share capital of "The Company" will be as follows:

(i) Authorized Capital Rs.150.00 Million (Rupees One Hundred and Fifty Million).

(ii) Paid-up Capital Rs.50.00 Million (Rupees Fifty Million).

The Capital is divided into Five (05) Million Ordinary Shares of Rupees Ten (10) each.

4. The objects for which "The Company" is established are as follows:
  - i. "The Company" is an association of non-profit organization, within the meaning of section 42 of the Companies Ordinance, 1984 and is being formed as a public company;
  - ii. organized and established for orderly, planned and rapid industrialization of Punjab, headed by a Chairman from private sector, a Board of Directors and a General Body as per Articles of Association, all to be nominated by Government of the Punjab, (hereinafter referred to as Government);
  - iii. to establish new Industrial Estate(s) as defined in Articles of Association of "The Company" and to upgrade those existing Industrial Estate(s) as may be assigned to "The Company" by Government, in financially sustainable



manner and to undertake such related functions as may be entrusted by Government to "The Company" from time to time;

- iv. to select/acquire/lease/purchase appropriate site(s) for the development of new Industrial Estate(s) and to make ancillary arrangements related thereto for establishing such Estate(s) including but not limited to creation of charge, lien, mortgages, encumbrances etc.;
- v. to develop infrastructure within the Industrial Estate(s). However, "The Company" shall not engage in real estate business;
- vi. to appoint Board of Management (BOM) for each of the Industrial Estate;
- vii. to identify support services required by each Industrial Estate(s) and to establish a linking mechanism with all the industries to increase productivity;
- viii. to form/incorporate/manage/administer/dispose of corporate entity(ies) as subsidiary(ies) with prior approval of the Government including but not limited to ~~power~~ generation/distribution/transmission/purchase/sale and/or any other purpose deemed expedient for the fulfillment of the objects of the Company, and/or co-operate with any other company or association having similar objects;
- ix. to facilitate the provisions of utilities like electricity, gas, telephone and medical facilities and ancillary services for the units established or to be established within the industrial estate(s);
- x. To generate eclectic power through any means of generation developed or to be developed in future and to deal in transmission, transforming, conversion, switching, gridding, sale, purchase, distribution of electric power and other utilities in all its forms and perspectives and to undertake all such activities as are connected, linked or associated therewith and seek necessary approvals/registrations/licences from relevant authorities and to do all such acts, deeds or things as would be required for effective discharge of these objects;
- xi. to provide common facilities for the Industrial Estate(s) and to enter into financial transactions in furtherance thereof;
- xii. to identify the environment preservation requirements for the benefits of the Industrial Units;
- xiii. to create zoning restrictions within the Industrial Estate(s);

- xiv. to promote creation of jobs by capitalization on strengths of each region by prioritizing the type(s) of industry, already prevalent in that particular area;
- xv. to collect statistical data from within the Industrial Estate(s) for undertaking future improvements;
- xvi. to promote interaction between the industrialists and Government to create an over all conducive industrial environment in the Industrial Estate(s);
- xvii. to arrange workshops and meeting points for creating interaction with international investors, ~~government~~ regulators, non government organizations (NGOs) and various similar services organizations and bodies for creating a highly conducive local/international investment environment;
- xviii. to arrange interaction between academia and industry for creating platform to initiate research projects for the benefits of all concerned;
- xix. to provide the platform for the financial institutions to meet the stake holders and create specific products and services to solve the financial requirements of SMEs and the fiscal requirements of the financial institution(s) to create healthy loaning environment with a reduced risk of failure and to arrange systematic recovery/closure of such units;
- xx. to take necessary steps to attract industrialists to set up units in the Industrial Estate(s);
- xxi. to borrow or raise money by all legal means/instruments, with the specific permission of Government;
- xxii. to open and operate banking ~~account(s)~~ and to draw, make, accept, endorse, discount, execute and issue ~~promissory~~ notes, bills of exchange, bills of lading, warrants, drafts, cheques, bonds, debentures and other negotiable or transferable instruments subject to compliance of relevant prudential regulations;
- xxiii. to undertake and execute such agency agreement(s) which may promote directly the objects of "The Company";
- xxiv. to print and publish any periodicals, books or leaflets in furtherance of "The Company's" objectives;
- xxv. to invest the monies of "The Company" not immediately required in short term secured investment;
- xxvi. to enter, with permission of Government into any arrangements with any government(s) and authority(ies), municipal, local or otherwise or any



person or company that may seem conducive to all or any of the objects of "The Company" and to obtain from any such government(s), authority(ies), person or company any rights, privilege, contracts, license and concessions which "The Company" may think is desirable to obtain and to carry out exercise and comply therewith;

- xxvii. to accept from any government(s) or agencies or authorities, public/private/civic bodies, corporations, companies, persons or any other source in Pakistan and abroad for use in work and to raise funds, accept any grants or money, moveable or immovable property, donations, gifts, subscriptions, devices, bequests and other assistance with a view to promoting the objects of "The Company" and in receiving any gift or property to take the same either conditionally or unconditionally or subject to any special conditions which may be prescribed by the donor in writing and accepted by the BOD subject to such procedure prescribed by Government from time to time;
  - xxviii. acquire, take-over, accept by way of gift, the assets of any other organization, body or society with similar objects or undertake and accept the management of any endowment or trust fund set up with similar objects as that of "The Company", subject to such procedure as may be prescribed by Government from time to time;
  - xxix. to take such steps by personal or written appeals or otherwise as may from time to time be deemed expedient for the purpose of procuring contributions to the funds of "The Company" in the shape of donations or annual subscriptions;
  - xxx. to cooperate with any company or association having objects similar to the objects of "The Company" and any company or association the objects of which are calculated either directly or indirectly to benefit "The Company" in attainment of any of its objects;
  - xxxi. to propose to Government amendments in statutes, rules, orders for enabling "The Company" to carry any of its objects into effect; and
  - xxxii. to do all such other lawful and charitable things as are incidental or conducive to the attainment of the above described objects;
5. The liability of the members is limited.
6. The income of "The Company" when-so-ever derived shall be applied solely towards the promotion of the objects of "The Company" as set forth in the Memorandum of Association and no portion thereof shall be paid or transferred directly or indirectly, by way of dividend, bonus, remuneration or grant in the



shape of other benefits, by way of profit, or otherwise howsoever, to the members of "The Company"; provided that nothing therein contained shall prevent the payment in good faith of remuneration to any officers or servants of "The Company" or any other person including Legal Advisor, except a Member in return for any services actually rendered to "The Company", nor prevent the payment of interest on money borrowed or rent out any property leased or hired from any person other than a Member of "The Company". No member of BOD of "The Company" shall be appointed to any salaried office of "The Company", or any office of "The Company" generating fee and that no remuneration shall be given by "The Company" to its members of BOD, but the Chairman/BOD shall be provided with the facilities for boarding, lodging and/or travel domestic or abroad undertaken for furtherance of the objects of "The Company".

7. No addition, alteration or amendment shall be made to or in the provisions or regulations contained in the Memorandum and/or Articles of Association, for the time being in force, except in accordance with the Companies Ordinance, 1984 and with the prior approval of the Government and thereafter the same shall be submitted to and approved by the Registrar of Companies, Lahore Region.
8. Patronage of any government or authority, express or implied, shall not be claimed unless such government or authority has signified its consent thereto in writing.
9. Each member of "The Company" undertakes to contribute to the assets of "The Company" in the event of its being wound up, while he is a member, or within one year afterwards for payment of the debts and liabilities of "The Company" contracted before he ceases to be member, and of the costs, charges and expenses of winding up. The sum to be contributed by the members shall be as follows.

All Members of "The Company" shall individually contribute a sum not exceeding Rs.1000.00 (Rupees one thousand only).

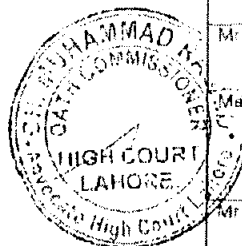
If the total sum required on winding up for payment of the debts and liabilities of "The Company" and of the said costs and expenses shall be less than Rs.1000.00 then the Member shall contribute thereto in proportion to their maximum specified liability.

10. Notwithstanding what is stated herein, if upon the winding up or dissolution of "The Company" there remains, after the satisfaction of all its debts and liabilities, any property whatsoever, the same shall be given or transferred to Government.



We, the several persons, whose names and addresses are hereunder subscribed, are desirous of being formed into a Company in pursuance of this Memorandum of Articles of Association.

Name and surname (present and former in) full and block letters	Father's/Husband's name in full	Nationality/former Nationality	Occupation	Residential address in full	Signature
Mohsin M. Syed	Syed M. Musa	Pakistani	Engineer	71-S, Defence Phase II, Lahore Cantt.	
Mr. Fayyaz Bashir	Bashir Ahmad	Pakistani	Secretary Industries, Commerce & Investment	7-Aikman Road, COH, Lahore	
Mr. Khawaja Muhammad Owais	Khawaja Khuda Bakhs	Pakistani	Industrialist	House No.2, Nisar Colony Kashina Dasiga, Lahore	
Mr. Sikandar Mustafa Khan	Bashir A. Khan	Pakistani	Chairman TEVTA	House No.30 D, Sarwar Road, Lahore Cantt., Lahore.	
Mr. Sahir R. Chohan	Dr. M. A. Chohan	Pakistani	Engineer	House No. 16, St. No. 63, Sector F7/3, Islamabad	
M. Abrar Hyder	Dr. S. M. Haq	Pakistani	Businessman	House No. 1-41 Gulberg II, Lahore	
M. Syed Nabeel Hashmi	Syed Quswat Ali Shari	Pakistani	Chief Executive Thermoseal Industries (Pvt.) Ltd.	House No. 688 Dicks Sector C, I. Township, Lahore.	
Mr. M. I. Khuram	Haji Barkat Ali	Pakistani	Chief Executive Comfort Knitwear (Pvt.) Ltd.	45-EI, Gulberg-III, Lahore	
Major (R) Shateerwaz Badar	R. M. Badar	Pakistani	Secretary Labour and Human Resources	House No. 88 BOR-II, Shadman, Lahore	
Mr. Kamran Lashari	Sardar Abdul Majeed Khan Lashari	Pakistani	Secretary Environment Protection	House No. 224 F-10/3, Islamabad.	
Mr. Zahoor Ahmad Khan	Naseer Ahmad Khan	Pakistani	Engineer	House No.18 Fateh Sher Road Mozang, Lahore.	
Dr. Faisal Bari	Abdul Bari	Pakistani	Economist	122-II, Phase-II, Lahore.	
				House No.29 Ghazi Road, Karachi, Mohallah Gaddar Bazar, Lahore	



Dated the \_\_\_\_\_ day of \_\_\_\_\_

WITNESS TO ABOVE SIGNATURES

Full Name:

Father's Name:

Full Address:

Nationality:

**ATTESTED**

Signatures:   
OATH COMMISSIONER  
Advocate High Court, Lahore

THE COMPANIES ORDINANCE, 1984

ARTICLES OF ASSOCIATION

OF

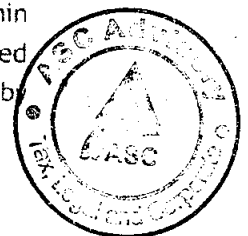
PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY  
(A COMPANY LIMITED BY GUARANTEE HAVING A SHARE CAPITAL)

PRELIMINARY

1. WHEREAS IT HAS BEEN agreed by several persons whose names are hereunto subscribed to establish and incorporate a Company Limited by Guarantee having a Share Capital under the provisions of the Companies Ordinance, 1984 in the name of Punjab Industrial Estate Development and Management Company (hereinafter referred to as "The Company") in accordance with the provisions of the Memorandum of Association hereto annexed and subject to several regulations hereinafter contained which shall be the regulations for management of "The Company" and for the observance of Members thereof and their representatives and the same shall subject to exercise powers of "The Company", in reference to the repeal or alteration of or addition to, its regulations by Special Resolution as prescribed by the "Ordinance", be such as are contained in "These Presents".

INTERPRETATION

2. The marginal notes hereto shall not affect the construction hereof, and in "These Presents" unless there be something in the subject or context inconsistent therewith:
  - I. "Attorney" includes an attorney duly constituted or appointed under power of attorney or any other authority in writing.
  - II. "Board of Directors" means the Board of Directors (BOD) of "The Company" as constituted under provisions of "These Presents".
  - III. "Board of Management" mean representatives of occupiers of each Industrial Estate, nominated and appointed as such by BOD subject to Article 22 hereof. For the purposes of this clause an "occupier" means an owner in possession of an industrial unit in industrial estate(s).
  - IV. "Chairman" means Chairman of "The Company" duly nominated from time to time by "Government" under the provisions of "These Presents".
  - IV-a "Chief Executive Officer" means the contractual employee, selected through an open competitive selection process by BOD to perform functions within the meaning of section 2(6) of the Companies Ordinance, 1984 and appointed as such in accordance with the terms and conditions to be determined by BOD.
  - V. "Federal Government" means Government of Pakistan.



- VI. "Fund" means initial amount to be provided by "Government" on loan basis on mutually agreed terms and conditions including mark-up rate with repayment period.
- VII. "General Body" means General Body of "The Company" as constituted under the provisions of "These Presents".
- VIII. "Government" means Government of the Punjab through Industries Department.
- IX. "Industrial Estate" means an Industrial Estate managed or to be established by "The Company" anywhere in the Province of Punjab.
- X. "Independent Director" means a director who is nominated by "Government" and shall have the same meanings as ascribed thereto respectively by the "Rules".
- XI. "Legal Advisor" means an Advocate entitled to appear before any of the High Court of Pakistan or Supreme Court of Pakistan and shall be appointed by the Chief Executive Officer and approved by BOD on retainer basis.
- XII. "Local Government" means a Local Government as defined in the Punjab Local Government Ordinance, 2001 (XIII of 2001).
- XIII. "Member" means Member of "The Company" whose name appears and/or is borne on the Register, as envisaged by Section 2(21) of the "Ordinance".
- XIV. "Month" means English calendar month.
- XV. "Office" means the registered office of "The Company".
- XVI. "Ordinance" means the Companies Ordinance, 1984 and every statutory modification thereof for the time being in force.
- XVII. "Prescribed" means as prescribed by BOD from time to time.
- XVIII. "Rules" means the Public Sector Companies (Corporate Governance) Rules, 2013 and every statutory modification thereof for the time being in force.
- XIX. "Register" means the Register of Members to be kept pursuant to the "Ordinance".
- XX. "Seal" means the common Seal of "The Company".
- XXI. "Secretary" means any individual appointed to perform the secretarial, administrative or other duties ordinarily performed by the secretary of a company.
- XXII. "Special Resolution" and "Ordinary Resolution" have the same meanings as assigned thereto respectively by the "Ordinance".
- XXIII. "These Presents" means and include Articles of Association and any modification or alteration thereof for the time being in force.
- XXIV. Words importing singular number only include the plural number.
- XXV. Words importing plural number only include the singular number.

- XXVI. Words importing masculine gender only include the feminine gender.
- XXVII. Words importing feminine gender only include the masculine gender.
- XXVIII. Words importing persons include bodies corporate and otherwise, firms, registered or un-registered associations, and non-government, semi-government and government organizations.
- XXIX. Words of expressions in "These Presents" shall, except where it is repugnant to the subject or context, bear the same meanings as in a Standard English Dictionary.
- XXX. "Written" and "In Writing" includes printing, lithography, type-writing, telex, tele-facsimile (fax) and other modes of representing or reproducing words in a visible form.

#### BUSINESS OF "THE COMPANY"

3. The business of "The Company", its affairs and/or functions shall comprise of achieving the objects given in the Memorandum and include undertaking of all or any of the several objects, and any act, deed or thing done in pursuance thereof, ancillary and/or incidental thereto as expressed in, and authorized by the Memorandum of Association hereto annexed, and can be commenced immediately after incorporation of "The Company" as BOD may think fit.

#### SHARE CAPITAL OF "THE COMPANY"

4. The Equity of "The Company" which shall be provided by the "Government" as follows:

- Authorized Capital Rs. 150.00 Million (Rupees One Hundred and Fifty Million)
- Paid up Capital Rs. 50.00 Million (Rupees Fifty Million)

The Capital shall be divided into Five (5) Million Ordinary Shares of Rupees Ten (10) each. "The Company" may from time to time, by Special Resolution, increase, consolidate, subdivide, reduce or otherwise reorganize the Share Capital, subject to the "Ordinance" and with prior approval of the "Government".

#### TRANSFER AND TRANSMISSION OF SHARES

5. The "Government" shall have the exclusive right to transfer any share.
- No shares can be mortgaged, pledged, sold, hypothecated, transferred or disposed of by any Member without previous sanction of Government.
- In case of death of any Member, his share shall automatically stand transferred to Government, which shall have the exclusive right to allot the same to any other person/institution/entity.

#### MEMBERSHIP

6. The subscribers to "These Presents" and to the Memorandum of Association hereunto annexed shall be admitted to the Membership of "The Company" from time to time and shall be deemed to have agreed to become a "Member" of "The Company" in



accordance with and in pursuance to "These Presents" and whose names appear in the Register, shall be the "Member" of "The Company".

7. The total number of members of BOD of "The Company" shall be fifteen (15), who shall be nominated by "Government". Nine (09) members including the Chairman shall be the Independent Directors nominated by "Government". Six (06) members of the BOD shall be the Secretaries to the "Government" for Industries Department, Finance Department, Labor & Human Resource Department Chairman TEVTA., Chief Executive Officer of "The Company" and Chief Executive Officer of Punjab Board of Investment & Trade (PBIT) shall be appointed *ex-officio*.

Subsequent vacancies arising thereafter of members of BOD shall be filled in accordance with "These Presents". Due regard shall be given to skills and discipline in the composition of "General Body". Any person, who is a loan defaulter, or is a sponsor of a company which is in loan default, or otherwise ineligible to hold any such post under or by any law cannot be a member of BOD.

8. Any person/industrial estate/organization interested in the promotion of good governance and engaged in any voluntary activity with a proven record of Industrial experience is eligible to become a "Member" of "General Body" on invitation by BOD and approval of "Government", except a person/ industrial estate/organization who is a loan defaulter, or is a sponsor of company which is a loan defaulter, or otherwise ineligible to hold any such post under or by any law. Such person/industrial estate/organization may be associated with a voluntary organization or a private individual having record of community service but his/its Membership of "The Company" will be in his/its individual capacity.

9. "The Company" shall maintain a Roll of "Members", clearly indicating their full names, addresses and occupations and every "Member" shall sign the same. If a "Member" of "The Company" changes his address, he shall forthwith notify his new address to "Secretary" of "The Company", who shall thereupon cause the new address to be put on the Rolls of "Members". Where, however, a "Member" does not notify any change of address to the "Secretary", the address appearing on the Rolls of the "Members" shall be deemed to be correct address of the "Member". The said Roll of "Members" also called "Register" shall be maintained at the Office of "The Company".

10. Membership of "The Company" may be terminated on the happening of any of the following events:

- I. On the "Member's" death, resignation, insolvency, lunacy or conviction for an offense involving moral turpitude.
- II. When a "Member" does not attend three consecutive General Meetings of "The Company" without prior leave of absence granted by BOD.
- III. When "The Company" in General Meeting, by a simple majority, decides to terminate the Membership of any person who acts in a manner prejudicial to the interests of "The Company", fails to fulfill any obligation required by "The Company" or acts in a manner as is not conducive to the objects of "The Company".

11. Subject to the foregoing and/or other provisions, Membership of "The Company" shall be open to all Pakistani citizens.
12. If a vacancy occurs, among the "Members", such vacancy shall be filled in as provided in Article (08) supra.
13. When a "Member" desires to resign from his Membership of "The Company", he shall forward his letter of resignation to the Chairman and such resignation shall take effect only from the date of its acceptance by BOD.
14. "The Company" shall function notwithstanding any vacancy in any of its bodies and no act, direction or proceeding of "The Company" shall be rendered invalid merely by reason of such vacancy or because of any defect in the appointment of any of the officers of "The Company".
15. The Chairman and the members of BOD will not be paid any remuneration but will be provided traveling, boarding, lodging traveling and transportation facilities on such terms as decided by BOD.
16. "Members" of "The Company" shall not be paid any remuneration or dividend.

#### OFFICERS OF "THE COMPANY"

17. "The Company" shall comprise the following:
  - I. General Body
  - II. BOD
  - III. Chairman
  - IV. Chief Executive Officer
  - V. Secretary
  - VI. Board of Management for specific Industrial Estates, exercising such powers as may be specifically "Prescribed" by BOD.

#### GENERAL BODY

18. There shall be a "General Body" of "The Company", which shall comprise of all the shareholders.
19. The Chairman shall preside over all meetings of "General Body".
20. The Chairman may invite any person other than a Member to attend a meeting of "General Body". Such invitee to be known as special invitee, shall not, however, be entitled to vote at the meeting.
21. "General Body" shall have the following powers and functions, namely:
  - a. to give overall policy guidance and direction for the efficient functioning of "The Company";
  - b. to approve the annual budget;
  - c. to consider the balance sheet and audited accounts for the previous year;

- d. to consider the annual report prepared by BOD;
- e. to amend "These Presents", if deemed necessary, by way of addition, alteration, modification or substitutions, in accordance with the "Ordinance" and with prior approval of the "Government" only after which the same shall be submitted to and approved by the Registrar Companies, Lahore Region.
- f. to appoint auditors except the First Auditors to be appointed by BOD.

#### POWER OF NOMINATION AND/OR TERMINATION

- 22. The power to nominate and/or terminate the Chairman, any Director or the "Member" of "General Body" shall vest with the "Government". The "Government" may also supersede BOM of industrial estates or appoint or remove member(s) thereof.

#### GENERAL MEETINGS

- 23. The First Annual General Meeting of "The Company" shall be held at such time not more than eighteen (18) months after the incorporation of "The Company", and at such time and place as BOD may determine.
- 24. Subsequent Annual General Meetings of "The Company" shall be held at least once every year at such time and place as may be determined by BOD; within fifteen calendar months after the holding of the last preceding General Meeting and within four months from the closing of the annual accounts.
- 25. The above named General Meetings shall be called Annual General Meetings. All other meetings of "The Company" shall be called Extraordinary General Meetings.
- 26. BOD may at any time call for an Extraordinary General Meeting and shall, on the requisition of the Members representing not less than one-third of the voting power on the date of deposit of requisition, proceed to call an Extraordinary General Meeting.
- 27. Any such requisition shall specify the objects of the Meeting and shall be signed by the makers, and shall be deposited at the Office. The meeting must be convened for purposes specified in the requisition only.
- 28. If BOD does not proceed to cause a meeting to be held within twenty one days from the date of requisition being deposited, the makers or a majority of them may themselves convene a meeting to be held not more than three months, from the date of deposit of the requisition.
- 29. Any meeting convened through requisition shall be convened in the same manner, as nearly as possible, as that in which meeting is convened by BOD.
- 30. Subject to the provisions of the "Ordinance", relating to Special Resolutions, twenty one days notice, at least (exclusive of the day on which the notice is served or deemed to be served, but inclusive of the day on which the notice is given), specifying the place, the day and the hour of the meeting, and in case of special business, the general nature of such business, shall be given of every General Meeting whether Annual or Extraordinary to the "Members" in the manner in which notices

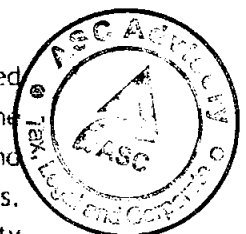


are required to be served in accordance with the provisions contained herein below. Notwithstanding anything contained herein before, a meeting may be convened by such shorter notice and in such manner as those "Members" may think fit with the consent of all the "Members" entitled to receive notice thereof and the permission of the Registrar Companies, Lahore Region.

31. The accidental omission to give any such notice to or the non-receipt of notice by any of the "Member" shall not invalidate the proceedings of any such meeting.

#### PROCEEDING AT GENERAL MEETINGS

32. The business of an Annual General Meeting shall be to receive and consider the income and expenditure account and balance sheet, the Annual Report of BOD and of the Auditors, if required or found necessary, and the appointment of the Auditors and fixation of their remuneration and to transact any other business which may be transacted at an Annual General Meeting. All other business transacted at Annual General Meeting and all business transacted at an Extraordinary General Meeting shall be deemed special.
33. Two third (2/3) of the voting power of "Members" of "The Company" present personally, shall be a quorum for a General Meeting for all purposes. No business shall be transacted at any General Meeting unless the quorum is present at the commencement of business.
34. If within an hour of the time appointed for the meeting a quorum is not present, the meeting if called on the requisition of "Members", shall be dissolved. In any other case, it shall stand adjourned to the same day in the next week at the same time and place, and if at the adjourned meeting, a quorum is not present within half an hour from the time appointed for the meeting, "Members" being not less than one fourth (1/4) of the total voting power of "Members" of "The Company", shall be a quorum.
35. The Chairman shall be entitled to take the chair at every General Meeting of "The Company". If the Chairman is unable due to sickness or some other unavoidable reasons, BOD may elect one of the Director's to preside.
36. The Chairman may, with the consent of any meeting at which a quorum is present (and shall if so directed by the meeting), adjourn the meeting from time to time and from place to place, but no business shall be transacted at any adjourned meeting other than the business left unfinished at the meeting from which the adjournment took place. When a meeting is adjourned for ten days or more, notice of the adjourned meeting shall be given as in the case of an original meeting. Save as aforesaid, it shall not be necessary to give any notice of an adjournment or of the business to be transacted at an adjourned meeting.
37. At any General Meeting a resolution put to the vote of the meeting shall be decided on a show of hands, unless a poll (before or on the declaration of the result of the show of hands) demanded in accordance with the provisions of the "Ordinance" and unless a poll is so demanded, a declaration by the Chairman that a resolution has, on a show of hands, been carried or carried unanimously or by a particular majority



and an entry to that effect in the book of the proceedings of "The Company" shall be conclusive evidence of the fact, without proof of the number or proportion of the votes recorded in favor of, or against, that resolution.

38. If a poll is duly demanded, it shall be taken in such manner as the Chairman shall direct, and the result of the poll shall be deemed to be the resolution of the meeting at which the poll was demanded.
39. In the case of an equality of votes, whether on a show of hands or on a poll, the Chairman of the meeting at which the show of hands takes place, or at which the poll is demanded, as the case may be, shall be entitled to a casting vote.
40. The demand of a poll shall not prevent the continuance of a meeting for the transaction of any business other than the question on which a poll has been demanded.

#### VOTES OF MEMBERS

41. On a show of hands and on a poll, every Member present in person shall have vote(s) according to the shareholding. Voting by proxy is allowed as envisaged by the "Ordinance".
42. Any corporation or body corporate which is a Member of "The Company" may by resolution of its directors or other governing body, authorize such person as it thinks fit, to act as its representative at any meeting of "The Company". The persons so authorized shall be entitled to exercise the same powers on behalf of the corporation which he represents as that corporation could exercise if it were an individual Member of "The Company" present in person. A corporation or body corporate, as the case may be, attending a meeting through such representative shall be deemed to be present at the meeting in person.

#### BOARD OF DIRECTORS (BOD)

43. The BOD shall comprise of fifteen (15) members of which nine (09) members including the Chairman shall be the Independent Directors. The remaining six (06) members shall be the following
  - Secretary Industries
  - Secretary Finance
  - Secretary Labor and Human Resource Development
  - Chairman TEVTA
  - Chief Executive Officer of "The Company"
  - Chief Executive Officer PBIT
44. The affairs of "The Company" shall be managed by BOD, which shall have the responsibility to determine the direction and scope of the activities of "The Company" in accordance with the objectives specified in Memorandum of Association. It shall also have the responsibility to approve projects and assignments as well as providing technical assistance as may be mutually agreed upon, to the "Local Governments" and to approve and administer the annual and supplementary budgets.

45. The term of office of a member of BOD shall be three years, unless he resigns earlier or becomes disqualified from being a Director or otherwise ceases to hold office.
46. No member of BOD shall serve for more than three (03) consecutive terms of three (03) years each except *ex officio* members.
47. Members of BOD shall function in their individual capacity exercising individual judgment under the Chairman, and shall not be subjected to or be bound by instructions or orders of the office, organization or agencies with which they may be associated, except *ex officio* members.
48. No action or decision by BOD shall be rendered invalid or inoperative on account of any vacancy or vacancies in the composition of BOD.
49. The meetings of BOD shall be held in the following manner:
  - a. The BOD shall hold at least six regular meetings every year and shall be called by notice under the signature of "Secretary".
  - b. All meetings of BOD shall be presided over by the Chairman or in his absence, by a Director to be elected by BOD.
  - c. Minutes of the meetings of BOD shall be recorded by "Secretary" or in his absence by a member of BOD, appointed by the Chairman. The minutes shall be duly approved or corrected at the following regular meeting and filed in the permanent records of "The Company".
  - d. Members of BOD shall not receive any compensation for their services to "The Company" and/or any profit out of the business of "The Company".
50. Every notice calling for a meeting of BOD shall state "In Writing" the date, time and place of the meeting and shall be sent to every member of BOD ordinarily seven clear days before the day appointed for the meeting.
51. Any inadvertent omission to give notice or the non-receipt or late receipt of a notice by any member shall not invalidate the proceedings of the meetings.
52. At least 1/4<sup>th</sup> of the members of the BOD shall constitute a quorum provided at least one Director shall be the representative of the "Government".
53. Each member of BOD shall have one vote. All questions at meetings of BOD shall be determined by a vote of members present, provided that in case of equality of votes, the Chairman shall have a casting vote.
54. Subject to the "Ordinance" any business which BOD may consider necessary to perform, except such as may be required to be placed before "General Body" in general meeting, may be performed by a resolution In Writing circulated among all members of BOD, and any such resolution so circulated and approved by a majority of the members signing, shall be as effectual and binding as if a resolution had been passed at a meeting of BOD.
55. The proceedings of the meeting of BOD and resolution passed by the circulation shall be recorded in a book which shall be maintained by "The Company" for this purpose.



56. BOD shall exercise all executive and financial powers of "The Company", subject to such direction as may be issued by "General Body" from time to time.
57. The BOD shall be responsible for developing the policy guide lines for over-all management and administration of "The Company" and in particular and without prejudice to the generality of the foregoing provisions, BOD shall have the powers, subject to the provisions hereof, *inter alia*:
- I. establish byelaws and service rules of "The Company";
  - II. to constitute or to reconstitute Board of Management(s) for the industrial estates established, developed or managed by "The Company" and appoint members, fill casual vacancy(ies) and to remove any or all member(s) thereof;
  - III. to devise eligibility criteria and to establish operational policies including those relating to finance(s) for "BOM" of the Industrial Estate(s) established, developed or managed by "The Company";
  - IV. prepare and execute detailed plans and programs for the furtherance of the objects of "The Company";
  - V. consider the annual and supplementary budgets placed before it and pass them with such modifications as may be deemed necessary for being submitted to "General Body";
  - VI. prepare annual report and cause the preparation of accounts of "The Company" for consideration of "General Body";
  - VII. create posts and appoint such contractual staff as may be required for efficient management of affairs of the "The Company" and regulate the recruitment and terms and conditions of their services;
  - VIII. receive and to have custody of Funds and resources of "The Company", operate "The Company" and manage the properties of "The Company";
  - IX. incur expenditures subject to the provisions of the approved budget;
  - X. enter, for and on behalf of "The Company", into agreements including those containing arbitration clauses;
  - XI. establish, maintain, amalgamate and/or close down 'the company' offices etc. as may be deemed appropriate;
  - XII. to propose investment scenarios relating to Industrial Estate(s) development to Government;
  - XIII. to promote the establishment of common technical facility centers for up gradation of technologies used by the occupier(s) of Industrial Estate(s);
  - XIV. appoint boards, committees, sub-committees and panels, consisting of persons who may or may not be Members of "The Company" or employees of "The Company" to deal with any specific task as may be determined from time to time and to confirm the appointment of Legal Advisor appointed by the Chairman;

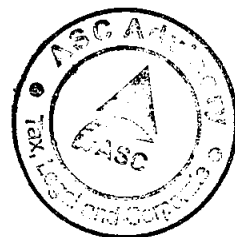
- XV. to impose and recover fees and charges for the services rendered by "The Company"; and
  - XVI. to contract out operational and management functions as and when required, to reputable firms or companies;
58. BOD may by resolution delegate such administrative, financial and other powers to the Chairman, Chief Executive, committees, sub-committees, panels and boards or any other officer of "The Company" as it may consider necessary and proper, subject to the condition that action taken by them under the powers so delegated, shall have to be confirmed and/or ratified in the next meeting of BOD.

#### CHAIRMAN

- 59. A. The Chairman shall be nominated by the "Government".
  - B. The Chairman shall not be paid any remuneration for his services, but shall be provided all secretarial/material/technical support in order to facilitate the efficient handling of "The Company". He will also be provided boarding, lodging, traveling and transportation facilities and shall be reimbursed for out of pocket expenses.
60. The Chairman shall be responsible *inter alia* for:
- I. coordinating and exercising general supervision over all activities of "The Company"; and
  - II. any other task as may be delegated by BOD.

#### CHIEF EXECUTIVE OFFICER (CEO):

- 60 A. a. The CEO shall be a contractual employee to be hired for a period of three years renewable term. He shall be duly selected through an open competitive selection process by the BOD from private sector having engineering/management qualification and experience of at least 10 years managing industrial projects, and appointed as such in accordance with terms and conditions of his appointment to be determined by BOD.
- b. The CEO shall work under the directions of the BOD through Chairman and he shall be responsible for day-to-day management and administration of "The Company". Without prejudice to the generality of the foregoing, he shall be responsible:
- I. to determine powers, duties and fix salaries or emoluments of the managers, secretaries, officers, clerks and employees, either permanent or temporary and to require security in such instances and to such amount as deemed appropriate;
  - II. to prescribe duties of all employees and staff of "The Company";
  - III. to make, draw, endorse, sign, accept, negotiate and give cheques, bills of lading, drafts, orders, bills of exchange, promissory notes and other negotiable instruments in the amount(s) and manner as allowed/approved by BOD;



- IV. to institute, conduct, defend or abandon any legal proceedings by or against "The Company" in consultation with Legal Advisor or otherwise concerning the affairs of "The Company" and also to compound and allow time for payment or satisfaction of any debt due and of any claim or demand by or against "The Company";
- V. proper administration of the affairs, "Funds" and resources of "The Company";
- VI. to secure fulfillment of any contract, agreement or engagement entered into by "The Company" by mortgage or charge of all or any of the properties of "The Company" from time to time or in such manner as he may think fit in the interest of "The Company";
- VII. to appoint and to remove or suspend managers, secretaries, officers, clerks and employees, either permanent or temporary, and to determine their powers, duties and fix their salaries or emoluments and to require security in such instances and to such amount as deemed appropriate;
- VIII. to refer any claims or demands by or against "The Company" to arbitration and observe and perform the awards in consultation with Legal Advisor;
- IX. to exercise supervision and disciplinary control over the work and conduct of all employees of "The Company" in accordance with Human Resource and Administration Policy/Rules or Regulations approved by the BOD;
- X. to delegate any of his functions to any officer of "The Company" with permission of the BOD;
- XI. any other task assigned by BOD.

#### POWERS AND DUTIES OF BOD

- 61. The business of "The Company" shall be managed by BOD, who may exercise all such powers of "The Company" as are required by the "Ordinance".

#### RESOURCES OF "THE COMPANY"

- 62. The resources of "The Company" shall consist of the following;
  - I. grants made by "Government";
  - II. fee and charges imposed by "The Company" for services rendered by it; and
  - III. income and receipt from other sources;
- 63. "The Company" may in furtherance of its objectives;
  - I. invest and deal with "Funds" and monies of "The Company" according to "These Presents";
  - II. borrow and raise resources for "The Company" according to "These Presents";

- III. draw, accept, make, endorse, sign, negotiate, deposit, promissory notes, bills of exchange, cheques or any other negotiable instruments; and
- IV. create, with the permission of "Government", a reserve company, sinking company, insurance company or any other special company whether for depreciation, repair, improvement, extension or maintenance of any of the properties or rights of "The Company" and/or for recouping wasting assets and for any other purposes for which "The Company" deems it expedient or proper to create or maintain any such company or companies.
64. All properties of "The Company", moveable or immovable, shall vest in "The Company" and shall be administered by Chief Executive Officer, on behalf of "The Company" within the parameters set by "The Company" in its General Meeting or otherwise as directed by BOD.
65. "The Company" may purchase, hire, lease, exchange or otherwise acquire property, moveable or immovable, tangible or intangible (including copyrights, patents and intellectual properties) which may be necessary or convenient for the purpose of "The Company" and construct, alter and/or maintain such buildings and works as may be necessary for carrying out the objects of "The Company" provided that for acquisition or disposal of immovable property through any mode, prior permission of "Government" shall be mandatory.
66. The income and the property of "The Company", however derived, shall be applied towards the promotion and furtherance of the objectives of "The Company" as set forth in the Memorandum of Association hereto annexed. Save as otherwise provided elsewhere, no portion of the income and property of "The Company" shall be paid or transferred directly or indirectly by way of dividend or by way of profit to persons who at any time are or have been "Members" of "The Company" or to any of them or to any person claiming through them provided that nothing herein shall prevent the payment in good faith any remuneration to any employee or other person in return for services rendered to "The Company" or for traveling allowance, and other similar out of pocket expenses.
67. A. All funds should be paid into "The Company's" account(s) with the bank(ers) of "The Company" and shall not be withdrawn except by cheque signed by authorized representatives in accordance with the procedure to be "Prescribed";
- B. Unless otherwise authorized by BOD, no new account in the name of "The Company" shall be opened.

#### THE SEAL

68. The "Seal" shall not be affixed to any instrument except by the authority of a resolution of the BOD and in the presence of at least two members of BOD or such other persons as BOD may appoint for the purpose and they shall sign every instrument to which the "Seal" is affixed in their presence.



## ACCOUNTS

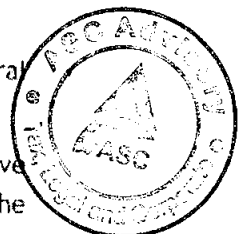
69. The BOD shall cause to be kept proper books of accounts as required under section 230 of the "Ordinance".
70. The books of account shall be kept at the "Office" or at such other place as BOD shall think fit and shall be open to inspection by the members of BOD during business hours.
71. BOD shall from time to time determine whether and to what extent and at what time and places and under what conditions or regulations, the accounts and books or papers of "The Company" or any of them shall be open to the inspection of Members not being members of BOD and no Member (not being a member of BOD) shall have any right of inspecting any account and book or papers of "The Company" except as conferred by law or authorized by BOD or by "The Company" in General Meeting.
72. BOD shall cause to be prepared and to be laid before "The Company" in General Meeting such profit and loss accounts or income and expenditure accounts and balance-sheets duly audited and reports as are required by sections 233 and 236 of the "Ordinance".
73. A balance-sheet, profit and loss account, income and expenditure account and other reports referred to in Article 69 supra shall be made out in every year and laid before "The Company" in the Annual General Meeting and made up to a date not more than four (04) months before such meeting. The balance-sheet and profit and loss account or income and expenditure account shall be accompanied by a report of the Auditors of "The Company" and the report of BOD.
74. A copy of the balance-sheet and profit and loss account or income and expenditure account and reports of BOD and Auditors shall, at least twenty one days preceding the meeting be sent to the persons entitled to receive notices of General Meetings in the manner in which notices are to be given hereunder.
75. BOD shall in all respects comply with the provisions of sections 230 to 236 of the "Ordinance".

## AUDIT

76. The appointment and duties of the auditor(s) shall be regulated in accordance with the "Ordinance".
77. A. "The Company" at each Annual General Meeting shall appoint an auditor(s) being chartered accountant(s) to hold office until the next Annual General Meeting and the following provisions shall have effect, that is to say:
  - if an appointment of an auditor(s) is not made at an Annual General Meeting, the Securities and Exchange Commission may appoint an auditor(s) as per provisions of the "Ordinance".
  - I. A member of BOD or an officer of "The Company", or a partner of or person in the employment of such member of BOD or officer or any person, indebted to "The Company" shall not be appointed auditor of "The Company".



- II. If any person after being appointed auditor becomes indebted to "The Company", his appointment shall thereupon be terminated.
  - III. The First Auditor(s) of "The Company" may be appointed by BOD within 60 days of the date of incorporation and auditor(s), if so appointed, shall hold office until the first Annual General Meeting, unless previously removed by a resolution of "The Company" in General Meeting in which "Member" of "The Company" may appoint auditor(s) at such a meeting.
  - IV. Retiring auditor(s) shall be eligible for re-appointment.
  - V. No person other than a retiring auditor(s) shall be capable of being appointed to the office of the auditor at the Annual General Meeting unless notice of an intention to nominate him be given to "The Company" not less than fourteen days before the day fixed for the holding of such Annual General Meeting and upon receipt of such notice, the provisions of the "Ordinance" shall be complied with.
- B. Any other audit of "The Company" shall be conducted as provided in the "Ordinance".
78. The remuneration of the auditor(s) shall be fixed by "The Company" in the General Meeting except that the remuneration of any auditor(s) appointed before the first Annual General Meeting or to fill any casual vacancy may be fixed by BOD.
79. Every auditor of "The Company" shall have a right of access at all times to the books, assets and accounts and vouchers of "The Company" and shall be entitled to require from the members of BOD and officers of "The Company" such information and explanation as may be necessary for the performance of duties of the auditor(s) and auditor(s) shall make a report to Members of "The Company" on the accounts examined by them, and on every balance-sheet, income and expenditure account laid before "The Company" in the General Meeting, during their tenure of office and the report shall state whether or not they have obtained all information and explanations they have required and whether or not in their opinion the balance-sheet, is in conformity with the law and whether or not such balance-sheet, and income and expenditure account, exhibit true and correct view of the state of "The Company's" affairs according to the best of their information and explanations given to them as shown by the books of "The Company" and whether or not in their opinion the books of accounts have been kept by "The Company" as required by the "Ordinance"; where any of the matters referred to herein above and answered in the negative or with a qualification, the report shall state the reasons for such answers and the report shall be attached to the balance-sheet, income and expenditure account and such report shall be read before "The Company" in a General Meeting and shall be open to inspection by any "Member".
80. The auditor(s) shall be entitled to receive notice of and to attend all General Meetings of "The Company".
81. Every account when audited and approved by the General Meeting shall be conclusive except as regards any error discovered therein within three months after the



approval thereof. Whenever any such error is discovered within that period, the account shall forthwith be corrected and henceforth shall be conclusive.

#### NOTICE

82. A notice may be given by "Secretary" to any "Member" either personally or by sending it by post to him to his registered address.
83. Where a notice is sent by post, service of the notice shall be effected by properly addressing, pre-paying and posting a letter containing the notice and unless the contrary is proved, notice shall be deemed to have been effected at the time at which the letter would be delivered in the ordinary course of post.
84. Notice of every General Meeting shall be given in a manner described supra to every "Member".

#### INDEMNITY

85. Every "Member" of "The Company" and BOD, the Chairman, Chief Executive Officer or any other officer or employee of "The Company" shall be indemnified by "The Company" against all costs, losses which they may incur or become liable to pay by reason of any contract entered into or act or deed done by them in discharge of their duties in good faith and any loss occasioned by any error of judgment, damage or misfortune which may happen in the execution of their duties in connection with affairs of "The Company".

#### POWER OF GOVERNMENT

86. Power to authorize the development, and up-gradation of existing or new "Industrial Estate(s)" shall vest in the "Government".

#### AMENDMENT

87. "These Presents" may, subject to clause 7 of the Memorandum of Association, be amended, modified, substituted, altered or repealed by a three fourth majority of the voting strength of the "Members" present and voting on a Special Resolution for the purpose in an Extraordinary General Meeting of the "Members", provided that a notice "In Writing" specifying the intention to propose the resolution as a Special Resolution shall have been served on "Members" of "The Company" at least twenty-one days prior to the meeting.

*M J M W*  
*10/10/2012*

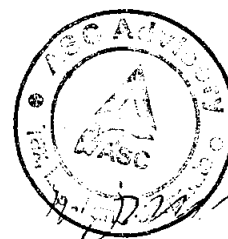
*Valued*  
DISTRICT OFFICER (PWMI)  
For Registrar of Stock Companies  
Lahore

We, the several persons, whose names and addresses are hereunder subscribed, are desirous of being formed into a Company in pursuance of these Articles of Association:

Name and surname (present and former in full and block letters)	Father's/Husband's name in full	Nationality (former Nationality)	Occupation	Residential address in full	Signature
Monsin M. Syed	Syed M. Musa	Pakistani	Engineer	71-S, Defence Phase-II, Lahore Cantt.	
Mr. Fayyaz Basor	Basor Ahmad	Pakistani	Secretary Industries, Commerce & Investment	7-Aikman Road, GOR, Lahore	
Mr. Khawaja Muhammad Qwais	Khawaja Khuda Bakhs	Pakistani	Industrialist	House No. 2, Nisar Colony Kashina Dastgir Lahore.	
Mr. Sikander Mustafa Khan	Eashir A. Khan	Pakistani	Chairman, T. & T. A.	House No. 30-D, Sarwar Road, Lahore Cantt., Lahore.	
Mr. Sabir P. Chohan	Dr. M. A. Chohan	Pakistani	Engineer	House No. 16, St. No. E3, Sector F7/3, Islamabad.	
Mr. Almas Hyder	Dr. S. M. Naqvi	Pakistani	Businessman	House No. L-41, Gulberg-II, Lahore.	
Mr. Syed Nadeem Hashmi	Syed Qwais Ali Shan	Pakistani	Chief Executive, Thermosol Industries (Pvt.) Ltd.	House No. 638 Block-3 Sector C I. Township, Lahore.	
Mr. M. I. Khurram	Haji Barkat Ali	Pakistani	Chief Executive, Textile Millwear Ltd.	45 E/I Gulberg-III, Lahore.	
Major (R) Shahrazad Badar	S. M. Badar	Pakistani	Secretary Labour and Human Resources	House No. 85 GOR III, Shadman, Lahore.	
Mr. Kamran Lashari	Sargor Abdul Najeeb Khan Lashari	Pakistani	Secretary Environment Protection	House No. 224 F-10/3, Islamabad.	
Mr. Zameer Ahmad Khan	Naseer Ahmad Khan	Pakistani	Engineer	House No. 18 Fatch Sher Road Mozang, Lahore.	
Dr. Faisal Bari	Abdul Bari	Pakistani	Economist	122-R, Phase II, Lahore.	
				House No. 29 Ghazi Road, Karachi, Minallah Saddar Bazar, Lahore.	



ATTESTED



DISTRICT OFFICER  
Enterprises & Investment Promotion  
for Registration of Stock Companies  
Lahore

Dated the \_\_\_\_\_ day of \_\_\_\_\_  
WITNESS TO ABOVE SIGNATURES

Full Name: Muhammad Azeem  
Father's Name: Mr. Muhammad Azeem  
Full Address: 101, D.I. LDA, G.D.B.

Signature:   
Occupation: Entrepreneur

District Officer,  
Enterprises & Investment Promotion  
for Registration of Stock Companies  
Lahore

DISTRICT OFFICER (IPWM)  
for Registration of Stock Companies  
Lahore

## Independent Auditor's Report

### To the members of Punjab Industrial Estate Development and Management Company

#### Report on the Audit of the Financial Statements

##### Opinion

We have audited the annexed financial statements of **Punjab Industrial Estate Development and Management Company** (the Company), which comprise the statement of financial position as at **June 30, 2018**, and the statement of income and expenditure and other comprehensive income, the statement of changes in equity, the statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies and other explanatory information, and we state that we have obtained all the information and explanations which, to the best of our knowledge and belief, were necessary for the purposes of the audit.

In our opinion and to the best of our information and according to the explanations given to us, the statement of financial position, statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes forming part thereof conform with the accounting and reporting standards as applicable in Pakistan and give the information required by the Companies Act, 2017 (XIX of 2017), in the manner so required and respectively give a true and fair view of the state of the Company's affairs as at June 30, 2018 and of the surplus and other comprehensive income, the changes in equity and its cash flows for the year then ended.

##### Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs) as applicable in Pakistan. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the Company in accordance with the International Ethics Standards Board for Accountants' Code of Ethics for Professional Accountants as adopted by the Institute of Chartered Accountants of Pakistan (the Code) and we have fulfilled our other ethical responsibilities in accordance with the Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

##### Emphasis of Matter

As disclosed in note 13 to the financial statements, the Company has received various lands for estates development in the form of loan from Government of Punjab. These loans have been classified as current liabilities due to the fact that terms of these loans have not been formalized with the Finance Department of Government of Punjab through agreements.

*GPX*

## Information Other than the Financial Statements and Auditor's Report Thereon

Management is responsible for the other information. The other information comprises directors' report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

## Responsibilities of Management and Board of Directors for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with the accounting and reporting standards as applicable in Pakistan and the requirements of Companies Act, 2017(XIX of 2017) and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Board of directors are responsible for overseeing the Company's financial reporting process.

## Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with ISAs as applicable in Pakistan will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with ISAs as applicable in Pakistan, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

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ATTESTED TO BE TRUE  
FUNDAL INDUSTRIAL ESTATES  
DEVELOPMENT AND MANAGEMENT COMPANY  
OWNED BY GOVT. OF PUNJAB  
Company Secretary

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

### Report on Other Legal and Regulatory Requirements


Based on our audit, we further report that in our opinion:

- a) proper books of account have been kept by the Company as required by the Companies Act, 2017 (XIX of 2017);
- b) the statement of financial position, the statement of income and expenditure and other comprehensive income, the statement of changes in equity and the statement of cash flows together with the notes thereon have been drawn up in conformity with the Companies Act, 2017 (XIX of 2017) and are in agreement with the books of account and returns;
- c) investments made, expenditure incurred and guarantees extended during the year were for the purpose of the Company's business; and
- d) no zakat was deductible at source under the Zakat and Ushr Ordinance, 1980 (XVIII of 1980).

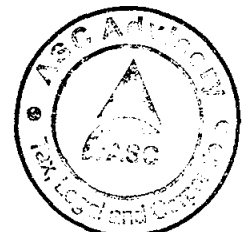
### Other Matter:

The financial statements of the Company for the year ended June, 2017 were audited by another auditor who expressed an unmodified opinion on those statements on November 25, 2019.

The engagement partner on the audit resulting in this independent auditor's report is Imran Afzal.

  
CHARTERED ACCOUNTANTS  
Lahore

Dated: July 5, 2021



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TUMSAD INDUSTRIAL ESTATES  
DEVELOPMENT AND MANAGEMENT COMPANY  
ORIGINATED BY: BOARD OF DIRECTORS

ASL

Company Secretary

## Review Report to the Members

### On the Statement of Compliance with the Public Sector Companies (Corporate Governance) Rules, 2013

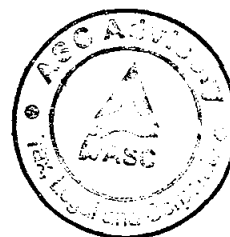
We have reviewed the enclosed Statement of Compliance with the best practices contained in the Public Sector Companies (Corporate Governance) Rules, 2013 (the Rules) prepared by the Board of Directors of *Punjab Industrial Estate Development and Management Company* (the Company) for the year ended June 30, 2018.

The responsibility for compliance with the Rules is that of the Board of Directors of the Company. Our responsibility is to review, to the extent where such compliance can be objectively verified, whether the Statement of Compliance reflects the status of the Company's compliance with the provisions of the Rules and report if it does not and to highlight any non-compliance with the requirements of the Rules. A review is limited primarily to inquiries of the Company's personnel and review of various documents prepared by the Company to comply with the Rules.

As a part of our audit of the financial statements we are required to obtain an understanding of the accounting and internal control systems sufficient to plan the audit and develop an effective audit approach. We are not required to consider whether the Board of Directors' statement on internal control covers all risks and controls or to form an opinion on the effectiveness of such internal controls, the Company's corporate governance procedures and risks.

The Rules requires the Company to place before the Audit Committee, and upon recommendation of the Audit Committee, place before the Board of Directors for their review and approval its related party transactions distinguishing between transactions carried out on terms equivalent to those that prevail in arm's length transactions and transactions which are not executed at arm's length price and recording proper justification for using such alternate pricing mechanism. We are only required and have ensured compliance of this requirement to the extent of the approval of the related party transactions by the Board of Directors upon recommendation of the Audit Committee. We have not carried out any procedures to determine whether the related party transactions were undertaken at arm's length price or not.

*Signature*



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PUNJAB INDUSTRIAL ESTATES  
DEVELOPMENT AND MANAGEMENT COMPANY  
Gwalior Road, Gwalior, India

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Company Secretary

Based on our review, nothing has come to our attention which causes us to believe that the Statement of Compliance does not appropriately reflect the Company's compliance, in all material respects, with the best practices contained in the Rules as applicable to the Company for the year ended June 30, 2018.

*Grant Thornton Anjum Rahman*  
**Grant Thornton Anjum Rahman**

Chartered Accountants

City: Lahore

Dated: July 5, 2021



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PUNJAB INDUSTRIAL ESTATES  
DEVELOPMENT AND MANAGEMENT COMPANY  
OWNED BY GOVT. OF PUNJAB

AK

Company Secretary



**THE COMPANIES ACT, 2017**  
**THE COMPANIES (GENERAL PROVISIONS AND FORMS) REGULATIONS, 2018**  
 [Section 130(1) and Regulations 4]

**ANNUAL RETURN OF COMPANY HAVING SHARE CAPITAL**

**PART-I**

*(Please complete in typescript or in bold block capitals.)*

1.1 CUIN (Registration Number)

R	P	-	3	7	9
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1.2 Name of the Company

Punjab Industrial Estate Development & Management Company

1.3 Fee Payment Details 1.3.1 Challan No. 1.3.2

--

Amount

500/-

dd

mm

yyyy

1.4 Form A made up to

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0	8
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2.4 Date of AGM

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2	0	2	1 *
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\* The AGM was required to be held on or before 28-10-2018, however the same was held on 06-08-2021 under directions of the Registrar of Companies u/s 147 of the Companies Act, 2017.

**PART-II**

**2. Section-A**

2.1 Registered office address:

Commercial Area (North), Sundar Industrial Estate, Sundar Raiwind Road, Lahore.

2.2 Email Address:

corporate@pic.com.pk

2.3 Office Tel. No:

042-35297203-06

2.4 Office Fax No.:

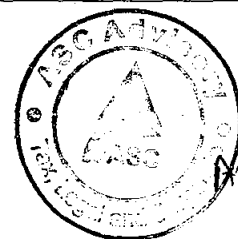
042-35297207

2.5 Principal line of business:

To establish new industrial estates and to upgrade those existing industrial estates as assigned by the Government.

2.6 Mobile No. of Authorized officer (Chief Executive/ Director/Company Secretary/ Chief Financial Officer)

0320-0840648



785

2.7

Authorized Share Capital			
Class and kinds of Shares	No. of Shares	Amount	Face Value
Ordinary Shares	15,000,000	Rs. 150,000,000/-	Rs. 10/-

2.8

Paid up Share Capital			
Class and kinds of Shares	No. of Shares	Amount	Face Value
Subject to payment wholly in cash	5,000,000	Rs. 50,000,000/-	Rs. 10/-

2.9

Particulars of the holding/subsidiary company, if any		
Name of company	Holding/Subsidiary	% of share held
NIL	NIL	NIL

2.10 Chief Executive Officer:

Name	Ali Muazzam Syed														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	5	2	0	2	-	8	2	7	9	6	8	6	-	3

2.11 Chief Financial Officer:

Name	Hamood -ur-Rahman														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	7	4	0	5	-	9	8	3	5	7	4	3	-	5

2.12 Secretary:

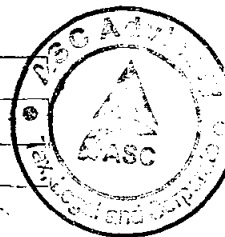
Name	M. Shafiq ur Rehman														
Address	North Commercial Area, Sundar Industrial Estate, Lahore.														
NIC #	3	5	2	0	2	-	9	7	2	7	1	4	5	-	1

2.13 Legal Advisor:

Name	M/s Ahmed and Pansota														
Address	20 - Ganga Ram Mansions, The Mall, Lahore, Pakistan.														

2.14 Particulars of Auditor(s)

Name	Grant Thornton Anjum Rahman (GTAR)														
Address	1-Inter Floor Eden Center 43 Jail Road Lahore.														
NIC #															



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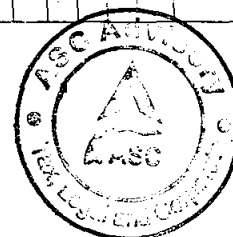
## 2.16 Particulars of Share Registrar (if applicable)

Name	N.A
Address	N.A
e-mail	N.A

Section-B:

## 2.16 List of Directors as on the date annual return is made:

Sr. #	Name	Residential Address	Nationality	NIC No. (Passport No. if foreigner)																Date of Appointment or election
1	Syed Nabeel Hashmi	Thermosole Industries (Pvt.) Ltd. 140 Main Industrial Area, Kot-Lakhat, Lahore.	Pakistani	3	5	2	0	2	-	2	6	9	8	5	7	4	-	5	Govt. of Punjab constituted Board of Directors vide Notification # AEA-I-15-22/2002(P-V) of ICI & SD Department dated 4-9-2019	
2	Ahsan Mahmood Butt	M/s FAS Tube Mills & Engineering, Plot # 457-460, Sundar Industrial Estate, Lahore	Pakistani	3	5	2	0	1	-	1	6	0	6	2	5	8	-	9	-do-	
3	Muhammad Anees Khawaja	Mehr Manzil, O/S Lohari Gate Multan.	Pakistani	3	6	3	0	2	-	4	6	4	8	2	8	5	-	3	-do-	
4	Syed Tariq Siraj Jafri	68-Block-B, Model Town, Lahore	Pakistani	3	5	2	0	2	-	2	5	9	5	1	7	4	-	1	-do-	
5	Shahid Hussain Tarar	House # 12/13, A/2, WAPDA Town, Gujranwala.	Pakistani	3	4	1	0	1	-	9	5	3	4	6	8	9	-	9	-do-	
6	Khawaja Arif Qasim	125-A, Quaid-e-Azam Industrial Estate, Kot-Lakhat, Lahore.	Pakistani	3	5	2	0	2	-	4	6	0	1	9	2	8	-	1	-do-	

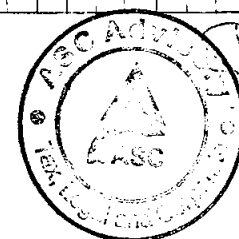


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7	Usman Aslam Malik	M/s Koretec Auto Industries 16-KM, Multan Road, Lahore.	Pakistani	3	5	2	0	1	-	1	5	5	5	4	0	9	-	1	-do-
8	Dr. Sumaira Rehman	Superior University, 17-KM Mian Raiwind Road, Lahore.	Pakistani	3	5	2	0	2	-	9	7	6	0	8	5	3	-	0	-do-
9	Dr. Erfa Iqbal Chief Executive Officer PBIT	Punjab Board of Investment & Trade, 23 Aikman road GOR-1, Lahore.	Pakistani	4	2	3	0	1	-	7	7	2	5	4	3	6	-	8	27-11-2020
10	Muhammad Abdullah Khan Sumbal, Secretary Finance Department	Finance Dept. Civil Secretariat Lahore.	Pakistani	3	5	2	0	2	-	2	9	9	4	9	2	3	-	9	30-04-2019
11	Wasif Khurshid, Secretary ICI&SD Department	ICI&SD Dept. Old P&D Building, 2 Bank Road, Lahore.	Pakistani	3	6	3	0	2	-	9	1	7	1	7	4	0	-	9	06-11-2020
12	Dr. Ahmed Javed Qazi, Secretary Labour & Human Resource	Labour & Human Resource Dept., 2 Bank Road, Lahore.	Pakistani	3	5	2	0	2	-	2	8	6	5	5	8	2	-	5	25-09-2020
13	Ali Salman Siddique Chairperson TEVTA	96-Gulberg Road, Lahore.	Pakistani	3	5	2	0	2	-	8	7	0	6	5	2	8	-	9	08-08-2019
14	Ali Muazzam Syed	Commercial Area, Sundar Industrial Estate, Lahore.	Pakistani	3	5	2	0	2	-	8	2	7	9	6	8	6	-	3	01-02-2021

2.17 List of members and Debenture holders on the date up to which this Form is made:

S#	Folio #	Name	Address	Nationality	No. of shares held	NIC No. (Passport No. if foreigner)													
Members		Government of the Punjab (through Industries, Commerce, Investment & Skill Development Department).	ICI&SD Dept. Old P&D Building, 2 Bank Road, Lahore.	NIL	5,000,000														
Debenture holders			NIL	NIL	NIL														



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Use separate sheet, if necessary

2.18 Transfer of shares (debentures) since last Form A was made:

Sr. #	Name of Transferor	Name of Transferee	Number of shares transferred	Date of registration of transfer
	NIL	NIL	NIL	NIL

Use separate sheet, if necessary

### PART-III

3.1

Declaration:

I do hereby solemnly; and sincerely declare that the information provided in the form is:

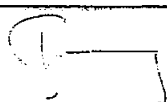
- true and correct to the best of my knowledge in consonance with the record as maintained by the Company and nothing has been concealed; and
- hereby reported after complying with and fulfilling all requirements under the relevant provisions of law, rules, regulations, directives, circulars and notifications whichever is applicable.

3.2 Name of Authorized Officer with designation /Authorized Intermediary

M. Shafiq ur Rehman

Acting Company Secretary

3.3 Signatures



3.4 Registration No of Authorized Intermediary, if applicable

3.5

Date

Day

Month

Year

1	2
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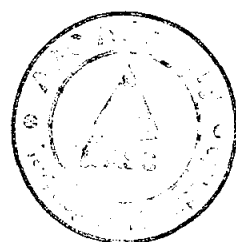
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**TECHNICAL & FINANCIAL PROPOSAL  
IN REASONABLE DETAIL FOR THE  
OPERATION, MAINTENANCE,  
PLANNING AND DEVELOPMENT OF  
THE FACILITY AT VIE**



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## **Project objectives**

### **Objectives of the sector**

The main objective of power sector program is to provide adequate facilities for reliable and stable supply of electrical power to the Vehari Industrial Estate, Specialized Economic Zone in Vehari. The project will speed up economic activities that shall have its social benefits.

### **Relationship of the Project with Objectives of the Sector**

#### **Objectives of the Project**

The primary objective of the project is to create adequate electric supply facilities to support the load in the subject SEZ to achieve the targets fixed in the industrial sector of the national economy.

### **Description, Justification, Technical Parameters & Technology Transfer Aspects:**

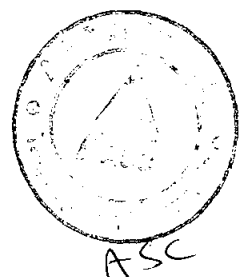
#### **Description of Project**

To meet the demand in the Special Economic Zone of Vehari Industrial Estate, new Grid Station along with its allied transmission line shall be constructed. This will provide uninterrupted reliable power to cater for the demand.

#### **Component of Project**

##### **New Grid Station**

New Grid Station with 2x40 MVA, 132/11KV transformers Capacity has been proposed.



## **Transmission Lines**

Transmission Line with the length 5 KM, STD circuit on Rail conductor, connected with existing 220/132 kV Vehari Grid station has been proposed.

### **Design of Transmission Lines**

The design of the proposed transmission lines is based upon the load anticipated to flow through them as well as the distance involved.

The voltage of line is determined by the regulation and reliability of power supply as well as economic considerations.

### **Size of Conductor**

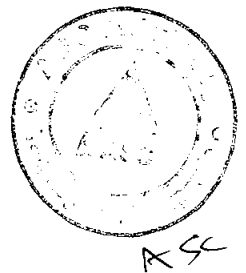
The conductor sizes have been standardized as ACSR i.e. Rail, and Lynx for 132kV transmission lines. All two types of conductors have been proposed, according to load demand, environment etc. & available existing infrastructure.

### **Design of Towers**

The design of steel towers is based upon the mechanical loadings which are acting on the tower. These are transverse, vertical and longitudinal loads to which the tower is subjected. The towers have been designed in such a way that they do not collapse under simultaneous acting of these loads, providing a factor of safety.

The transverse loads are mostly created by the winds acting on the above mentioned standardized conductors and towers and these have been calculated according to international practices.

The vertical loads have been calculated from the weight of the conductor, hardware and fittings while the longitudinal loads are those which are created by the broken wire conditions or the unbalanced loads in the longitudinal direction.





### **Operating Voltage**

132kV  $\pm$  5%

### **Voltage Variation**

These lines have been designed for voltage variation of  $\pm$  5% of the normal operating voltages

### **Proposed Project**

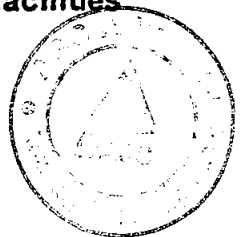
In view of location of 132 kV Grid station and surrounding system network, the following interconnection scheme has been proposed for reliable supply of power to SEZ.

1. 132 kV Grid Station Vehari Industrial Estate with STD, 5 Km T/Line on RAIL conductor with existing 220/132 kV Vehari Grid station has been proposed.
2. New Grid Station with 2x40 MVA, 132/11KV transformers Capacity has been proposed.
3. New Grid station Vehari Industrial Estate has been proposed with 11kV 2x6 MVAR capacitors.

### **Justification of Project**

This shall ensure smooth & consistent flow / supply of electricity within the SEZ. The same will produce social & economic benefits.

**Civil works, equipment, machinery and other physical facilities required for the project**



ASC

Basic infrastructure facilities including civil works such as, foundations for installation of switchgears / equipment's, control house buildings, associated residential & non-residential buildings and cable trenches etc. will be required, for which necessary provision has been made in the cost estimates.



ASC

### **Operating Voltage**

132kV  $\pm$  5%

*System studies  
Load flow studies*

### **Voltage Variation**

These lines have been designed for voltage variation of  $\pm$  5% of the normal operating voltages

### **6.3 Proposed Project**

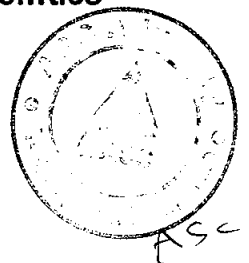
In view of location of 132 kV Grid station and surrounding system network, the following interconnection scheme has been proposed for reliable supply of power to SEZ.

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2. New Grid Station with 2x40 MVA, 132/11KV transformers Capacity has been proposed.
3. New Grid station Vehari Industrial Estate has been proposed with 11kV 2x6 MVAR capacitors.

### **6.5 Justification of Project**

This shall ensure smooth & consistent flow / supply of electricity within the SEZ. The same will produce social & economic benefits.

### **6.7 Civil works, equipment, machinery and other physical facilities required for the project**



Basic infrastructure facilities including civil works such as, foundations for installation of switchgears / equipment's, control house buildings, associated residential & non-residential buildings and cable trenches etc. will be required, for which necessary provision has been made in the cost estimates.

#### **6.8 Governance issues of the sector relevant to the project and strategy to resolve them**

There is no major governance issue of the sector in execution of the project.

#### **6.9 Load Flow Studies**

A load flow analysis allows identification of real and reactive power flows, voltage profiles, power factor and any overloads in the network.

##### **6.9.1 Assumptions for Load Flow Studies**

The load flow studies are based on the following assumptions;

- i. Latest PMS load forecast, attached as Annex-1.
- ii. Latest MEPCO's planned / on-going transmission expansion / re-enforcement projects, including substations (extension, augmentation, conversion, new), transmission lines have also been assumed in the studies as per their expected commissioning schedules.
- iii. The existing and planned shunt capacitors at 11 kV and 132 kV have been modeled in the study scenarios. However, additional shunt capacitors have also been assumed to compensate the reactive power factor.

##### **6.9.2 Study Criteria for Load Flow Studies**

The load flow studies have been carried out keeping in view the following criteria in the MEPCO's network:

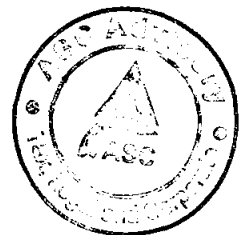
- ❖ Voltage Limits:  $\pm 5\%$  under normal operating conditions.



- ❖ Loading of transmission lines and transformers have been kept within 100% of their capacities under normal operating conditions.

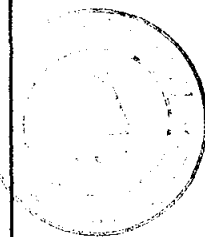
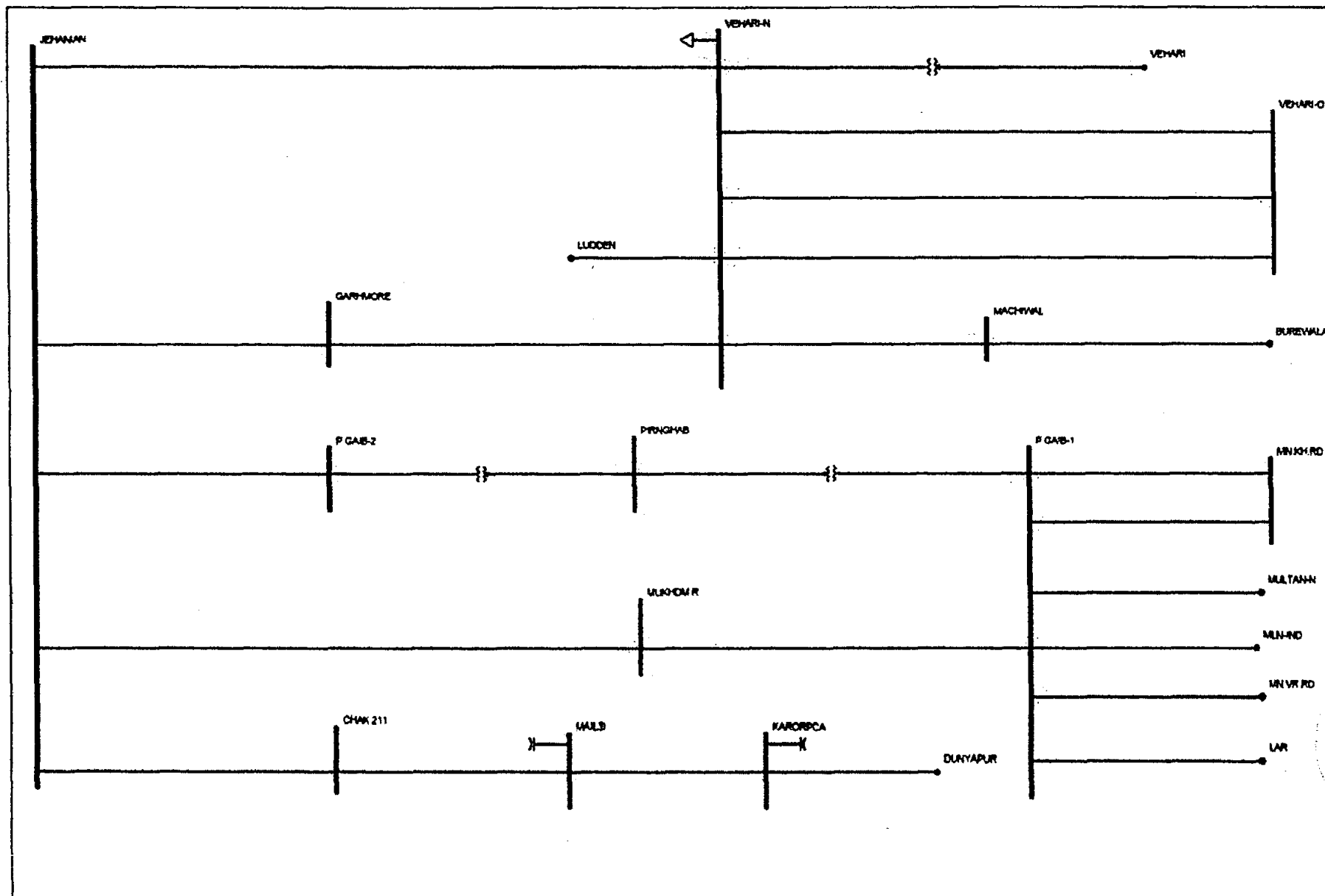
### **6.9.3 Results of Load Flow Studies**

Load flow studies have been carried out and attached as follow. The system scenarios of peak load conditions of years 2023 have been simulated. The results were satisfactory.



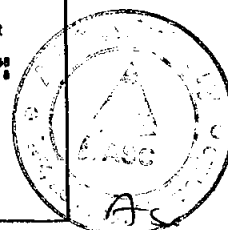
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# LOAD FLOW STUDY OF NEW 132 KV VEHARI INDUSTRIAL ESTATE GRID STATION PEAK LOAD CASE SUMMER 2023: EXISTING SCENARIO



Asc

## 8



#### **6.9.4 Benefits / Conclusion**

The benefits of the proposed works under this plan have been quantified in terms of:

- Continuous reliable supply of Energy to Vehari Industrial State
- Increased economic activity
- Job creation

#### **7. Capital Cost Estimates**

The cost of the project is estimated to be **Rs. 478,034,123**. The details are attached here as Annex-2.

### **9. Demand and Supply Analysis**

#### **9.1 Demand Forecast of MEPCO**

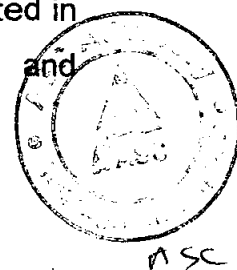
The load forecast of MEPCO is being carried-out by the Power Market Survey Cell. This cell collects the required information (i.e. total sold energy of ending June) from MIS office, physical site visits, collection of data from field formations regarding pending connections & work together with Planning Power NTDCL, Lahore for its proper calculation. The PMS Study is provided at Annex-1.

The maximum demand recorded in 2019-2020, for MEPCO area is as under:

- a) Summer - 4115 MW (09/2019)
- b) Winter - 815 MW (02/2020)

The future loads of all types of communities are projected on the basis of present pattern of power consumption, taking into consideration the industrial and agricultural development programs.

The demand of districts in each division and then of all the divisions located in the entire system are worked out after accounting for transmission and



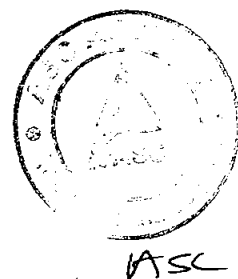


distribution losses and applying appropriate diversity factors at different stages.

On the basis of this, Power Market Survey, jointly prepared by MEPCO & NTDCL, Lahore, year wise load forecast of MEPCO is given as Annex-1

## 10. Financial Plan

Sr. No.	Source	Amount (Rs)
a)	<b>Equity</b>	
	i) Sponsors own fund	<b><u>478,034,123</u></b>
	ii) Federal Govt.	-
	iii) Provincial Govt.	-
	iv) DFI's/banks	-
	v) General Public	-
	vi) Foreign equity	-
	vii) NGO's/beneficiaries	-
	viii) Others.	-
b)	<b>Debt.</b>	
	i) Local	-
	ii) FEC	-
	iii) Interest Rate	-
	iv) Grace period	-
	v) Repayment period	-
	vi) Loan repayment schedule	-
c)	<b>Already allocated</b>	-
d)	<b>Net Requirement</b>	





# PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY

PIE/CEO/1248  
February 16, 2021

To, The Chief Executive Officer  
Multan Electric Power Company (MEPCO)  
MEPCO Head Quarter  
Main Khanewal Road, Multan.

Subject: **CONSTRUCTION OF 132 KV GRID STATION FOR 60 MW LOAD AT  
VEHARI INDUSTRIAL ESTATE.**

References: *Chief Engineer (P&E), MEPCO Letter No.1295-98/CE(P&E) dated January 27, 2021. (Copy attached as Annex-A)*

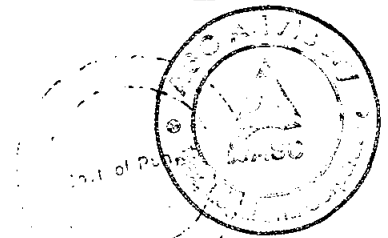
With reference to above letter, application for sanctioning of 60 MW load for construction of 132 KV Grid Station at Vehari Industrial Estate is attached herewith for kind processing/approval please. The required documents from Sr. No. 1 to 9 are attached with this letter. However, for Sr. No. 10, it is informed that PIEDMC is filing Distribution License application for VIE with NEPRA in next week.

Looking forward for your prompt response, please.

Chief Executive Officer

C.C.:

1. The Chief Executive Officer, MEPCO.
2. The General Manager Technical, PIEDMC.
3. The Chief Engineer Electrical, PIEDMC.
4. The Chief Engineer Development PMU, MEPCO.
5. The Chief Engineer (P&E), MEPCO
6. The Project Director, VIE.
7. The Project Director (GSC), MEPCO Multan.



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Head Office: Commercial Area (North) Sundar Industrial Estate, Sundar-Raiwind Road, Lahore.

Tel: 042-35297203-6, Fax: 042-35297207

UAN: +92-42-111-743-743 Website: [www.pie.com.pk](http://www.pie.com.pk)

An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001



VEHARI 10 KM  
INDUSTRIAL  
ESTATE

KHENEMAL  
VEHARI ROAD 24 WB

PAKPATAN CANAL

GRID STATION

BUREWALA  
33 KM

BUREWALA  
ROAD

RAILWAY  
STATION

CHOWK

RAILWAY LINE

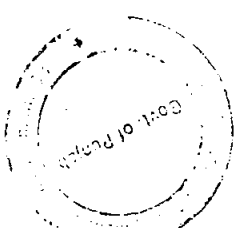
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Baghban, Pura

HASILPUR  
50 KM

Seismic  
Tsunami



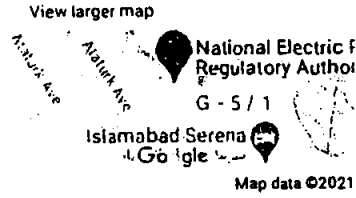
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## LOCATION MAP



## IMPORTANT LINKS

- > Home
- > About Us
- > Services
- > Contact Us
- > News & Media
- > Investor Relations
- > Careers
- > Privacy Policy



# پاکستان سٹیزن پورٹل



عوام کی آواز



## وزیر اعظم پاکستان

کی ہدایت کی روشنی میں پاکستانی شہری اور بیرون ملک مقیم افراد سرکاری محکموں سے متعلق اپنی شکایات کے بروقت ازالے کے لیے پاکستان سٹیزن پورٹل کی سہولت کی ایکٹویشن ڈاؤن لوڈ کریں۔

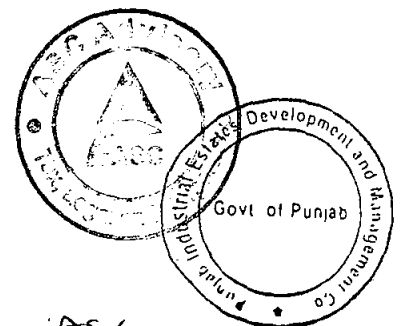


**PRIME MINISTER'S PERFORMANCE  
DELIVERY UNIT (PMDU)**

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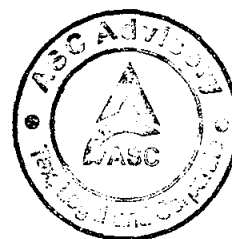
**NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**



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**3(5)(g)(b)(iii)**

**Particulars in respect of the availability, sources, rates and evidence of commitments from the sources of electrical power**



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**SUBJECT: AVAILABILITY, SOURCES, RATES AND EVIDENCE OF COMMITMENTS  
WITH THE APPLICANTS FROM THE SOURCES OF ELECTRIC POWER**

**1. AVAILABILITY**

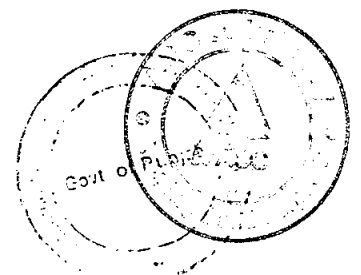
- a. PIEDMC is being constructing its own 132KV Grid Station at Vehari Industrial Estate with ultimate load of 60MW.

**2. SOURCE**

- a. From 220KV Grid Station Vehari, MEPCO to 132KV Grid Station Vehari Industrial Estate.

**3. RATES**

- a. The security deposits for different class of Industrial connections are same as applicable in MEPCO.
- b. All Tariff rates are the same as applicable in MEPCO for i.e. B-1, B-2, B-3, A-2 etc.
- c. The minimum charges required for certain class of connection are same as of MEPCO.
- d. The equipment costs, however, vary because the two systems are entirely different in nature, as the MEPCO distribution system is an open-air/overhead system. Where the transformer and conductor are installed on the towers/poles. Whereas PIEDMC's distribution system is an-underground and overhead system. Where the cables are embedded under the ground and the transformers are totally enclosed PMT (Pad Mounted Transformer) At VIE, to eliminate the electricity outages/tripping and increase the system stability. Every feeder is configured in ring main system, controlled by the ring main unit (RMU). Every transformer at VIE is connected to two (02) sources, in case of fall we can restored consumer supply from alternate source.
- e. Consumer will provide their own transformer according to their load requirement as per WAPDA/MEPCO Pattern.



ACC



# PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY

PIE/CEO/1248  
February 16, 2021

To, The Chief Executive Officer  
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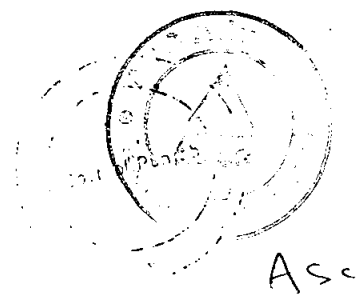
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Looking forward for your prompt response, please.

Chief Executive Officer

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2. The General Manager Technical, PIEDMC.
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An Approved Non Profit Organisation U/S 2(36) of Income Tax Ordinance 2001



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**Muneeb Ahmad Dar**  
Chief Engineer Electrical  
Punjab Industrial Estates  
Development & Management Company  
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Development & Management Company  
Chief Engineer Electrical  
Punjab Industrial Estates  
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ASLAM BAKAR S YED (P) 2/1/11, (CEO) KUNING INDUSTRIAL ESTATE DEVELOPMENT AND MANAGEMENT COMPANY. (P)

ALL INFORMATION CONTAINED  
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ALL INFORMATION CONTAINED  
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DATE 05-11-2010 BY 60322

50 INDIAN INDUSTRIAL ESTABLISHMENT COMPANY (P) LTD  
DEVELOPMENT AND MANAGEMENT COMPANY

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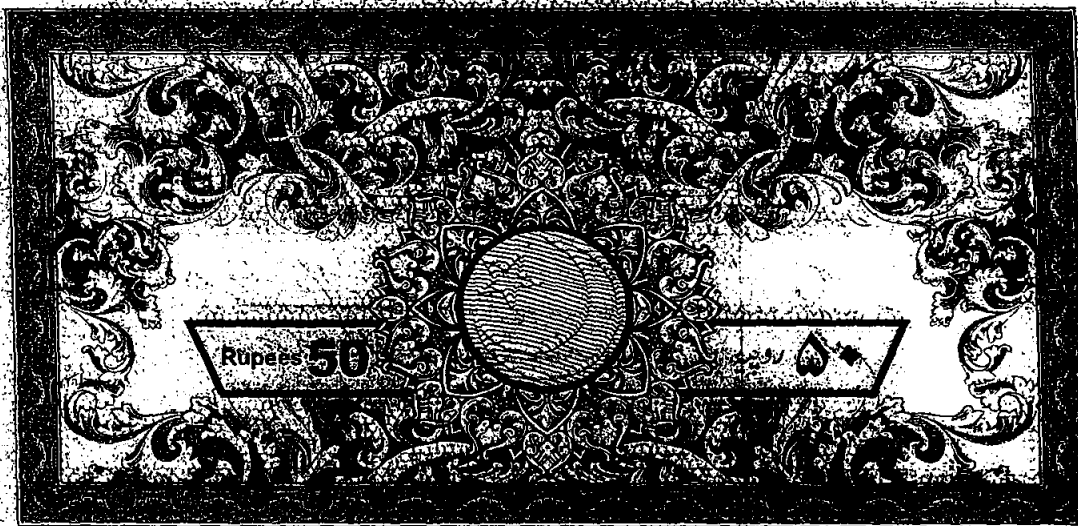
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#### UNDERTAKING (NEW-1)

I, MR. ALI MUAZZAM SYED CEO, PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY S/O ASLAM BAHAR SYED working at HEAD OFFICE PIEDMC NORTH COMMERCIAL AREA SUNDAR INDUSTRIAL ESTATE RAIWIND ROAD LAHORE

Hereby undertake as under:

1. We intend to obtain New Connection from MEPCO for a load of 60 MW under Tariff B4 for our company at VEHARI INDUSTRIAL ESTATE.
2. We wish to operate our Industrial Estate for production of PACKAGING, PHARMA, TEXTILE, ENGG, FOOD PROCESSING INDUSTRIES etc. on three shifts and will continue to operate it on three shifts.
3. We will inform MEPCO / WAPDA at least one month in advance as and when we intend to operate our company's load on less than 24 hours a day.
4. We have neither obtained nor shall obtain in future Electric Power from any private power generation plant, if MEPCO fulfill our energy requirement to meet partial and full electric power requirement of our Industrial Estate.
5. We will confirm that we qualify under the terms of the WAPDA for time of day (TOD) tariff and therefore. Opt for the same.
6. We will use only WAPDA supply during WAPDA electricity availability hours.
7. We shall abide by terms and conditions of WAPDA's TOD tariff and in the event we violate any terms and conditions of this tariff at any time of this undertaking WAPDA may with draw TOD tariff.
8. In the event the TOD meter installed by WAPDA becomes defective or slow we agree that WAPDA may assess energy consumption of our company during peak and off-peak hours on the basis of the reading recorded on WAPDA'S MDI meter installed on the same billing panel.
9. We shall pay on demand any dues or undercharges worked out by the department or by the audit.

**Witness**

Signature: Muneeb Ahmad Dar

Name: MUNEEB AHMAD DAR

CNIC: 35200-1452647-5

Dated: \_\_\_\_\_

**Applicant**

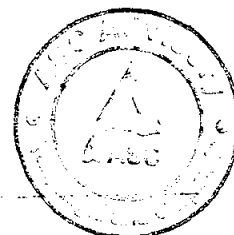
Signature: Ali Muazzam Syed

Name: ALI MUAZZAM SYED

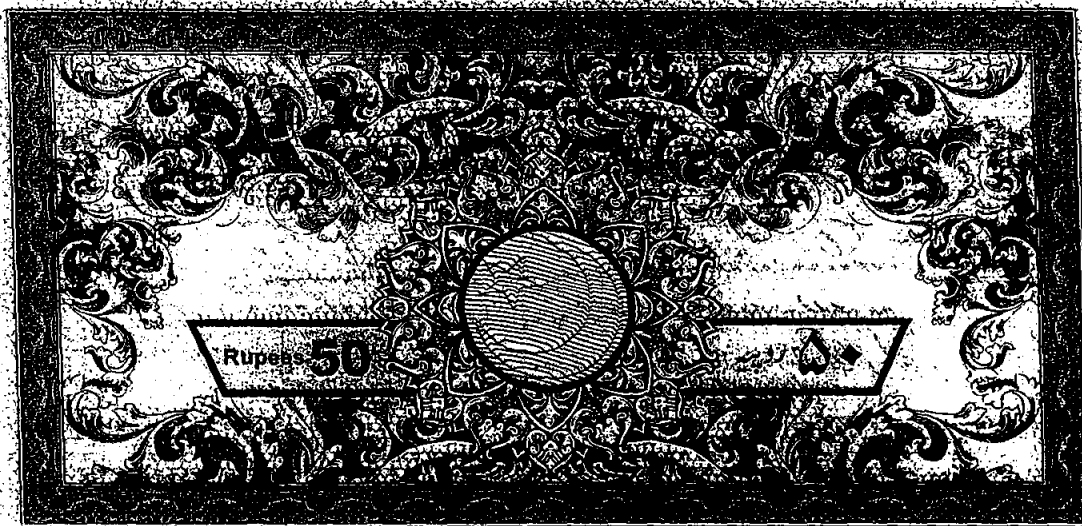
CNIC: 35202-8279686-3

Dated: \_\_\_\_\_

**Muneeb Ahmad Dar**  
Chief Engineer Electrical  
Punjab Industrial Estates  
Development & Management Company



ASC



#### UNDERTAKING (NEW-2)

I, MR. ALI MUAZZAM SYED CEO, PUNJAB INDUSTRIAL ESTATES DEVELOPMENT AND MANAGEMENT COMPANY S/O ASLAM BAHAR SYED working at HEAD OFFICE PIEDMC NORTH COMMERCIAL AREA SUNDAR INDUSTRIAL ESTATE RAIWIND ROAD LAHORE

Hereby undertake as under:

1. I have gone through the Abridged Conditions of supply and I had signed in the presence of witness. I will abide by the clauses of the agreement in the true letter and spirit and any change thereto.
2. I shall immediately report to MEPCO/WAPDA, if any changes in ownership nature of business or type of load are made in the premises as per instructions of department in vogue.
3. I shall restrict the load within sanctioned limits and will not indulge in unauthorized extension of load in case of violation MEPCO may precede in accordance with law.
4. I shall not hesitate and be prepared to pay the enhanced rate of material (difference of cost of material) due to variation in store issue rate escalation or any other reason.
5. I shall abide to pay to MEPCO / WAPDA energy charges on monthly basis and any other undercharges reported by auditor of any WAPDA office etc. moreover nothing is outstanding against our connection at the premises.
6. I shall not claim any penalty form MEPCO/WAPDA, if failure of supply occurred due to forced or scheduled load shedding or any other technical reason.
7. I shall not indulge in theft of energy or any other un-lawful means, which may lead to deprive the department from its legitimate revenue.
8. I shall continue to abide by all the rules and proceeded of MEPCO/WAPDA and shall not question before any court forum or office.
9. I have written this statement on my behalf and on the behalf of other directors of the company with the best of my physical and mental faculties and without any fear, favor or undue influence.

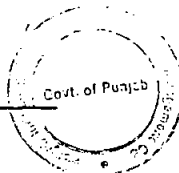
Witness

Signature: Muneeb Ahmad Dar

Name: MUNEEB AHMAD DAR

CNIC: 35200-1452647-5

Dated: \_\_\_\_\_



Applicant

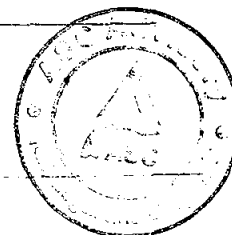
Signature: Ali Muazzam Syed

Name: ALI MUAZZAM SYED

CNIC: 35202-8279686-3

Dated: \_\_\_\_\_

**Muneeb Ahmad Dar**  
Chief Engineer Electrical  
Punjab Industrial Estates



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## B-4 SUPPLY AT 66KV, 132 KV AND ABOVE.

1. This Tariff is applicable for supply to industries for all loads above 5000 KW receiving supply at 66 KV and also for industries having loaded 5000 KW or below who opt to receive supply at 66 KV or 132 KV.
2. If for any reason, the meter reading date of a consumer is altered and the acceleration / retardation in the date is up to 4 days, no notice shall be taken of this acceleration or retardation. But if the date is accelerated by more than 4 days, the fixed charges shall be assessed on proportionate basis for the actual number of days between the date of the old reading and the new reading.
3. The grid station required for provision of supply falls within the purview of the dedicated system under the NEPRA Eligibility Criteria, the supply under this Tariff shall not be available to such approval of the consumer unless he provides to the satisfaction and including Land, Building, Transformers, Circuit Breakers and other necessary equipment and apparatus as part of the dedicated distribution system for receiving and controlling the supply, or, alternatively, pays to the company for all such Land, Building, Transformers, Circuit Breakers and necessary equipment and apparatus if so provided and installed by the company. The recovery of cost of service connection shall be regulated by NEPRA Eligibility Criteria.
4. All B-4 Industrial Consumer shall be billed on the basis of two-part T.O.U tariff.

### Part-I GENERAL DEFINITIONS

The Company for the purpose of these terms and conditions means Lahore Electric Supply Company (LESCO) engaged in the business of distribution of electricity within the territory mentioned in the license granted to it for this purpose.

1. "Month or billing period" unless otherwise defined for any particular tariff category means a billing month of 30 days or less reckoned from the date of last meter reading.
2. "Minimum Charge" means a charge to recover the costs for providing customer service to Consumer even if no energy is consumed during the month.
3. "Fixed Charge" means the part of sale rate in a two part to be recovered on the basis of Billing Demand in kilowatt on monthly basis
3. "Billing Demand" means the highest of maximum demand recorded in a month except in the case of agriculture tariff D2 where Billing Demand, shall mean the sanctioned load.  
"Variable Charge" means the sale rate per kilowatt-hour (KWH) as a single rate or part of a two- part tariff applicable to the actual KWH consumed by consumer during a billing period
4. "Maximum Demand" where applicable, means the maximum of the demand obtained in any month measured over successive periods each of 30 minutes duration except in the case of consumption related to are Furnaces, where Maximum Demand shall mean the maximum of the demand obtained in any month measured over successive periods each of 15 minutes duration.
5. "Sanctioned Load" where applicable means the load in kilowatt as applied for by the Consumer and allowed/authorized by the company for usage by the consumer.
6. "Power Factor" means the ratio of KWH to KVAH recorded during the month or the ratio of KWH to the square root of sum of square of KWH and KV ARH.
7. "Point of Supply" means metering point where electricity is delivered to the consumer.
- 10 Peak and Off peak hours for the application of time Of use (TOU) Tariff shall be the following time periods in a day.

### PEAK TIMING

Dec to Feb (inclusive) 5pm to 9pm  
Mar to May ( inclusive) 6pm to 10 pm  
Jun to Aug ( inclusive) 7pm to 11pm  
Sept to Nov (inclusive) 6pm to 10pm

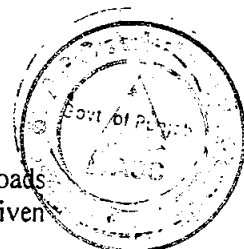
### OFF-PEAK TIMING

Remaining 20 hours of the day  
-do-  
-do-  
-do-

11. "Supply" means a supply for single-phase/three -phase appliance inclusive of both general and motive loads subject to the conditions that in case of connected or sanctioned load exceeding 4 kw supply shall be given at three-phase.

Signature of Applicant

Signature of Witness



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12. "Consumer" means a persons or his successor-in-interest as find undo section 2(iv) of the Regulation of generation, Transmission and Distribution of Electric Power Act (XL of 1997).
13. "Charitable Institution" means an institution which works for the general welfare of the public on no profit basis and is registered with the federal or provincial Government as such and has been issued tax exemption certificate by the central Board of Revenue(CBR).
14. NTDC means the National Transmission and Dispatch Company.
15. CPPA means Central Power Purchasing Agency (CPPA).
16. The " Authority" means "The National Electric Power Regulatory Authority (NEPRA)" Constituted under the regulations of Generations Transmission and Distribution of Electric Power Act(XL of 1997).

#### GENERAL CONDITIONS

1. The company shall be render bills to the consumer on a monthly basis or less on the specific Request of a consumer for payment by the due date.
2. The company shall ensure that bills are delivered to consumer at least seven days before the Due date if any bill is not paid by the consumer is full within the due date a late payment Surcharge of 10% (ten percent) shall be levied on the amount billed excluding Govt. tax and duties etc. In case bill is not served at least seven days before the due date then late payment surcharge will be levied after 7<sup>th</sup> day from the date of delivery of bill.
3. The supply provided to the consumers shall not be available for resale.
4. In the case of two part tariff average Power Factor of a consumer at the point of supply shall not be less then 90 percent. In the event of the said Power Factor falling below 90 percent, the consumer shall pay a penalty of two percent increase in the fixed chares determined with reference to maximum demand during the month corresponding to one percent decrease in the power factor below 90 percent.

PART-II (Definitions for supply of power specific to each consumer category).

#### INDUSTRY SUPPLY

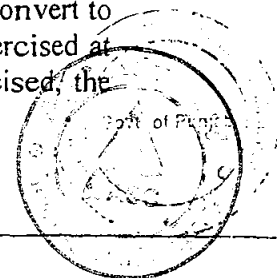
1. "Industrial Supply", means a supply for bona fide industrial purposes in factories including the supply required for the offices and for normal working of the industry and also for water pumps and tube wells operating on three phase 400 volts, other than those meant of the irrigation or reclamation of agricultural land.
2. For the purposes of application of this tariff an Industry means a bona fide undertaking or establishment engaged in manufacturing, value addition and/or processing of goods.
3. This Tariff shall also be available for consumers having single metering arrangement such as:
  - Poultry Farms,
  - Fish Hatcheries and Breeding Farms; and
  - Software houses.

#### Conditions:

An industrial consumer shall have the option, to switch over to seasonal tariff F, provided his connection is seasonal in nature as defined under Tariff F and he undertakes to abide by the terms and conditions of tariff F and pays the difference of security deposit rates previously deposited and those applicable to tariff F at the time of acceptance of option for seasonal tariff Seasonal tariff will be applicable from the date of commencement of the season, as specified by the customers at the time of submitting the option for Tariff F. Tariff F consumers will have the option to convert to corresponding Regular industrial Tariff category and vice versa. This option can be exercised at the time of obtaining a new connection or at the beginning of the season. Once exercised, the option will remain in force for at least one year.

Signature of Applicant

Signature of Witness



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**SCHEDULE OF ELECTRICITY TARIFFS  
FOR MULTAN ELECTRIC POWER COMPANY (MEPCO)**

**A-1 GENERAL SUPPLY TARIFF - RESIDENTIAL**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh	
			Peak	Off-Peak
a)	For Sanctioned load less than 5 kW			
i	Up to 50 Units	-		2.00
	For Consumption exceeding 50 Units			
ii	1-100 Units	-		5.79
iii	101-300 Units	-		8.11
iv	301-700 Units	-		12.33
v	Above 700 Units	-		15.07
b)	For Sanctioned load 5 kW & above			
	Time Of Use	-	13.99	8.22

Under tariff A-1, there shall be minimum monthly customer charge at the following rates even if no energy is consumed.

a) Single Phase Connections:

Rs. 75/- per consumer per month

b) Three Phase Connections:

Rs. 150/- per consumer per month

**A-2 GENERAL SUPPLY TARIFF - COMMERCIAL**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh	
			Peak	Off-Peak
a)	For Sanctioned load less than 5 kW			18.00
b)	For Sanctioned load 5 kW & above	400.00		16.00
			Peak	Off-Peak
c)	Time Of Use	400.00	18.00	12.50

Under tariff A-2, there shall be minimum monthly charges at the following rates even if no energy is consumed.

a) Single Phase Connections;

Rs. 175/- per consumer per month

b) Three Phase Connections:

Rs. 350/- per consumer per month



Govt. of Punjab

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### B. INDUSTRIAL SUPPLY TARIFFS

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh	
			Peak	Off-Peak
B1	upto 25 kW (at 400/230 Volts)	-		14.50
B2(a)	Exceeding 25-500 kW (at 400 Volts)	400.00		14.00
	Time Of Use			
B1(b)	Up to 25 kW	-	18.00	12.50
B2(b)	Exceeding 25-500 kW (at 400 Volts)	400.00	18.00	12.30
B3	For All Loads up to 5000 kW (at 11,33 kV)	380.00	18.00	12.20
B4	For All Loads (at 66,132 kV & above)	360.00	18.00	12.10

For B1 consumers there shall be a fixed minimum charge of Rs. 350 per month.  
 For B2 consumers there shall be a fixed minimum charge of Rs. 2,000 per month.  
 For B3 consumers there shall be a fixed minimum charge of Rs. 50,000 per month.  
 For B4 consumers there shall be a fixed minimum charge of Rs. 500,000 per month.

An Equalization Surcharge @ Rs. 0.81 per KWh shall be charged in addition to above

### C. SINGLE-POINT SUPPLY FOR PURCHASE IN BULK BY A DISTRIBUTION LICENSEE AND MIXED LOAD CONSUMERS NOT FALLING IN ANY OTHER CONSUMER CLASS

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh	
			Peak	Off-Peak
C - 1	For supply at 400/230 Volts			
a)	Sanctioned load less than 5 kW	-		15.00
b)	Sanctioned load 5 kW & up to 500 kW	400.00		14.50
C - 2(a)	For supply at 11,33 kV up to and including 5000 kW	380.00		14.30
C - 3(a)	For supply at 66 kV & above and sanctioned load above 5000 kW	360.00		14.20
	Time Of Use			
C - 1(c)	For supply at 400/230 Volts 5 kW & up to 500 kW	400.00	18.00	12.50
C - 2(b)	For supply at 11,33 kV up to and including 5000 kW	380.00	18.00	12.30
C - 3(b)	For supply at 66 kV & above and sanctioned load above 5000 kW	360.00	18.00	12.20

### D. AGRICULTURE TARIFF

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh	
			Peak	Off-Peak
D-1(a)	SCARP less than 5 kW	-		10.00
D-2	Agricultural Tube Wells	200.00		6.77
D-1(b)	SCARP and Agricultural 5 kW & above	200.00	18.00	8.00

Note:- The consumers having sanctioned load less than 5 kW can opt for TOU metering.



**E - TEMPORARY SUPPLY TARIFFS**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh
E-1(i)	Residential Supply	-	15.50
E-1(ii)	Commercial Supply	-	17.00
E-2	Industrial Supply	-	12.00

For the categories of E-1(i&ii) above, the minimum bill of the consumers shall be Rs. 50/- per day subject to a minimum of Rs.500/- for the entire period of supply, even if no energy is consumed.

**F - SEASONAL INDUSTRIAL SUPPLY TARIFF**

125% of relevant industrial tariff

Note:

*Tariff-F consumers will have the option to convert to Regular Tariff and vice versa. This option can be exercised at the time of a new connection or at the beginning of the season. Once exercised, the option remains in force for at least one year.*

**G - PUBLIC LIGHTING**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh
	Street Lighting	-	13.73

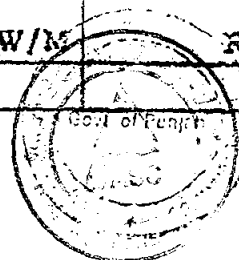
Under Tariff G, there shall be a minimum monthly charge of Rs.500/- per month per kW of lamp capacity installed.

**H - RESIDENTIAL COLONIES ATTACHED TO INDUSTRIAL PREMISES**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh
	Residential Colonies attached to industrial premises	-	12.92

**I - RAILWAY TRACTION**

Sr. No.	TARIFF CATEGORY / PARTICULARS	FIXED CHARGES Rs/kW/M	VARIABLE CHARGES Rs/kWh
	Railway Traction	-	11.00



3(5)(g)(b)(i)

The type, technology, model technical details and design of the facilities proposed to be acquired, constructed, developed or installed



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**THE TYPE, TECHNOLOGY, MODEL, TECHNICAL DETAILS AND DESIGN OF THE FACILITIES FOR THE ACQUIRED, CONSTRUCTED, DEVELOPED OR INSTALLED EQUIPMENT AT VEHARI INDUSTRIAL ESTATE.**

The Electrical design features are briefly stated as under:

- **Design** The design has been prepared for whole of the system as underground and connection point as overhead except the major fixtures/equipment such as Pad Mounted Transformers, H.V Ring Main Switches, Street Light Poles and Switches.

- **Distribution System**

The H.V system consists of HT Main Feeders, Standby / Express Feeders and LT Ring Main System to cater for the ultimate load demand of the Vehari Industrial Estate. The HT Feeders have been constructed to form open-end loop system to ensure continuity of supply in case of segment faults. The network has been laid down to achieve the safe operation, technical feasibility and stability of supply to the consumers of the Industrial Estate.

#### **1. Power Requirement calculations**

For calculation of load, load criteria and factors specified by WAPDA have been adopted. The basic load requirement was calculated by Punjab Industrial Estate Management and development Company based on the requirement of individuals as per respective applications. The details are as give below: -

##### **a) Industrial Plots**

Plot Size	No. of Plots	Per Plot Load	Total Load
0.5 Acre	132	80.75 KW	10659 KW
1 – Acre	23	161.5 KW	3714.5 KW
2 – Acre	49	323KW	15827 KW

Expected Load for new upcoming Plots

25950 KW

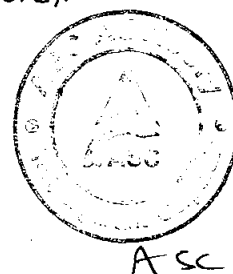
PIE Self

2500 KW

**Total**

**58650 KW Say 60 MW**

(Street Light, Water Tank, Sewerage Pump, Mosque, Rescue -1122, Accommodation, Office and PIE Office and Check Post, R.O Water Treatment Plant, PIEDMC Store).



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## **b) Commercial & Community Facilities and Public Buildings**

14 Watt per Sq ft. for 60% of the plot area.

## **c) Applicable Design Factors.**

Diversity Factor	80%
Development Factor	90%
Power Factor	85%
Transformer Loading	80%

**TOTAL LOAD FOR 199 PLOTS: 60 MW**

**Apply Development Factor@90%**

**Apply Diversity Factor@80%**

**Apply Power Factor@85%**

## **2. Equipment Ratings**

The material and equipment for System had been proposed with standard available sizes and ratings. WAPDA specifications have been adopted for the procured equipment and material. Major Electrical material and other components with rating/sizes have been provided keeping in view the ultimate load requirements and are given as below:

## **3. H.T DISTRIBUTION SYSTEM**

I. 500 mm<sup>2</sup> 1/C Al. XLPE.PVC. AWA 15KV

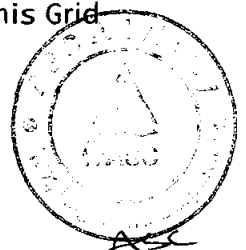
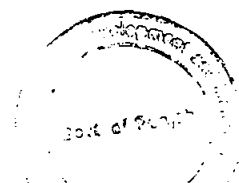
II. ACSR Osprey Conductor on 36 ft. poles

## **4. L.T DISTRIBUTION SYSTEM**

PVC/ 4-Core/1-Core Cable Al/PVC/PVC 185mm<sup>2</sup>, 70mm<sup>2</sup>, 35mm<sup>2</sup>, and 25mm<sup>2</sup> and 240mm<sup>2</sup> Voltage rating up to 1000V- Operating Voltages 415 / 220V, and ACSR Ant & WASP Conductor 415V regulation+ 2.5%,-5%,-7.5%

## **5. POWER SUPPLY SOURCES**

For perspective industries of VIE Grid Station is being established with the capacity of 36 MW in the area having capacity 1 X 40 MVA Power Transformer initially. The Grid Stations will be feed through a Double Circuit 132 KV Line from Vehari Grid Station. PIEDMC has applied to MEPCO for sanctioning of load of 60 MW for this Grid Station.



## **VEHARI INDUSTRIAL ESTATE**

Vehari Industrial Estate comprising 277 acres of land is a vision turned into reality. It is envisioned to be an 'island of facilitation' for prospective industrialists.

The objective is to develop an industrial estate where issues of industrialists are handled and problems solved through 'One Window' operation.

### **Location**

VIE is located at approximately 08 Km, Khanewal Road, Vehari. It is presently under development.

### **Proposed Infrastructure of Electrical Distribution**

Vehari Industrial Estate will have most modern infrastructure facilities comparable to any modern industrial estate globally. After analyzing the needs of industrialists, PIEDMC's Electrical department ensure system stability, flexibility and the quality power for customers. Therefore, the feeder distribution designed under-ground to avoid un-necessary tripping during heavy rain and wind. All 11 KV distribution circuits are in rings for dual supply.

### **Detail of Electrical Distribution System**

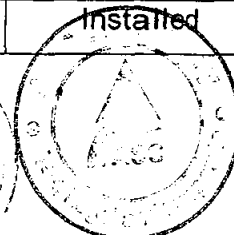
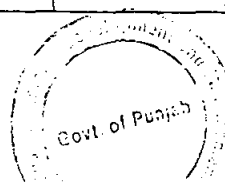
#### **1. 132KV Grid Station**

132/11 KV Grid Station has been designed by WAPDA/ MEPCO approved consultant with 2X40MVA Trafo Bays, it will be completed in June 2021 expectedly with 1X 40 MVA Trafo initially.

#### **2. 11 KV Distribution System**

Major Equipment and Material to be used for Development of Electrical Infrastructure Works at Vehari Industrial Estate:

Sr.#	Description	Unit	Quantity	Current Status
1	Ring Main Units	Nos.	16	Installed
2	Pad Mounted Transformer \	Nos.		Installed
	100Kva		04	
	200Kva		16	
	400Kva		14	
	630Kva		1	
	1000Kva		4	
	1250Kva		5	
3	11 KV VCB Panels	Nos.	3	Installed
4	500 mm2 H.T Cable	Km	40	Installed
5	1C 185mm2 L.T Cable	Km	15	Installed
6	ACSR Osprey Conductor For H.T Distribution	Km	31.4	Installed
7	AAC WASP Conductor for L.T Distribution	Km	42	Installed
8	AAC Ant Conductor for Street light	Km	12	Installed
8	P.C Spun Hollow Poles	No	337	Installed
9	Street Light Fixtures	No	481	Installed



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### **Detail of Electrical Distribution System**

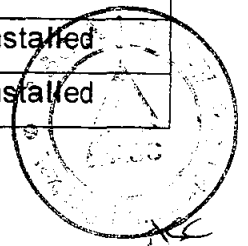
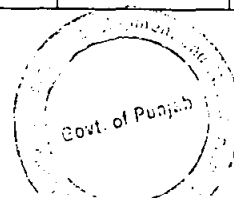
#### **1. 132KV Grid Station**

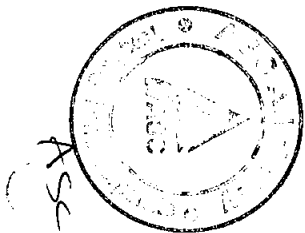
132/11 KV Grid Station has been designed by WAPDA/ MEPCO approved consultant with 2X40MVA Trafo Bays, it will be completed in June 2021 expectedly with 1X 40 MVA Trafo initially.

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Major Equipment and Material to be used for Development of Electrical Infrastructure Works at Vehari Industrial Estate:

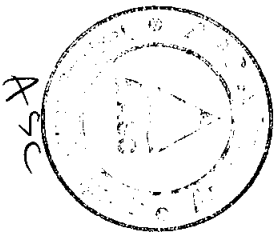
Sr.#	Description	Unit	Quantity	Current Status
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2	Pad Mounted Transformer \			
	100Kva		04	
	200Kva		16	
	400Kva	Nos.	14	Installed
	630Kva		1	
	1000Kva		4	
	1250Kva		5	
3	11 KV VCB Panels	Nos.	3	Installed
4	500 mm2 H.T Cable	Km	40	Installed
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6	ACSR Osprey Conductor For H.T Distribution	Km	31.4	Installed
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## Contents

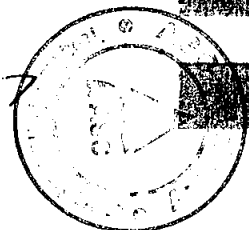
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Vehari Industrial Estate  
Financial Plan Highlights

Particular	Industrial	Commercial	Total
Area In Acres			
Total Area of Estate			250
Saleable	171.64	4.91	176.55
Sold Up to June 2021	100.93	-	100.93
Inventory in Hand	70.71	4.91	75.62
Rs. In Million			
	Actual Up to June 2021	Expected up to Completion	Total
Revenue Projection up to completion	736	4,271	5,008
Expenses Projection	1,241	3,617	4,858
Net Realizable Value of the Project			150
Net Present Value of the Project Discounted @ 7%			-51
TBR			4.98%



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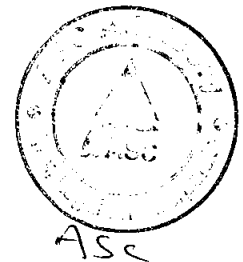
**Vehari Industrial Estate**  
**Proposed Price and Sales Plan**  
**Industrial Plots**

Rs. In Million

Particular	Sales Price (Rs. In Million / Acre)	Acres Sold / Booked	%	Total Revenue	Cash Inflows	Balance Payment
Actual Sold Up To June 2021	6.5	57.27	81%	389	334	55
	7.5	26.97	38%	206	109	97
	8.5	16.69	24%	141	42	99
<b>Total</b>		<b>100.93</b>	<b>59%</b>	<b>736</b>	<b>486</b>	<b>251</b>
To be sold	10	10.00	6%	100	-	100
	11	15.00	9%	165	-	165
	12.5	15.00	9%	188	-	188
	14	15.00	9%	210	-	210
	20	15.71	9%	314	-	314
<b>Total</b>		<b>70.71</b>	<b>41%</b>	<b>977</b>	<b>-</b>	<b>977</b>
<b>Grand Total</b>		<b>171.64</b>	<b>100%</b>	<b>1,713</b>	<b>486</b>	<b>1,227</b>

**Commercial Plots Sales Plan**

Particular	Sales Price (Rs. In Million / Acre)	Acres to be Sold	%	Total Revenue	Cash Inflows	Balance Payment
Proposed Plots	40	0.63	13%	25	-	25
	56	1.88	38%	105	-	105
	80	1.88	38%	150	-	150
	120	0.54	11%	65	-	65
<b>Total</b>		<b>4.91</b>	<b>100%</b>	<b>345</b>	<b>-</b>	<b>345</b>

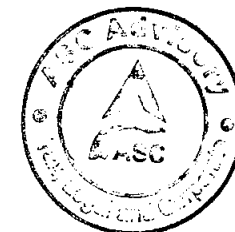


## Vehari Industrial Estate

Yearwise Plots Sales Plan						
Particular	Actual Upto June 2021	Jun-22	Jun-23	Jun-24	Jun-25	Total
Industrial Plots	59%	20%	21%	0%	0%	100%
Commercial Plots	0%	0%	13%	38%	49%	100%

Yearwise Plots Sales Plan In Acres						
Particular	Actual Upto June 2021	Jun-22	Jun-23	Jun-24	Jun-25	Total
Industrial Plots	100.93	35.00	35.71	-	-	171.64
Commercial Plots	-	-	0.63	1.88	2.40	4.91

Sale of Plots Assumptions	
<b>Industrial Plots ( Per Acres)</b>	
Down payment (DP)	30%
Remaining 2 Years Quarterly Instalment Plan	
<b>Commercial Plots ( Per Acres)</b>	
Down payment (DP)	100%



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# Vehari Industrial Estate

Proposed Sales and Cash flow Plan													
Particular	Proposed Sales Plan			Jun-22		Jun-23		Jun-24		Jun-25		Jun-26	
	Acres	Rate	Revenue	Acres	Cash flow	Acres	Cash flow	Acres	Cash flow	Acres	Cash flow	Acres	Cash flow
Industrial Plots	Opening Receivables				251	-	-	-	-	-	-	-	-
	10.00	10	100	10	59	-	41	-	-	-	-	-	-
	15.00	11	165	15	82	-	77	-	6	-	-	-	-
	15.00	12.5	188	10	45	5	99	-	44	-	-	-	-
	15.00	14	210	-	-	15	104	-	98	-	8	-	-
	15.71	20	314	-	-	16	114	-	141	-	59	-	-
Total	70.71		977	35	436	36	435	-	289	-	67	-	-
Commercial Plots	0.63	40	25.00	-	-	0.63	25	-	-	-	-	-	-
	1.88	56	105.00	-	-	-	-	1.88	105	-	-	-	-
	1.88	80	150.00	-	-	-	-	-	-	1.88	150	-	-
	0.54	120	64.50	-	-	-	-	-	-	0.54	65	-	-
Total	4.91		344.50	-	-	0.63	25	1.88	105	2.42	215	-	-
Grand Total			1,321.20	35	436	36	460	2	395	2	282	-	-



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## Vehari Industrial Estate

### Plots Revenue Realization Plan

Rs. In Million

Particular	Sales Price (Rs. In Million / Acre)	Acres Sold / Booked	%	Total Revenue	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Plot Size 6.5 to 8.5	6.5	57.27	33%	388.7		203.62	185.09			
	7.5	26.97	16%	206.3			114.74	91.56		
	8.5	16.69	10%	141.3				141.35		
Plot Size 10 to 20	10	10.00	6%	100.0				100.00		
	11	15.00	9%	165.0					165.00	
	12.5	15.00	9%	187.5					187.50	
	14	15.00	9%	210.0						210.00
	20	15.71	9%	314.2						314.20
<b>Total</b>		<b>171.64</b>	<b>100%</b>	<b>1713.05</b>		<b>203.62</b>	<b>299.83</b>	<b>332.91</b>	<b>352.50</b>	<b>524.20</b>
No of Acres					-	<b>30.00</b>	<b>42.27</b>	<b>38.66</b>	<b>30.00</b>	<b>30.71</b>

Particular	Sales Price (Rs. In Million / Acre)	Acres Sold / Booked	%	Total Revenue	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
Plot Size 40 to 120	40	0.63	13%	25.00			25.00			
	56	1.88	38%	105.00				105.00		
	80	1.88	38%	150.00					150.00	
	120	0.54	11%	64.50					64.50	
<b>Total</b>		<b>4.91</b>	<b>100%</b>	<b>344.50</b>	-	<b>0.00</b>	<b>25.00</b>	<b>105.00</b>	<b>214.50</b>	
No of Acres						-	<b>0.63</b>	<b>1.88</b>	<b>2.41</b>	-
						30.00	42.90	40.54	32.41	30.71

Particulars	Rate		Jun-21	Jun-24	Jun-25	Jun-26	
	Rupees				Rs. In Million		
Operation and Maintenance Revenue	O & M Rate Per Month / Acres	4,000	1.44	3.47	5.32	8.24	
Cost of Operation & Maintenance	O & M Rate Per Month / Acres	3,200	80 % of Revenue	1.15	2.78	4.26	6.59



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# Vehari Industrial Estate

## Project Cost

Rs. In Million

Cost assumptions	Total Project Cost	Cost allocation					
		Actual Up to June 21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
<b>Land cost</b>							
Cost of land	182.00	143.59	37.50	1.00	-		
<b>Infrastructure development cost</b>							
External Infrastructure cost	150.00	144.06	4.94	1.00			
Internal Infrastructure cost	504.00	454.64	4.64	45.00			
Electrical Infrastructure cost	451.00	348.38	44.22	58.50			
Cost of grid station	1,021.00	2.34	37.00	300.00	500.00	150.00	32.00
Cost of Gas Network	1,590.00			400.00	300.00	500.00	390.00
Combined Effluent Treatment Plant (CETP)	400.00		2.00		98.00	200.00	100.00
Amenities	160.00				25.00	60.00	75.00
Consultancies	40.00	8.42	1.71	10.00	10.00	9.87	
Misc Development Cost	100.00		2.00	10.00	30.00	30.00	28.00
<b>Other costs relating to project</b>							
Marketing	40.00	24.86	6.00	4.00	3.00	1.00	1.00
CAPEX	15.00	0.63	5.81	4.00	3.00	1.00	1.00
Markup on Govt Loan	5.00	1.73	3.17	0.00			
Administration / Overhead	200.00	97.55	22.89	30.00	20.00	19.00	10.56
<b>Total</b>	<b>4,858.00</b>	<b>1,226.20</b>	<b>171.88</b>	<b>863.50</b>	<b>989.00</b>	<b>970.87</b>	<b>637.56</b>

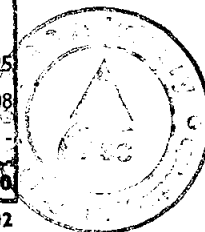


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# Vehari Industrial Estate

PKR in Million

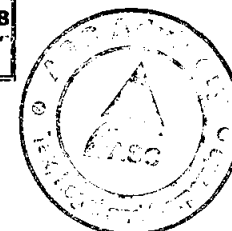
Projected Inflows and Outflows							
	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26	Total
Opening balance	-	0.00	20.17	(204.85)	(200.00)	157.36	-
<b>Land cost</b>							
Land cost	143.59	37.50	1.00	-	-	-	182.09
<b>Total land cost</b>	<b>143.59</b>	<b>37.50</b>	<b>1.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>182.09</b>
Infrastructure cost	598.70	9.58	46.00	-	-	-	654.28
Electrical Infr and Grid station cost	350.71	81.22	358.50	500.00	150.00	32.00	1,472.43
Cost of Gas Network	-	-	400.00	300.00	500.00	390.00	1,590.00
Combined Effluent Treatment Plant (CETP)	-	2.00	-	98.00	200.00	100.00	400.00
Amenities	-	-	-	25.00	60.00	75.00	160.00
Consultancies	8.42	1.71	10.00	10.00	9.87	-	40.00
Misc Development Cost	-	2.00	10.00	30.00	30.00	28.00	100.00
Mobilization Advances	-	-	-	-	-	-	-
<b>Total construction cost</b>	<b>1,101.42</b>	<b>134.01</b>	<b>825.50</b>	<b>963.00</b>	<b>949.87</b>	<b>625.00</b>	<b>4,598.80</b>
Marketing	24.86	6.00	4.00	3.00	1.00	1.00	39.86
CAPEX	0.63	5.81	4.00	3.00	1.00	1.00	15.44
Administration / Overhead	97.55	22.89	30.00	20.00	19.00	10.56	200.00
Cost of Operation & Maintenance	-	-	1.15	2.78	4.26	6.59	14.78
Repayment of loan to GoPb	120.80	165.10	15.10	-	-	-	301.00
Markup Payment on Govt. Loan	1.73	3.17	0.00	-	-	-	4.90
<b>Total Outflows</b>	<b>1,347.00</b>	<b>336.98</b>	<b>879.76</b>	<b>991.78</b>	<b>975.13</b>	<b>644.15</b>	<b>5,174.79</b>
<b>INFLOWS</b>							
Loan from GoPb	301.00	-	-	-	-	-	301.00
Loan against State Land GoPb.	132.00	(79.20)	(26.40)	(26.40)	-	-	-
PIEDMC Financing	421.73	-	-	-	-	(421.73)	-
Operation & Maintenance Income	-	-	1.44	3.47	5.32	8.24	18.47
Recovery Against Gas Network	-	-	50.00	300.00	600.00	600.00	1,550.00
Recovery Against CETP	-	-	-	-	200.00	200.00	400.00
Recovery Against Grid Station	-	-	100.00	225.00	275.00	400.00	1,000.00
<b>Down payments/ Installments</b>							
Industrial Plots	485.57	436.34	434.70	289.28	67.36	-	1,713.25
Commercial Plots	-	-	25.00	105.28	214.80	-	345.08
Retention Money of Contractors	6.70	-	70.00	100.00	(30.00)	(146.70)	-
<b>Total Inflows</b>	<b>1,347.00</b>	<b>357.14</b>	<b>654.74</b>	<b>996.63</b>	<b>1,332.48</b>	<b>639.81</b>	<b>5,327.80</b>
<b>Surplus / (O/D)</b>	<b>0.00</b>	<b>20.17</b>	<b>(204.85)</b>	<b>(200.00)</b>	<b>157.36</b>	<b>153.02</b>	<b>153.02</b>



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## Vehari Industrial Estate

Projected Balance Sheet						
PKR in Million	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
<b>Non current assets</b>						
Property & Equipment (Asset)	0.57	5.74	8.77	10.59	10.43	10.29
	-	-	-	-	-	-
<b>Total non current assets</b>	<b>0.5706</b>	<b>5.74</b>	<b>8.77</b>	<b>10.59</b>	<b>10.43</b>	<b>10.29</b>
<b>Current assets</b>						
Inventory Project In Progress	1,101.42	454.00	162.19	69.36	174.96	0.04
Cash and bank balances	0.00	20	-205	(200.00)	157	153
<b>Total current assets</b>	<b>1,101.42</b>	<b>474</b>	<b>-43</b>	<b>-131</b>	<b>332</b>	<b>153</b>
<b>Net Assets</b>	<b>1,101.99</b>	<b>479.91</b>	<b>(33.89)</b>	<b>(120.05)</b>	<b>342.75</b>	<b>163.34</b>
<b>Equity</b>						
Issued, subscribed and paid up capital	-	-	-	-	-	-
Accumulated Profit /(Loss)	(124.21)	(734.71)	(1,411.89)	(1,528.30)	(750.66)	162.56
<b>Total Equity</b>	<b>(124.21)</b>	<b>(734.71)</b>	<b>(1,411.89)</b>	<b>(1,528.30)</b>	<b>(750.66)</b>	<b>162.56</b>
<b>Non Current Liabilities</b>						
Payable to Government of Punjab	180.20	15	0	0	0	0
Loan Against State Land GoPb	132.00	52.80	26	0	0	0
Payable to PIEDMC	421.73	422	422	422	422	0
<b>Total non current liabilities</b>	<b>733.93</b>	<b>489.63</b>	<b>448.13</b>	<b>421.73</b>	<b>421.73</b>	<b>-</b>
<b>Current liabilities</b>						
Trade and other payables (Retention Money)	6.70	6.70	76.70	176.70	146.70	-
Advances from customers	485.57	718.29	853.17	809.82	524.98	0.78
Markup Payable on Govt. Loan	-	0.00	0.01	0.01	0.01	0.01
<b>Total current liabilities</b>	<b>492.27</b>	<b>724.99</b>	<b>929.87</b>	<b>986.53</b>	<b>671.69</b>	<b>0.78</b>
<b>Total Liabilities</b>	<b>1,101.99</b>	<b>479.91</b>	<b>(33.88)</b>	<b>(120.05)</b>	<b>342.75</b>	<b>163.35</b>



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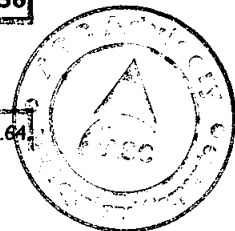


# Vehari Industrial Estate

Projected Profit & Loss Statement							
PKR in Million	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26	Total
<b>Revenue</b>							
Industrial Plots	-	203.62	299.83	332.91	352.50	524.20	1,713.05
Commercial Plots	-	-	25.00	105.00	214.50	-	344.50
<b>Total Revenue</b>	-	<b>203.62</b>	<b>324.83</b>	<b>437.91</b>	<b>567.00</b>	<b>524.20</b>	<b>2,057.55</b>
Cost of Sale	-	(781.43)	(1,117.31)	(1,055.84)	(844.27)	(799.92)	(4,598.76)
<b>Gross profit</b>	-	<b>(577.81)</b>	<b>(792.48)</b>	<b>(617.93)</b>	<b>(277.27)</b>	<b>(275.72)</b>	<b>(2,541.21)</b>
<b>Other operating income</b>							
Operation & Maintenance Income			1.44	3.47	5.32	8.24	18.47
Recovery Against Gas Network	-	-	50.00	300.00	600.00	600.00	1,550.00
Recovery Against CETP	-	-	-	-	200.00	200.00	400.00
Recovery Against Grid Station	-	-	100.00	225.00	275.00	400.00	1,000.00
<b>EBITDA</b>	-	<b>(577.81)</b>	<b>(641.04)</b>	<b>(89.46)</b>	<b>803.06</b>	<b>932.52</b>	<b>427.26</b>
Cost of Operation & Maintenance			(1.15)	(2.78)	(4.26)	(6.59)	(14.78)
Administration / Overhead	(97.55)	(22.89)	(30.00)	(20.00)	(19.00)	(10.56)	(200.00)
Marketing	(24.86)	(6.00)	(4.00)	(3.00)	(1.00)	(1.00)	(39.86)
Depreciation	(0.06)	(0.64)	(0.97)	(1.18)	(1.16)	(1.14)	(5.15)
<b>EBIT</b>	<b>(122.48)</b>	<b>(607.34)</b>	<b>(677.17)</b>	<b>(116.41)</b>	<b>777.64</b>	<b>913.22</b>	<b>167.47</b>
Markup on Govt. Loan	(1.73)	(3.17)	(0.00)	-			(4.90)
<b>EBT</b>	<b>(124.21)</b>	<b>(610.51)</b>	<b>(677.17)</b>	<b>(116.41)</b>	<b>777.64</b>	<b>913.22</b>	<b>162.56</b>
Tax							
<b>Net Profit / (Loss)</b>	<b>(124.21)</b>	<b>(610.51)</b>	<b>(677.17)</b>	<b>(116.41)</b>	<b>777.64</b>	<b>913.22</b>	<b>162.56</b>

## Number of Acres Sold

Industrial Plots	-	30.00	42.27	38.66	30.00	30.71	171.64
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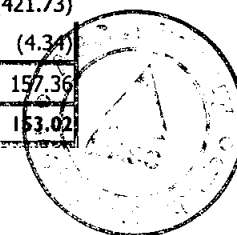
Commercial plots	-	-	0.63	1.88	2.41	-	4.91
Total	-	30.00	42.90	40.54	32.41	30.71	176.55



# Vehari Industrial Estate

## Projected Cash Flow Statement

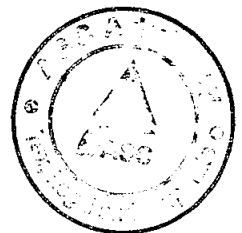
PKR in Million	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
<b>Cash flow from operating activities</b>						
Profit before tax	(124.21)	(610.51)	(677.17)	(116.41)	777.64	913.22
<b>Adjustments for non cash items</b>						
Depreciation	0.06	0.64	0.97	1.18	1.16	1.14
Profit before working capital changes	(124.14)	(609.87)	(676.20)	(115.24)	778.80	914.37
<b>Working capital changes</b>						
Inventory Project In Progress	(1,101.42)	647.42	291.81	92.84	(105.60)	174.92
<b>Increase/ (Decrease) in current liabilities</b>						
Trade and other payables	6.70	-	70.00	100.00	(30.00)	(146.70)
Advances from customers	485.57	232.72	134.87	(43.35)	(284.84)	(524.20)
	(733.29)	270.27	(179.52)	34.25	358.35	418.39
Finance cost (paid) / received	-	0.00	0.00	-	-	-
Net cash flow from operating activities	(733.29)	270.27	(179.51)	34.25	358.35	418.39
<b>Cash flow from Investing activities</b>						
CAPEX	(0.63)	(5.81)	(4.00)	(3.00)	(1.00)	(1.00)
Net cash flow from investing activities	(0.63)	(5.81)	(4.00)	(3.00)	(1.00)	(1.00)
<b>Cash flow from financing activities</b>						
Loan received from GOPb	180.20	-	-	-	-	-
Loan against Land GoPb.	132.00	(79.20)	(26.40)	(26.40)	-	-
Loan from PIEDMC	421.73	-	-	-	-	(421.73)
Repayment of loan to GOPb	-	(165.10)	(15.10)	-	-	-
Net cash flow form financing activities	733.93	(244.30)	(41.50)	(26.40)	-	(421.73)
Net increase / (decrease) in cash and cash equivalent	0.00	20.16	(225.01)	4.85	357.35	(4.34)
Opening cash and cash equivalents	-	0.00	20.17	(204.85)	(199.99)	157.36
Closing cash and cash equivalents	0.00	20.17	(204.85)	(199.99)	157.36	153.02



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# Vehari Industrial Estate

FCF Valuation						
PKR in Million	Jun-21	Jun-22	Jun-23	Jun-24	Jun-25	Jun-26
FCF calculation						
Cash flow from operating activities	(733.29)	270.27	(179.51)	34.25	358.35	418.39
Add: Finance cost	-	0.00	0.00	-	-	-
Less: Cash flow from investing activities	(0.63)	(5.81)	(4.00)	(3.00)	(1.00)	(1.00)
FCF	(733.93)	264.46	(183.51)	31.25	357.35	417.39
Discount factor	1.00	0.93	0.87	0.82	0.76	0.71
Discounted FCF	(733.93)	247.16	-160.28	25.51	272.62	297.59
NPV for the project (Discounted @ 7% )	-51					
IRR	4.98%					



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# ENVIRONMENT PROTECTION DEPARTMENT

Government of the Punjab  
National Hockey Stadium, Lahore.

NO. DD(EIA)/EPA/F-87(EIA)/1910/2015

Dated: 23 / 12 / 2016



698

To

The General Manager (Technical),  
M/s Punjab Industrial Estate Development and Management Company,  
Commercial Area North, Sunder Industrial Estate, Raiwind Road,  
Lahore.

Subject:

**DECISION OF EPA PUNJAB REGARDING PROJECT "ESTABLISHMENT OF  
VEHARI INDUSTRIAL ESTATE AT KHANEWAL - VEHARI ROAD,  
DISTRICT VEHARI"**

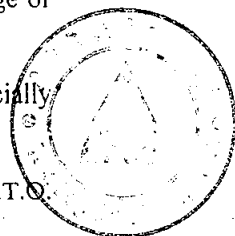
1. Description of Project: Establishment of Vehari Industrial Estate.
2. Location of Project: Khanewal - Vehari Road, Vehari.
3. Date of filing of IEE 08.09.2015

4. EPA Punjab has reviewed the Environmental Impact Assessment (EIA) Report and considered Site Inspection Report received from District Officer (Environment), Vehari vide letter No. 868/DOE/EPA/VEH dated 16.12.2015. EPA Punjab has also considered the recommendations of **Committee of Experts** (Meeting dated 07.10.2016), recommendations of **EA Committee** (Meeting dated 19.10.2016) and other relevant record.

5. **EPA, Punjab accords Environmental Approval for the aforesaid project subject to the following conditions:**

- i. The proponent shall ensure compliance of Punjab Environmental Quality Standards (PEQS).
- ii. Mitigation measures suggested in the EIA Report and Environmental Management Plan (EMP) shall be strictly adhered to minimize any negative impacts on soil, ground water, air and biological resources of the project area. The proponent will depute staff to monitor compliance of EMP.
- iii. Monitoring shall be carried out during the entire period of the project activities. Monitoring reports of the whole operation shall be submitted to EPA, Punjab on quarterly basis.
- iv. The proponent shall follow building by laws and the construction plan approved by the competent authority including seismic, structural and geotechnical analysis.
- v. The proponent shall follow all Rules, Regulations and instructions of Departments.
- vi. Camping sites by the contractor shall be located at suitable distance away from any settlement to avoid disturbance to the local people.
- vii. Sewage generated from camping sites shall be treated in septic tanks. These shall be constructed at a suitable distance from any permanent or seasonal water source. Septic tanks shall not be located in the areas where high ground water table exists.
- viii. The proponent shall not discharge untreated wastewater and shall construct wastewater treatment facility in this regard. The proponent shall also obtain approval / NOC from concerned for the disposal of wastewater.
- ix. The proponent shall ensure that strict and efficient health and safety measures are in place for protection of workers backed by a comprehensive emergency response system while working on super structure.
- x. The proponent shall dispose of solid waste in a proper scientific way.
- xi. The proponent shall ensure safety of the surrounding buildings, community and workers during excavation of foundations.
- xii. The proponent shall care about noise issues during construction and operation stage of the project.
- xiii. The proponent shall not place the construction material openly.
- xiv. The proponent shall plant at least 10,000 trees of minimum height of 6-7 feet, especially of indigenous species in consultation with the District Officer (Environment).

P.T.O.



ASC

*prepare and put up complete mitigation measure as per letter and EIA for the compliance*  
*En. officer. 20/12*

- xv. The proponent shall do landscaping and restore the environment after completion of construction work.
- xvi. Compensation shall be provided to the inhabitants in case of loss of agricultural land, crop, property, etc. in accordance with the rates that are agreed upon. All conflicting issues regarding compensation, etc. should be settled amicably before or during the start of the project activities.
- xvii. The proponent shall commence construction after approval of the plan from all concerned departments.
- xviii. This approval does not absolve the proponent from duty of obtaining NOC from other departments like TMA etc.
- xix. The proponent shall ensure that no industrial unit will discharge untreated wastewater.
- xx. The proponent shall ensure that he will not use technique like soakage pits or under ground injection for disposal of treatment plant.
- xxi. The proponent shall provide a copy of EIA report and copy of this letter to the contractor also for his information and compliance of conditions / measures suggested in these documents.
- xxii. The proponent shall provide proper fire-fighting arrangements and emergency response plan.
- xxiii. The proponent shall redress the objection / concerns of neighbours / stakeholder on priority basis (if any at any stage).
- xxiv. The proponent shall appoint Environmental Manager for the project and shall convey his name along with his complete Mailing Address and Phone Numbers.
- xxv. The proponent shall follow the SOPs regarding dengue larvae eradication and shall ensure removal of stagnant water on daily basis.
- xxvi. The proponent shall install water purification plant for supply of safe / clean drinking water for the residents / visitor / workers.
- xxvii. The proponent shall submit undertaking that no interim injunction has been issued by any court of law of the country against the said project as of date of issuance and receiving of this approval and in case of any such injunction, this approval shall stand cancelled.

6. The proponent shall be liable for correctness and validity of the information supplied to this department by the environmental consultant.

7. The proponent shall be liable for compliance of Regulations 13, 14, 18 and 19 of IEE/EIA Regulations, 2000, regarding approval, confirmation of compliance, entry, inspections and monitoring.

8. This approval is accorded only for the installation / construction phase of the project. The proponent shall apply for confirmation of compliance under Regulation 14 of IEE/EIA Regulation, 2000 by submitting Environmental Management Plan for operational phase along with compliance status report of the Environmental Approval of the construction phase of the project.

9. Any change in the approved project shall be communicated to EPA, Punjab and shall be commenced after obtaining the approval.

10. This approval shall be treated as null and void if all or any of the conditions mentioned above, is/are not complied with. This approval does not absolve the proponent of the duty to obtain any other approval or consent that may be required under any law in force and is subjudice to legal proceedings in any legal fora / court.

11. This approval can be withdrawn at anytime without any prior notice if deemed necessary in the public / national interest.

#### NO. & DATE EVEN.

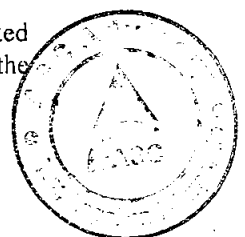
A copy is forwarded to

District Officer (Environment), Chhara w.r.t. his letter No. 868/DOE/EPA/VEH dated 16.12.2015. He is requested to ensure compliance of the conditions mentioned in the Environmental Approval and to furnish compliance status report accordingly.

PIEDMC	
CEO	
CFO & CS	
GM (ADMIN & HR)	
GM (P&C)	
PD (QAAP)	
GM (MARKETING)	
GM (TECHNICAL)	
CE (ELECTRICAL)	
MANAGER (LAW)	
Diary No. 2257	Initial.....
Date 26-12-2016	

ASSISTANT DIRECTOR (EIA)  
for Director General, EPA, Punjab  
Ph: (042)99232282

ASSISTANT DIRECTOR (EIA)  
for Director General, EPA, Punjab

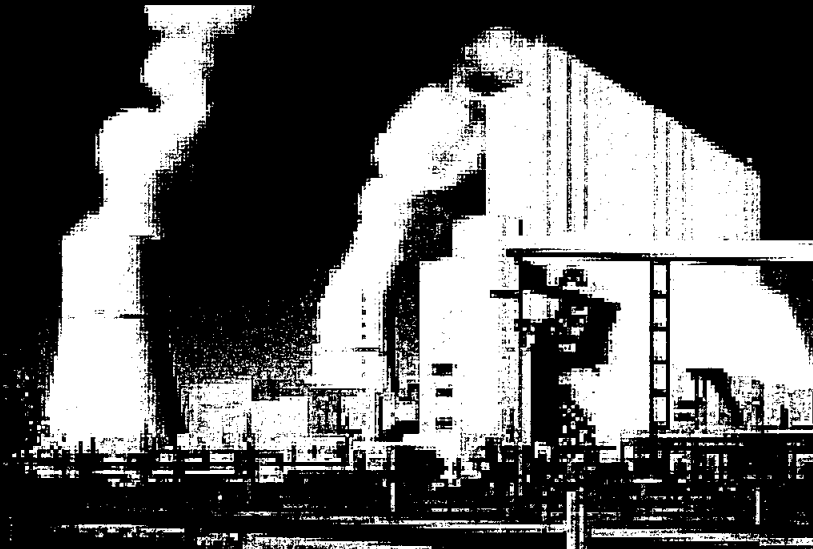


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## VEHARI INDUSTRIAL ESTATE

### Environmental Impact Assessment Study



August 25, 2015



NEC Consultants (Pvt.) Ltd.



ASC

# **Environmental Impact Assessment VEHARI INDUSTRIAL ESTATE**

**August 25, 2015**

**NEC Consultants Pvt. Ltd.**

**Perfect SITE, 22 KM Ferozepur Road, Near Gujju Mata Metro Bus Station, Lahore**

**+92-42-35273741-46, [www.nec.com.pk](http://www.nec.com.pk)**

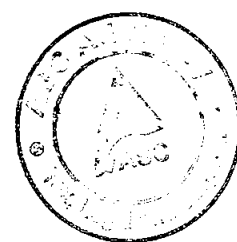
**[necnorth@nec.com.pk](mailto:necnorth@nec.com.pk)**

**This study was assigned by Punjab Industrial Estate Development & Management Company**



## LIST OF ABBREVIATIONS AND ACRONYMS

BOD	Biochemical Oxygen Demand
CBO	Community Based Organization
CETP	Combined Effluent Treatment Plant
cm	centimeter
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COD	Chemical Oxygen Demand
dBA	Decibel
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
EPD	Environmental Protection Department
GOP	Government of Pakistan
H <sub>2</sub> S	Hydrogen Sulfide
HSP	Health and Safety Plan
IEE	Initial Environmental Examination
IPP	Independent Power Producer
kg/d	kilogram per day
km/h	kilometer per hour
m <sup>3</sup> /d	cubic meter per day
m <sup>3</sup> /h	cubic meter per hour
mg/l	milligram per liter
mm	millimeter
MW	Mega Watt
NEQS	National Environmental Quality Standards
NGO	Non-government Organization
NOC	No Objection Certificate
NO <sub>x</sub>	Oxides of Nitrogen
O & M	Operation and Maintenance
OHS	Occupational Health and Safety
PEPA-97	Punjab Environmental Protection Act 1997 (as amended in 2010)
pH	Power of Hydrogen Ion Concentration
PIE	Punjab Industrial Estates Development and Management Company
PM	Particulate Matter
PPE	Personal Protection Equipment
SIE	Sundar Industrial Estate
SO <sub>x</sub>	Oxides of Sulfur
SS	Suspended Solids
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UASB	Up-flow Anaerobic Sludge Blanket Reactor
UNESCO	United Nations Educational, Scientific and Cultural Organization
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WAPDA	Water and Power Development Authority
WHO	World Health Organization
WTO	World Trade Organization



## Executive Summary

After taking the management control and upgrading of Multan Industrial Estate and Quaid-e-Azam Industrial Estate, the PIE introduced industrial estates in Raiwind, Bhalwal and Rahim Yar Khan and now introduced Vehari Industrial Estate (VIE) in District Vehari. The purpose of this estate is to create new jobs, reduce poverty, encourage industrialization in Punjab and resultantly increase the GDP of the country.

Under the Pakistan Environmental Protection Act 1997 (PEPA-97), clause 12, it is required that the proponent of any development project will have to submit an IEE or EIA report to the concerned Environmental Protection Agency/Department to obtain approval prior to start of construction or operation of the project. The objective of the Environmental Impact Assessment (EIA) study is primarily to document the existing baseline environmental conditions of the project area, establish the potential impacts of the project construction and operation on the physical, ecological and human environments, and propose the mitigation measures for the adverse impacts.

The policy framework for EIA is principally derived from the Pakistan National Conservation Strategy (1992). The principal applicable laws and regulations, in respect of EIA, are the Punjab Environmental Protection Act-1997 (as amended in 2010), the Pakistan Environmental Assessment Procedures (2000), and the NEQS (Self Monitoring and Reporting) Rule, 2001. The institution involved in the administrative action pertaining to the environmental aspect of the project is the Environmental Protection Department, Punjab.

According to the Pakistan Environmental Assessment Procedures (2000) by the PEPA for environmental approval, the VIE plant falls under Category B (Manufacturing and Processing) of Schedule II, which requires EIA for environmental approval prior to any construction. According to the Guidelines for Self Monitoring and Reporting by Industry (2001) prepared by the Environmental Standards Committee for the implementation of the NEQS, the VIE falls under Category A of Schedule I and Schedule II for monitoring and monthly reporting of environmental parameters of effluent and gaseous emissions respectively to the EPD.

The methodology adopted for conducting EIA study includes orientation session, development of the data acquisition plan, review of the existing data, sources and tools of data collection, primary data collection surveys (reconnaissance survey, socioeconomic survey), sources of secondary information and impact assessment matrices.

The area around the project site is flat. The project area is predominantly an uncultivated area and falls under seismic zone 2A with peak horizontal ground acceleration is 0.08 to 0.16. The climate is generally arid, characterized by hot summers and cool or cold winters, and wide variations between extremes of temperature. The quality of drinking water is contaminated with microbial contamination. The ambient air quality data show that the atmosphere of the area is generally good as all the concentration values of the pollutants are below recommended values. The ambient noise levels vary at different locations at different timings.

No forests are found in the project area. Terrestrial fauna are found in the project area but there are no endangered/rare species and protected areas.

There are five settlements namely 24WB, 30WB, 48WB, 28WB and 26WB present within five km of the project site.

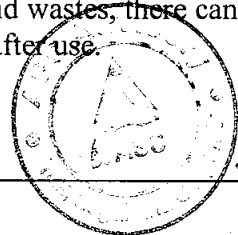
Most of the people in these settlements live under nuclear family system. The male to female ratio is 1:19. There are altogether 14 government and private schools for boys and girls. The principle earning occupations include agriculture and wage labour. The land owners of the area tend to grow wheat, fodder crops, vegetable, and fruit plants. Livestock is mainly raised for transportation, food and farming purposes. The income levels of most of the people in the area are reasonable. Most of the houses are constructed in bricks and permanent roofing structures. No community water supply schemes are laid out in these settlements. The quality of ground water is generally good.

Electricity is provided to all the settlements through MEPCO. There is no natural gas supply in the area and the people mostly use cow dung and wood as fuel for cooking and heating. The main mode of transport for local villagers is public bus and wagons. The sanitary conditions are unsatisfactory with most of the people discharging their wastewater and solid waste into open drains and open land. Health of the people is good. The project site is accessible through Khanewal road. There are 09 mosques, 05 madrassa, 1 church, and 2 graveyards. None of the monuments/sites, of archaeological or historical importance, exist in the area. No recreational site of regional or national importance is found in the area. The local people opine that industrial development should take place with the aim to promote job opportunities and improve existing infrastructure.

The major environmental impacts of the proposed project will be due to the constructional and the operational activities. The constructional phase impacts are: generation of dust due to transportation of construction materials in uncovered form, open storage of construction materials, earthwork operations, preparation of concrete at batching plants, movement of construction machinery and construction materials transport vehicles, exhausts of the construction machinery, and construction materials transport vehicles mostly using diesel as fuel; noise due to movement of construction materials transport vehicles and construction and erection of electrical and mechanical equipment; generation of domestic wastewater and solid waste; job opportunities; public health and safety of local population. The operational phase impacts are wastewater generation, solid and liquid wastes generation, air pollution, noise and the OHS issues.

During the operational phase, the wastewater will be generated from the municipal and industrial sources. The solid wastes will mainly comprise empty containers of used lube oil, and chemicals, metal scrap, discarded mechanical parts, and domestic solid waste from all the industries in the VIE. Solid waste will also be produced from commercial and institutional activities in the VIE. The air pollution sources will be mainly generators, boilers, and vehicles. The plant noise and the vehicular noise are the two major sources. The plant noise is normally generated from the moving and rotating parts of the machinery (such as conveyor belts), boilers and generators. Generally, well maintained vehicles have noise within the NEQS level of 85 dBA. The OHS issues mainly concern with the use of the OHS equipment by the plant workers.

The mitigation measures for the construction phase issues include disposal of domestic wastewater, domestic solid waste management, dust suppression and noise control. To mitigate impacts during the operational phase, the management of the PIE should stick to the proposed measures to run the VIE in an environment-friendly manner. For solid waste management, monitoring of the solid waste with respect to its source, type and generation rate is essential. The municipal and industrial wastewater will be treated at the CETP. For liquid wastes, there can be a mutual agreement with the major suppliers of lube oil to take them back after use.

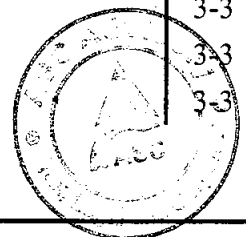


The noise control measures should be implemented both for the plant noise and the vehicles. For the plant noise, the management should take different measures such as noise measurement, audiometric testing, record keeping of medical tests and follow up, engineering controls, administrative controls, and training of employees. For vehicular noise mitigation, the vehicles maintenance program will be implemented for carrying out their regular maintenance.

The management shall develop environmental management plan to implement the mitigation measures proposed for the environmental impacts during the construction and the operation phases. The plan will include institutional measures, waste management plan and occupational health and safety planning, and establishment of environmental monitoring department to carry out water quality monitoring of the CETP, solid waste monitoring (VIE in general and land fill site in particular), air quality monitoring (VIE in general and the land fill site in particular), and noise monitoring.

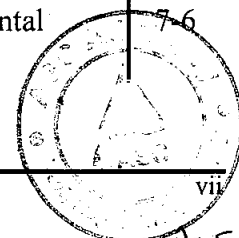
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**Chapter-1**  
**INTRODUCTION**

## **Chapter-1**

### **INTRODUCTION**

#### **1.1 Background**

The Punjab Industrial Estates Development and Management Company (PIEDMC hereinafter referred to as PIE) is owned by the Government of Punjab and was established in September 2003. The objectives of the PIE include planned and rapid industrialization and develop a chain of new industrial estates. The objective also involves upgrading existing industrial estates in a dynamic and innovative manner by providing solutions and involving local stakeholders in the decision making process. The seed money has been provided by the Government of Punjab, which will be utilized for the development of new industrial estates.

After taking the management control and upgrading of Multan Industrial Estate and Quaid-e-Azam Industrial Estate, the PIE established industrial estates in Raiwind, Bhalwal and Rahim Yar Khan and now launching Vehari Industrial Estate (VIE) in District Vehari.

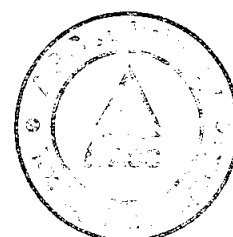
Vehari is mainly an agricultural district. It is one of the best cotton growing areas of the country. There are dozens of cotton processing factories and cotton seed oil manufacturing plants in Vehari. As per feasibility and preliminary design report, there are about 336 large, medium and some small industrial units in the districts. Unplanned and haphazard expansion of residential and industrial activities in the district may cause significant environmental and social issues in future.

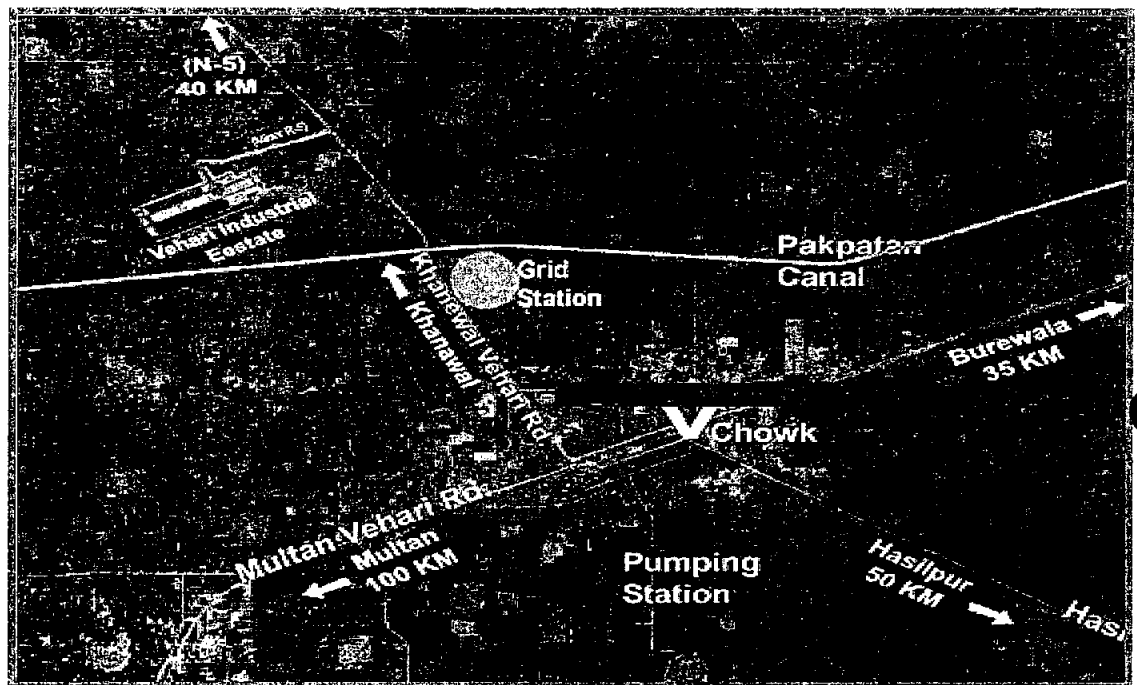
#### **1.2 The Proposed Project**

The proposed industrial estate involves modern development view with all high quality utilities. The area, comprising 277.28 acre, has been reserved for a number of industrial sectors. The planned infrastructure facilities at the VIE include roads, telecommunication, sewerage, electricity, water supply, gas, petrol-pumps, health safety and environment support etc. There will be no large residential settlements within the VIE. Only a small residential colony will be established for workers.

#### **1.3 Location of the Proposed Project**

The proposed industrial estate is located at Khanewal-Vehari Road about 8.5 Km from Vehari city and at about 2.5 Km crossing the Pakpattan Canal, further access from main Khanewal-Vehari road is along a small canal called minor R1 and project site is about 1.9 Km from main road along the minor. The location of VIE is shown in Figure 1.1.



**Figure 1.1:** Location of VIE is shown in

#### 1.4 Objectives and Scope of the Study

The scope and objectives of this EIA study are:

- Documentation of the applicable policy, legislative and administrative framework;
- Baseline information about the physical, biological and human environmental conditions of the project area. The aim of the baseline conditions is to record pre-project state of the environment, so as to provide basis of comparison during the construction and the operation stages;
- Identification, assessment and significance of the potential environmental impacts of the project;
- Protection of human health and safety;
- Information on the potential impacts of the project and the characteristics of the impacts and magnitude that will effect local environment;
- Propose measures to mitigate negative impacts of the project; and
- Development of Environmental Management Plan (EMP) for effective implementation of the proposed mitigation measures.

#### 1.5 Necessity of the Environmental Impact Assessment (EIA) Study

The apex law governing the subject of environment is the Pakistan Environmental Protection Act – 1997 (PEPA-97). After the 18th amendment to the constitution of Pakistan, environment became a provincial subject, and the environmental law governing the VIE is now the Punjab Environmental Protection Act - 1997 (as amended in 2012). In terms of its contents, the provincial act is a carbon copy of the national act. Under Section 12 of the Act, it is mandatory for the proponents of the projects to execute the IEE and / or EIA (where warranted), and get the approval from concerned

EPA. The EIA/IEE regulations of 2000 provide categories of projects for which IEE or EIA needs to be conducted.

This study also serves the purpose of documentation and incorporation of the environmental concerns and the requirements at the conceptual and feasibility stages of the project. The industrial processes are scrutinized for all the possible environmental issues and their respective impacts. The mitigation measures are proposed to comply with all the National Environmental Quality Standards (NEQS) and to eliminate the possibilities of any impact on ecology. The EIA also proposes an Environmental Management Plan for ensuring that the project should remain environment-friendly throughout its operational life.

## 1.6 Proponent and Consultant of the Proposed Project

The development of proposed project will be carried by the Punjab Industrial Estates Development and Management Company (PIEDMC), which is owned by the Government of Punjab.

PIEDMC hired NEC Consultants (Private) Ltd. (herein after referred as NEC) for conducting the above mentioned EIA. NEC put together a team of consultants belonging to different subject areas to complete the assignment. The consulting team comprises of the following members:

Mr. Shafqat Ullah	Team Leader/Principle Engineer
Mr. Kashif Gillani	Chemical Engineer
Ms. Rukhsana Shahid	Senior Environmental Scientist
Mr. Adnan Khan	Electrical Engineer

### *Name and Contact Address of the Proponent*

Ms. Sadia Javed  
Environment Officer  
Punjab Industrial Estate Development and Management Company (PIEDMC)  
Phone: 042-35297203  
Fax: 042-35297207

## 1.7 Organization of the Report

Chapter-1 "Introduction" presents scope and objectives of the EIA study.

Chapter-2 "Policy, Statutory and Administrative Frameworks" provides a broad outline of the policy, legislation for sustainable development and environmental protection, statutory and administrative framework, in local perspective, applicable to the environmental impact process.

Chapter-3 "Project Description" furnishes an overall description of the project, including its background and production process.

Chapter-4 "Methodology" lays down methodologies adopted for collection of primary as well as secondary data and information, required for carrying out the EIA study.

Chaper-5 “Baseline Environmental Profile of the Project Area” comprises a detailed documentation of the existing (baseline) conditions of the project area, in respect of its physical, biological and human environments.

Chaper-6 “Anticipated Environmental Impacts and Mitigation Measures”, documents the likely impacts of the project on the physical, biological and human environment, during the construction and the operation phases and appropriate mitigation measures.

Chaper-7 “Environmental Management and Monitoring Plan” provides the proposals on mechanism to be adopted for the implementation and monitoring of the environmental measures

## **1.8 Limitations**

This EIA document has been prepared drawing inferences from site visits, primary data and secondary information collected and provided by the client. The study has been conducted by the consultants in a manner consistent with the level of care and skill exercised by environmental scientist, engineers and socioeconomic expert. The consultants have tried to cover all important aspects and relevant impacts of VIE.

The conclusions in this study are based on primary and secondary data, results derived from earlier studies, and a subjective evaluation of the possible environmental aspects during construction and operations of the proposed project. In evaluating the proposed project, the consulting team has relied on information provided by the management of PIE. The consultants assume that the information provided is factual and accurate. Also the consultants accept no responsibility for any deficiency, misstatement, or inaccuracies contained in this report as a result of omission or misrepresentation by any person interviewed or contacted.

It should be recognized that the passage of time affects the information given in this report; environmental conditions of a site can change. Opinions relating to the specific conditions are based upon information that existed at the time the conclusions were formulated. The mitigation measures and other recommendations put forth in this report are of the level of conceptual design and implementation framework.



## **Chapter-2**

# **POLICY, STATUTORY AND ADMINISTRATIVE FRAMEWORKS**



ASC

## **CHAPTER-2**

### **POLICY, STATUTORY AND ADMINISTRATIVE FRAMEWORKS**

#### **2.1 General**

This chapter presents the environmental policy, legislative and administrative frameworks for the protection of environment, adopted and enforced in Pakistan. The requirements of these policies, legislations and guidelines have been duly considered in the preparation of this study.

#### **2.2 Policy Framework**

The Ministry of Environment is responsible for policy making and planning on the subject of environmental protection in Pakistan. The Pakistan Environmental Protection Council, headed by the Chief Executive of Pakistan, is the apex inter-ministerial and multi-stakeholders decision making body.

##### **2.2.1 Pakistan National Conservation Strategy**

The Pakistan's National Conservation Strategy (NCS) is a principal policy document for environmental issues in the country, which was developed and approved by the Government of Pakistan on March 1, 1992. Following are the relevant policies for the proposed project:

##### **a) Industry Policies**

- Develop and enforce effective pollution controls;
- Promote clean industrial processes and recycling;
- Establish incentives for environmentally beneficial and benign industries; and
- Build awareness within industry.

##### **b) Pollution Control Policies**

##### ***Effluents Control***

- Adopt wastewater treatment technologies that provide for recovery and reuse of water, nutrients, and organic matter in ways that are safe and profitable to the operator;
- Focus the regulatory approach on industrial discharges, as these contain some of the most toxic effluents;
- Support the recovery and use of heavy metals from industrial effluents; and
- Give priority to areas where there is risk of groundwater contamination

*Emissions Control*

- Promote good maintenance of motor vehicles and of industrial boilers and furnaces;
- Encourage higher fuel efficiency in motor vehicles; and
- Consider terrain and wind characteristics when siting factories and generating stations

*Solid Wastes*

- Promote reuse and recycling by privatization of collection

**2.3 Statutory Framework****2.3.1 Punjab Environmental Protection Act-1997, amended in 2012**

The Act provides the framework for the implementation of the NCS, protection and conservation of species, wildlife habitats and biodiversity, conservation of renewable resources, establishment of standards for the quality of the ambient air, water and land, establishment of environmental tribunals, appointment of Environmental Magistrates, IEE, EIA, and promotion of public education and awareness of environmental issues through mass media. The Act is the basic legislative tool empowering the government to frame regulations for the protection of the environment. It is applicable to a broad range of issues and extends to air, water, soil, marine, and noise pollution, as well as to the handling of hazardous wastes. Penalties have been prescribed for those contravening the provisions of the Act.

Following are the key features of the law, which have a direct bearing on the project:

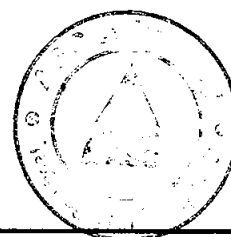
Section 12 (1) requires that “no proponent of a project shall commence construction or operation unless he has filed with the Provincial Agency an initial environmental examination [IEE] or, where the project is likely to cause an adverse environmental effect, an environmental impact assessment [EIA], and has obtained from the Provincial Agency approval in respect thereof.”

Section 12 (2) (b) states that the Provincial Agency shall review the EIA report and accord its approval subject to such conditions as it may deem fit to impose, or require that EIA be resubmitted after such modifications as may be stipulated, or reject the project as being contrary to environmental objectives.

The copy of the PEPA-1997 is attached as **Annexure 2.1**.

**2.3.2 PEPA (Review of IEE and EIA) Regulations, 2000**

The publication of the PEPA (Review of IEE & EIA) Regulations, 2000 provides necessary details on the preparation, submission, review, approval and monitoring of IEE and EIA. The regulations also categorize the projects for IEE and EIA. The copy of the Regulations is attached as **Annexure 2.2**.



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### 2.3.3 Pakistan Environmental Assessment Procedures, 1997

The Federal EPA has published a set of environmental guidelines for conducting environmental assessments and environmental management of different types of development projects. The guidelines, which are applicable to the proposed project, are listed below:

- ***Policy and Procedures for Filing, Review and Approval of Environmental Assessments:*** These guidelines define the policy context and the administrative procedures, which govern the environmental assessment process, from the project pre-feasibility stage to the approval of the environmental report.
- ***Guidelines for the Preparation and Review of Environmental Reports:*** These guidelines specify the following for the project proponents:
  - Nature of the information to be included in environmental reports;
  - Minimum qualifications of the EIA conductors appointed;
  - Need to incorporate suitable mitigation measures at every stage of the project implementation; and
  - Need to specify monitoring procedures.
- ***Guidelines for Public Participation:*** Public consultation is an obligatory part of the EIA process. It leads to better and more acceptable decision making. Different techniques have been introduced under these guidelines for effective public involvement in the proposed projects.
- ***National Environmental Quality Standards (NEQS):*** The NEQS were promulgated in 1993 and revised in 2000 for municipal and industrial effluents, industrial gaseous emissions, and vehicular emissions. The copy of the NEQS is annexed as **Annexure 2.3**.

### 2.3.4 Other Relevant Laws

Other laws applicable to the project are outlined hereunder:

#### a) Wildlife Act 1974

Punjab Wildlife Protection, Conservation and Management Act 1974, requires protecting the wildlife species declared as *endangered/threatened* and *rare*. The Act gives protection to these species by declaring their natural living environment as protected and reserved such as national parks, wildlife sanctuaries, and game reserves.

#### b) Antiquities Act 1975

The Act provides protection and preservation of historically and archaeologically important sites. The project development activities must take into account the location and other activity patterns around historically important sites and should take all the measures to protect and preserve the original character of such areas of historical and/or archeological importance. In case any antiquities have been found or reported in project

area, it will be the responsibility of the proponent to report to the Department of Archaeology, Government of Pakistan.

**c) Factories Act 1934**

The clauses relevant to the project are those, which concern the health, safety and welfare of workers, disposal of solid waste and effluent, and damage to private and public properties. The Act also provides regulations for handling and disposing of toxic and hazardous materials.

**d) Canal and Drainage Act 1873**

The Act prohibits fouling of channels, watercourses, reservoirs and tubewells by industrial and/or domestic waste.

**e) Pakistan Penal Code 1960**

The Pakistan Penal Code deals with the offences where public or private properties and/or human lives are affected due to intentional or accidental misconduct of an individual or body of people. This Code defines the penalties for violations concerning pollution of air, water bodies and land. Sections 272 and 273 of this Act deal with the adulteration of food or drink. Noise pollution has been covered in Section 268.

In the context of environment, the Penal Code, however, can provide a basis for the VIE to coordinate its activities with the local authorities to ensure that its construction activities do not become a cause of public nuisance or inconvenience.

**f) Land Acquisition Act**

This Act is the primary law for acquisition of land and built-up properties for public interest and also sets out the procedure and rules for acquisition and compensating the owners. The valuation of land for compensation is governed by sections 23 and 24 of the Act. For the proposed Project, compensation for acquisition of land will be carried out primarily in the light of this Act.

In the project area mostly land ownership belongs to the government. However, some acreage will be acquired from community.

**2.4 Administrative Framework**

The administrative framework operating in Pakistan relevant to environmental issues of the project, right from execution to monitoring, is briefly presented below:

**2.4.1 Environmental Protection Department of the Punjab**

The project is geographically located in the province of Punjab; therefore, the EPD Punjab will have jurisdiction over the proposed project. The EPD is headed by the Director General and supported by administrative, technical and legal staff. The major functions of the EPD are to issue, after reviewing, the approval of EIA for different projects; carry out environmental monitoring of the operations in the province; enforce

environmental legislation; and monitor the projects as per the recommendations of the EIA. The EPD can involve district and local administration for the enforcement of environmental legislation.

**Chapter-3**  
**PROJECT DESCRIPTION**



ASC

## **CHAPTER-3**

### **PROJECT DESCRIPTION**

#### **3.1 Type and Category of the Project as per the PEPA Guidelines**

According to the Pakistan Environmental Assessment Procedures (2000) by the PEPA for environmental approval, the VIE falls under Category B (Manufacturing and Processing) of Schedule II, which require EIA for environmental approval prior to any construction.

According to the Guidelines for Self Monitoring and Reporting by Industry (2001) prepared by the Environmental Standards Committee for the implementation of the NEQS, the VIE falls under Category A of Schedule I for monitoring and monthly reporting of environmental parameters of effluents to the responsible authority.

For new VIEs, the EIA guidelines may specifically set a prior requirement of approval of its operation. Once after the establishment of the VIE, a comprehensive monitoring report for all the NEQS parameters for normal CETP operation and other plants operations in the VIE may be required to establish that the plants do meet the environmental commitments made in respective EIA submitted. The subsequent monitoring will then be limited to the priority parameters.

The above reference document is attached as **Annexure 3.1**.

#### **3.2 Government Approvals and Lease Required by the Project**

The VIE is a government supported project. For industrial installation at the project site, NOC is required from the City District Government Vehari, which has already been obtained. There is no lease required by the project. The project is self-funded. The seed money has been provided by the Government of Punjab.

#### **3.3 Cost and Size of the Project**

The estimated total project cost is one billion. It is in the category of very large size project. The proposed project covers total land area of approximately 277 acres.

#### **3.4 Objectives of the Proposed Project**

The objectives of the proposed project are to:

- Provide turnkey solutions to the prospective entrepreneurs thereby generating economic activity and creating mass employment opportunities;
- Provide structured platform to set industries
- Support services/utilities at one location;
- Attract/make available skilled and unskilled manpower;
- Capitalize on strengths of Vehari region;
- Provide secure industrial environment;



- Ensure that industrial and related land uses are functional and mutually compatible arrangement, and are easily accessible through efficient road network allowing free flow of traffic;
- Ensure compliance with environmental regulations;

### 3.5 Basic Amenities proposed for the Project

Keeping the needs of modern entrepreneurs, following basic and special amenities are planned at the VIE:

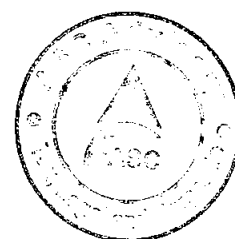
- Roads
- Underground sewerage system
- Underground electricity distribution system
- Gas
- Water
- Telecommunications
- Estate owned electrical distribution system
- Civic center (post office, sports facilities, banks etc.)
- Appropriately designed food areas for workers at major intersections
- Fire station (including fire trucks) and fire hydrants
- Computerized weigh station
- Information sign boards
- Technical training facilities
- Private security arrangements
- Hospital/emergency medical services (by Social Security)
- Public transport
- Police station
- Mosque
- Motel and restaurant
- Pre-built warehouses and offices for rent
- Petrol pumps
- WTO environmental compliances (drinking quality water, health, safety and environmental support, CETP and solid waste management)

### 3.6 Master Plan of VIE

The Master Plan of VIE has been developed keeping in view the following

- Industrial Plots of different ranges
- Roads
- Proper drainage system
- Combined Effluent Treatment Plant
- Green Area
- Commercial Spaces

Master Plan of VIE is attached as **Annexure 3.2**.



### 3.7 Planning Concept

The site for Vehari Industrial Estate is roughly rectangular for which grid iron pattern is ideal. Master Planning of Vehari Industrial City responds to unique characteristics of the site so as to:

- Contribute to the character of the site in a positive manner;
- Integrate site features such as land forms and drainage courses in the overall master plan;
- Maintain scenic quality of the site;
- Be compatible with natural features;
- Support economic and efficient construction and maintain standards;
- 11 KV feeders emanating from 132 KV Grid Station (MEPCO);
- Metering room of Multan Electric Power (MEPCO) with number of metering panels per feeder will be located near the main entrance of VIE;
- Underground 11 KV feeders cables will be laid in underground trench and terminated on terminal poles after the main office building of VIE;
- Overhead 11 KV feeder will be extended from terminal poles in the entire premises as per plan/design.

### 3.8 Land Use Distribution

Detailed distribution of plot sizes in the VIE is given in **Table 3.1**. The human resources required during the construction phase is 40 including technical staff. During the operation phase, the total staff will be about 40 to 50.

Table 3.1  
Land Use Distribution of the VIE

Category	Area (Acre)	%age
Industrial Plots	206.79	74.58
Commercial Area	07.98	2.88
Petrol Pump	1.97	0.71
Hotel	0.99	0.36
Dispensary	0.30	0.11
Rescue 1122	0.34	0.12
Fire Brigade	0.44	0.16
Jamia Mosque	0.99	0.36
Vocational Institute	0.57	0.20
Parks and Open Spaces	2.56	0.92
Grid Station	3.65	1.32
Treatment and Disposal	2.00	0.72
Site Office	0.80	0.29
Roads	47.90	17.27
<b>Total</b>	<b>277.28</b>	<b>100</b>

### 3.9 Plot Sizes

VIE is proposed to be developed under modular approach to accommodate the future demands. This approach permits the adoption of an optimum size of space unit, various

number of which can be combined to generate plots of varying size. The size of basic module is 4 kanals @ 5,445ft<sup>2</sup> per kanal or 4.84 kanals @ 4,500ft<sup>2</sup> per kanal.

Following principles were kept in mind, while preparing the master plan;

- Plots of similar size have been grouped so as to separate small workshop from large scale industry;
- Larger plots in general have been positioned in most visible locations; and
- Grid pattern road layout has been used with mostly staggered T-junctions.

It is inevitable that all the plots cannot be of above sizes because of the site features and constrains. Some of the plots therefore especially those along the periphery and along curves will have no standards size/dimensions.

### 3.10 Road Network

The road layout proposed for VIE is generally in grid- iron pattern and sympathetic to terrain. Three types of roads have been proposed.

- Primary Roads = 120ft
- Secondary Roads = 100ft
- Local Roads = 80ft

Road alignments conform to the natural topography. Cross junction are avoided as these results in large number of traffic conflicts points. The roads generally meets the in form of T-junctions, which have relatively less numbers of conflicts points and even these can be minimized through traffic management techniques.

### 3.11 Community Facilities

Following facilities will be provided in VIE.

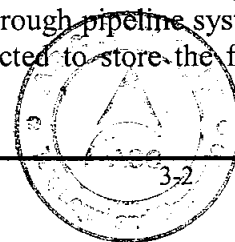
- Community Centre
- Commercial Area
- Mosque
- Central Park

### 3.12 Electricity Requirement

11kV feeders emanating from 132 kV grid station (MEPCO) will supply to electricity. Power requirement for the proposed VIE is 41MW. Stand by diesel fired generator will be kept as backup source of electricity generation for administration building during load shedding and electricity shortfalls.

### 3.13 Water Consumption and Wastewater Generation

Ground water will be used for drinking and industrial processes. Two tube wells of 2 cusec capacity each will be installed to extract the ground water. VIE will supply approximately 25 cusec fresh water to various industrial units through pipeline system. An overhead tank of 125,000 gallons capacity will be constructed to store the fresh



water. Industries will install their own turbines for ground water pumping as per their requirement.

It is estimated that approximately 12 cusec wastewater including sanitary and industrial wastewater will be generated and carried to pump station in sewerage treatment plant through 27" size of pipe. 03 pumps of 4 cusec capacity each will be worked to pump out inflows of about 12 cusec.

### 3.14 Implementation Schedule

The project implementation schedule is illustrated under **Table 3.2:**

Table 3.2  
**Project Implementation Schedule**

No	Activities	Completion Time
2.	Installation of main equipment	May 2015
3.	Completion work of infrastructure development	21 April 2017
4.	Commissioning of project	July 2017
5.	Start of commercial operations	August 2017

### 3.15 Combined Effluent Treatment Plant (CETP)

The project has decided to implement a Combined Effluent Treatment Plant (CETP). The CETP-VIE will be designed for the removal of any toxic metals or compounds present in the wastewater and these pollutants, where originating from any individual industry and exceeding the NEQS values, shall be removed by that industry, by providing specific in-house treatment system, prior to discharge of the wastewater into the sewerage system of the VIE. The CETP-VIE shall be designed primarily to bring the BOD, COD, and TSS values of the wastewater within the NEQS limits.

The specific nature of individual industries to be constructed in the VIE, and information on their production is not known at this stage. Therefore pollution load and exact flow cannot be established. Water intensive and high strength waste water generating industries like sugar and big textile industries would not be allowed in VIE.

### 3.16 Fire Fighting System

A fire fighting system comprising fire hydrants, gate valves, air valves etc will be provided.



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## **METHODOLOGY**

### **Chapter-4**

## **Chapter – 4**

### **METHODOLOGY**

#### **4.1 General**

This chapter presents methodology adopted for the collection of the requisite data, for the proposed industry, for the purpose of the EIA study.

#### **4.2 Orientation Session**

Meetings and discussions were held with the key officials of the project team. This activity was aimed at achieving a common ground of understanding of the various issues of the study.

#### **4.3 Development of the Data Acquisition Plan**

Subsequent to the concept clarification and understanding obtained in the preceding step, a detailed data acquisition plan was developed for the internal use of the consulting team. The plan identified specific requirements of the primary and secondary data and their sources, determined time schedules and responsibilities for their collection, and indicated the logistics and facilitation needs for the execution of the data acquisition plan.

#### **4.4 Review of the Existing Data**

The relevant secondary data on the physical, technical and institutional aspects of the proposed project available with the proponent were reviewed.

#### **4.5 Sources and Tools of Data Collection for EIA**

Both primary and secondary data was acquired to accomplish the said study. In general, the following sources and tools were employed for the collection of the requisite data for the proposed project:

Primary Data Collection Tools	<ul style="list-style-type: none"><li>➤ Household Questionnaires</li><li>➤ Group Discussion</li><li>➤ Field Tests (groundwater, ambient air and noise)</li></ul>
Primary Data Collection Surveys	<ul style="list-style-type: none"><li>➤ Reconnaissance Survey</li><li>➤ Socio-economic Survey through Household Questionnaires</li></ul>
Sources of Secondary Data	<ul style="list-style-type: none"><li>➤ PIEDMC</li><li>➤ Public Departments and Agencies</li><li>➤ Available Literature Regarding Proposed Project</li></ul>

## 4.6 Primary Data Collection Surveys

### 4.6.1 Reconnaissance Survey

This survey was carried out to have an overview of the project area and prepare location and land use maps.

### 4.6.2 Socio-economic Survey by Household Questionnaires

The prime objective of the socio-economic survey through household questionnaires was to collect baseline socio-economic information about population and their feedback on the project. This survey was carried out on sample basis, through Performa "Households, Housing and Socio-economic Questionnaire" as given in **Annexure 4.1**. The data were collected through random sampling. The respondents were to be both adult and aged members of the households with preference for the head of the household. The questionnaire covered the following socio-economic aspects:

- Demography;
- Education;
- Employment and economic conditions;
- Housing and social amenities; and
- Population feedback.

In addition, the data for the following parameters were also collected and analyzed in the laboratory:

- Groundwater quality;
- Ambient air quality; and
- Noise level

## 4.7 Sources of Secondary Information

Secondary data about physical and technical aspects of the proposed project available with the PIEDMC Management were reviewed. The additional data were collected from the following concerned departments:

Information Area	Source
<b>Physical Environment</b>	
Climate	Meteorological Department, Lahore
Seismology	Geophysical Center, Quetta
Irrigation Canals/Distributaries	Drainage and Irrigation Department
<b>Biological Environment</b>	
Terrestrial Flora	WWF
Terrestrial Fauna	WWF/Forest Department/Wildlife Department

Information Area	Source
<b>Human Environment</b>	
Demography	Socioeconomic Survey
Occupation and Employment	Socioeconomic Survey
Economic Conditions	Socioeconomic Survey
Local Government and Administration	City District Government
Agriculture	Agriculture Department



**Chapter-5**  
**BASELINE ENVIRONMENTAL PROFILE OF  
THE STUDY AREA**



## **Chapter-5**

### **BASELINE ENVIRONMENTAL PROFILE OF THE STUDY AREA**

#### **5.1 General**

This chapter presents the existing environment around the proposed project which has been studied with respect to Physical, Ecological and Socio-economic resources.

#### **5.2 Purpose of the Baseline Study**

An environmental baseline study is intended to identify and establish all the physical, biological and human environmental conditions prevailing before the execution of the project. Baseline information is used as a reference datum to compare future changes and judge them if the conditions have changed for better or worse. The baseline description is intended to accomplish the following objectives:

- To provide proponent of the project and stakeholders with sufficient knowledge about socio-economic set-up, agriculture, ecological features, built-up buildings and infrastructure of the project area; and
- To allow the planners to evaluate the potential efficacy of the actions to mitigate the adverse impacts and enhance benefits.

#### **5.3 Physical Environment**

Physical environment of the project area includes brief description of topography, geology and soil conditions, seismology, climate (Temperature, Humidity, Rainfall and Wind), surface and ground water resources.

##### **5.3.1 Geography**

The district is located between 29°36'N71°44'E and 30°22'N72°53'E. The city of Vehari is the capital of the district. The district was created in 1976 out of the three tehsils of Multan District (Vehari, Burewala and Mailsi). The name Vehari means low lying settlement by a flood water channel. It is a part of Indus plain and has the best cultivated land which is suitable for cotton, wheat and other crops.

Vehari district is situated in the heart of Nili Bar. It is purely the result of construction of Pakpattan canal from Sulemanki Head Works on the Sutlej and the institution of Nili Bar colony project in 1925, so called because of the bluish tings of the water of the Sutlej.

The district lies along the right bank of the river Sutlej which forms its southern boundary. The district, having total area of 4,364 Sq.Kms, is surrounded by Sahiwal, Pakpattan, Bahawalpur, Khanewal and Lodhran districts.

### 5.3.2 Natural Resources

The major crops of the district are wheat, sugarcane, and cotton. Being one of the best cotton growing districts of the country, district Vehari possesses very good potential for textile spinning, weaving and processing, textile made-ups e.g. hosiery, terry towel, sportswear, bed sheets, tents/tarpaulins, canvas cloth, etc. which are directly exportable items.

### 5.3.3 Soil of the Area

The strata are generally fine to medium grained sand with some amount of silt at 5m depth. Course sand was encountered at places. The colour is generally grey to brownish grey. Strata are loose to medium dense. At top, strata are generally dry with some roots of vegetation but at depth moisture is observed.

Fine to medium grained medium dense sand with grey colour was encountered upto 6m depth. The stratum is dry. From 6m to 10m depth, the stratum is medium grained sand.

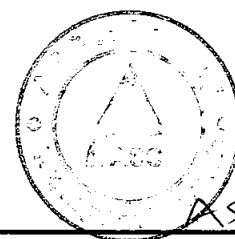
Chemical analysis shows that sulphate contents of soil is within the permissible limit of 0.2%. Sulphate concentration in water samples exceeds the limiting value of 200ppm at depth of 27.5m while at depth of 91.5m sulphate, concentration is within the limit. For construction point of view, water should be used at deeper depth. Alternatively, sulphate resistant cement will be used for construction activities.

### 5.3.4 Climate

The climate is generally arid, characterized by hot summers and cool or cold winters, and wide variations between extremes of temperature. Vehari has are four seasons; a cool, dry winter from December through February; a hot, dry spring from March through May; the summer rainy season, or southwest monsoon period, from June through September; and the retreating monsoon period of October and November. There is little rainfall.

### 5.3.5 Meteorology of the Study Area

**Table 5.1** shows the meteorological conditions at the project site. Meteorological data was monitored at the project site on June 12-13, 2015. The parameters measured were temperature, wind direction, wind speed and humidity. All the readings were recorded for 24 hours with an interval of one hour. The maximum and minimum temperature was recorded to be 30°C and 42°C, respectively. Wind speed showed variation with maximum wind speed (10.3 m/s) recorded at 14:00hrson June 12, 2015 and minimum wind speed (0.4 m/s) recorded at 22:00 hrs and 22:00 on June 12, 2015.



**Table 5.1:** Meteorological Data Recorded at the Project Site

Sr. No	Date	Time	Temp (°C)	Wind Direction	Wind Speed (m/s)	Humidity (%)
1	12-06-2015	12:00	40	N	7.6	36
2		13:00	41	NE	8.4	39
3		14:00	41	NE	10.3	35
4		15:00	42	NE	8.5	33
5		16:00	41	NE	8.5	33
6		17:00	41	N	7.6	33
7		18:00	39	NE	5.8	36
8		19:00	37	NE	4.5	42
9		20:00	36	NE	2.2	46
10		21:00	33	NE	1.3	54
11		22:00	32	N	0.4	62
12	13-06-2015	23:00	31	N	1.3	68
13		00:00	30	N	1.3	70
14		01:00	30	N	1.8	67
15		02:00	30	NW	2.2	69
16		03:00	30	NW	1.8	67
17		04:00	31	NW	3.6	62
18		05:00	31	N	4.5	61
19		06:00	31	N	5.4	62
20		07:00	32	N	5.4	59
21		08:00	34	N	8.0	56
22		09:00	36	N	7.6	51
23		10:00	38	N	7.6	46
24		11:00	38	N	5.4	47

*Source: Monitoring at the Site by the SGS Lahore, June 12-13, 2015*

### 5.3.6 Seismicity of the project Site

Pakistan lies in a seismic active zone. Seismic observations indicate that hundreds of shocks originate every year. According to the seismic zoning map of Pakistan included in Pakistan Building Code Seismic provisions (2007), the project area falls under seismic zone 2A with peak horizontal ground acceleration is 0.08 to 0.16. The seismic zoning map of Pakistan is attached as **Annexure 5.1**.

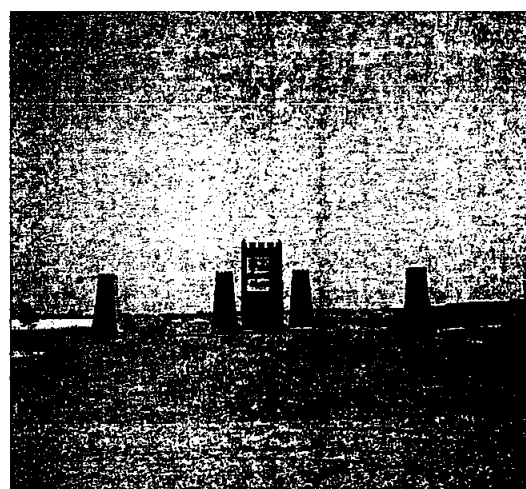
### 5.3.7 Roads and Communication

Vehari was developed as a planned town with wide roads and streets in a grid iron pattern. Vehari lies on the main Multan Lahore GT Road. It bisects the town in two parts and is running parallel to the railway track. It is connected with major towns by provincial highways such as Multan, Khanewal, Hasilpur, Luddon and Burewala.

Khanewal road enters the town from north-west and ends at Khanewal Chowk. From Khanewal Chowk, Multan Road goes west of town along railway track and Lahore Road goes east along with railway track. Luddon Road goes south-east from Quaid e - Azamchowk and passes through the town. The project site is accessible through Khanewal road.



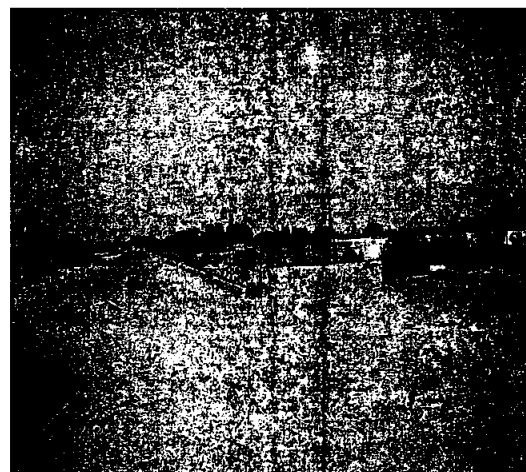
**Exhibit: 5.1:** Site Accessibility through Khanewal Road



**Exhibit: 5.2:** View of proposed project site showing the entrance of the project site.



**Exhibit: 5.3:** View of proposed project site.



**Exhibit: 5.4:** Road section which connects VIE site to main Khanewal road

## **5.4 Baseline Conditions**

### **5.4.1 Existing Noise Levels**

The noise levels were measured at four corners of the project site. These levels vary at different locations in different timings as shown in **Table 5.2**.

**Table 5.2:** Ambient Noise Levels

Sampling Point	Time	Sound Level (dB-A)
Point 1	0117-0120 0130-0133	42.3-52.1
Point 2	0140-0143 0150-0153	40.1-50.8
Point 3	0336-0339 0342-0345	48.0-51.0
Point 4	0215-0218 0230-0233	41.2-52.2
Point 6	0300-0303 0315-0318	40.5-54.4
Point 7	0330-0333 0350-0353	49.0-54.3

*Source:* Monitoring at the Site by the LES Lahore, May, 2015

It is obvious from the Table 5.2 that noise levels were below the prescribed limits of residential, commercial and industrial area standards. It is because; there is no continuous source of noise near the project area. The NEQS standards for residential area are 55 dB (A) and 45 dB (A) for day and night time respectively, 65 dB(A) and 55 dB(A) for day and night time respectively for commercial area and 75 dB(A) and 65 dB(A) for day and night time respectively for industrial area.

#### 5.4.2 Groundwater Conditions

For establishing baseline conditions of the area, four groundwater samples were collected at various depths from project site and nearby settlements for analysis of both chemical and microbiological parameters.

First sample (Sample 1) was collected from hand pump at the depth of 65ft. Second sample (Sample 2) was collected from hand pump at the depth of 70 ft. Third sample was collected from motor pump at the depth of 100ft. Fourth sample was collected from water turbine at the depth of 350ft.

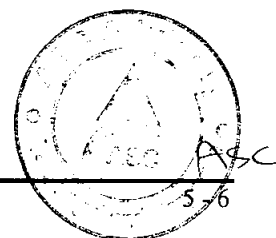
**Table 5.3:** shows the test results of two samples while laboratory test reports are attached as **Annexure 5.2**.

Table 5.3: Laboratory Test Result

#	Test Method	Parameter	Test Results				NSDWQ (2010)
			Sample-1 (65ft)	Sample-2 (70ft)	Sample-3 (100ft)	Sample-4 (350ft)	
Physico-chemical Testing							
1	APHA-4500-H <sup>+</sup> -B	PH	7.80±0.08	7.12±0.07	7.52±0.08	7.79±0.07	6.5-8.5
2	HACH-8025	Color	32±01	28±1	12±1	6±1	15 (TCU)
3	Turbidity Meter	Turbidity - (NTU)	1.5±0.3	14.4±0.5	10.9±0.4	12.5±0.4	5
4	APHA 2150-A	Odor	Odorless	Odorless	Odorless	Odorless	Acceptable
5	APHA 216--A	Taste	Tasteless	Tasteless	Tasteless	Tasteless	Acceptable
6	APHA-2540-D	Total Suspended Solids (TSS) - mg/l	02±1	03±1	04±1	02±1	NGV
7	APHA-2540-C	Total Dissolved Solids (TDS) - mg/l	170±4	630±6	400±8	330±4	1000
8	APHA-2340-C	Hardness - Total (as CaCO <sub>3</sub> ) - mg/l	132±2	348±5	266±5	96±1	500
9	APHA-3500-Ca-B	Calcium - mg/l	30±1	93±2	70±1	28.5±0.5	200
10	APHA 3500-Mg-E	Magnesium - mg/l	13.6±0.6	28±1	12.4±0.8	7.5±0.3	100
11	HACH 8029	Fluoride - mg/l	0.03±0.01	0.17±0.02	0.42±0.03	0.32±0.03	1.5
12	HACH-8039	Nitrate - mg/l	0.7±0.1	1.9±0.2	1.0±0.1	1.2±0.2	50
13	HACH-8051	Sulfate - mg/l	20±1	112±2	80±1	50±1	400
14	APHA-4500-Cl-B	Chloride - mg/l	27±1	36±1	57±1	23±1	250
15	HACH-8008	Total Iron - mg/l	0.62±0.03	0.64±0.04	0.44±0.02	0.28±0.04	0.3
16	Arsenic Kit	Arsenic - mg/l	BDL	BDL	BDL	BDL	0.01
Bacteriological Testing							
1	APHA-9221-B	Total Coliform	>23	5.1	>23	16	NIL
2	APHA-9221-E	Faecal Coliform	23	<1.1 (Absent)	23	<1.1 (Absent)	NIL
NTU - Nephelometric Turbidity Unit							
APHA – American Public Health Association							
NIL – Must not be detectable in any 100ml sample							
NGV – No Guideline Value							
NSDWQ – National Standards for Drinking Water Quality, 2010							
Source: Monitoring at the Site by the LES Lahore, September, 2014							

Results reveal that in all the tested Physico-chemical parameters are well within the limits when compared with the National Standards for Drinking Water Quality, 2010 and WHO Guidelines.

Microbiological contamination was detected in all the tested samples. According to the WHO Guidelines for Drinking Water Quality 2004, *Escherichia coli* are present in large numbers in the normal intestinal flora of humans and animals, where it generally causes no harm. However, in other parts of the body, *E. coli* can cause serious disease, such as urinary tract infections bacteraemia and meningitis. A limited number of enteropathogenic strains can cause acute diarrhea.



### 5.4.3 Ambient Air Quality

Ambient air quality was continuously monitored for 24 hours within the premises of the proposed project to find the present concentrations of the following parameters.

- CO
- SO<sub>2</sub>
- NO<sub>2</sub>
- Ambient Particulate Matter (PM<sub>10</sub>)

**Table 5.4:** shows the average concentrations of tested parameters while laboratory test reports are attached as **Annexure 5.2**.

**Table 5.4:** Average Concentrations of Tested Parameters

Parameter	Unit	Monitoring Duration	Average Obtained Concentration	NEQSAS (2010)
Nitrogen Dioxide (NO <sub>2</sub> )	µg/m <sup>3</sup>	24 Hours	3.12	80 µg/m <sup>3</sup> (For 24 Hours)
Sulfur Dioxide (SO <sub>2</sub> )	µg/m <sup>3</sup>	24 Hours	6.04	120 µg/m <sup>3</sup> (For 24 Hours)
Carbon Monoxide (CO)	µg/m <sup>3</sup>	24 Hours	2.16	05 mg/m <sup>3</sup> (For 08 Hours)
Particulate Matter (PM <sub>10</sub> )	µg/m <sup>3</sup>	24 Hours	102.5	150 µg/m <sup>3</sup> (For 24 Hours)

NEQSAA National Environmental Quality Standards for Ambient Air, 2010

Results of ambient air quality data, when compared with National Environmental Quality Standards for Ambient Air, 2010, show that ambient air quality of the area is generally good as all the concentration values of the pollutants are below recommended values.

## 5.5 Ecological Environment of the Project Area

### 5.5.1 Terrestrial Fauna

Terrestrial fauna of the area are of common domestic nature. Buffaloes, cows, goats, donkeys, hens, dogs, cats and horse etc. are the commonly available animals in the Project Area. The bird community, found in the area, includes variety of residential birds such as crow, sparrow, parrots and doves.

### 5.5.2 Terrestrial Flora

The major crops cultivated around the proposed project site are Wheat, Millet, Maize, Jawar and cotton. The trees comprise largely of Keekar (*Acacia nilotica*), Phulai (*Acacia modesta*), Shisham or Tahli (*Dalbergiasissoo*), Peeple (*Ficusindica*), and Eucalyptus (*Eucalyptus citriodora*).





**Exhibit: 5.5:**Crops cultivation in the area



**Exhibit: 5.6:** View of terrestrial flora of the area

## **5.6 Socio-economic Environment of the Project Area**

This section covers the socio-economic conditions of the population that will be directly or indirectly affected by the project. The socio-economic profile focuses on the sources of livelihood, income levels, and accessibility to social services like health, education etc.

The socio-economic data collection process is explained in Chapter-4. This section covers the socio-economic profiles of the settlements located in the immediate surroundings of the project site.

### **5.6.1 Public Consultation Process**

Public consultation plays a very important role for successful execution of the proposed project. In order to ascertain the views of nearby residents regarding impacts of project execution, a detailed socioeconomic survey was conducted for the settlements located within 5 km distance of the project site. On the basis of the mentioned criteria, five settlements named 24WB, 30WB, 48WB, 28WB and 26WB were surveyed.

The socioeconomic survey was divided into a village profile and a socio economic household survey. Village information was collected from respective secretary of UC 14, 15 and 16.

Residents were interviewed with the help of semi structured questionnaire. Besides this, interviews with the influential and group discussion sessions were also held with the community.



Exhibit: 5.7: Meeting with Secretary, 24WB



Exhibit: 5.8: Group discussion with the inhabitants of "48WB"



Exhibit: 5.9: Group discussion with the inhabitants of "26WB"



Exhibit: 5.10: Group discussion at "48WB"

### 5.6.2 Political and Administration Unit

According to the City District Government System in Pakistan, the districts are divided into towns/tehsils and union councils. These are official administrative divisions. Vehari district is administratively subdivided into three tehsils, Burewala, Mailsi and Vehari. The proposed project comes under Vehari tehsil.

**Table 5.5:** Administrative Divisions of Vehari.

Sr. No.	Tehsils	Union Councils
1	Vehari	26
2	Burewala	32
3	Mailsi	31
Total		89

### 5.6.3 Village Profile

There are five settlements namely 24WB, 30WB, 48WB, 28WB and 26WB present within five km of the project site.

#### *Settlement Pattern*

The basic information regarding infrastructural characteristics, total households and population of the village was collected from the secretary of the respective Union Councils. **Table 5.6** presents distribution of the settlements vis-à-vis their population.

**Table 5.6:** Distribution of Population

Settlements	Total Population	
	Number	Percentage
24WB	4,500	25
30WB	2,500	14
48WB	2,800	16
28WB	3,500	20
26WB	4,550	25
<b>Total</b>	<b>17,850</b>	<b>100</b>

**Source:** Socio-economic Survey (Village Profiles), May, 2015

#### *Social and Cultural Values*

The existing communities reflect rural culture with its characteristic norms and values. Women do all household work by themselves. Mostly women do the teaching job. Majority of the population follows Islamic tradition. Common food is wheat bread. Yogurt, Lassi and milk are also used. The common dress for males is Shalwar Qameez and for females Shalwar, Qameez and Dupatta/Chadar. Marriages are celebrated in traditional manners.

#### *Conflict Resolution Mechanism*

The people of the area were found to be loving, caring and hardworking. They reported that for petty conflicts resolution, they involve the senior and influential people of the area, who after listening to both the parties try to reach an unbiased decision which is acceptable to the aggrieved. Generally, the people accept the decisions of the influential.

#### *Public Health*

The major diseases that afflicted the residents of the area are seasonal. Cough, flu, fever etc. are the most commonly encountered seasonal diseases. No case of any major disease was reported during the survey.

There are no adequate health care facilities in the surveyed settlement. Rural Health Centre (RHC) is located at 1 km from the settlement. Basic Health Unit (BHU) is located in each settlement. There is no qualified practitioner (MBBS) in the area. Dispensaries and Traditional Healers are also present in surveyed settlement. The only medical services available in the village are provided by Lady Health Workers (LHW). There are 13 LHV in the area. People visit city hospitals in case of major ailment.

### ***Educational Facilities***

There are fourteen government schools in the area, two government high schools, four middle government schools for boys and girls and eight primary schools.

Primary and middle level education is also provided by the private co-education schools. Students wishing to continue their study after matriculation go to Vehari and Multan. The village madrassas provides religious education to young male and female students.

### ***Sanitation and Drainage***

Underground sewerage system is absent in most of the settlements. Septic tanks are present in all the sampled households included in the socio economic survey. All the sewage carrying drains of the area are concreted but uncovered. The open drains in addition to attracting mosquitoes and flies on the sewerage water also produce unpleasant odor. This situation may cause health hazards to the local community. Household wastewater is disposed into open drains which ultimately find its way towards fields.

### ***Transport and Travel Mode***

The modes of transport among the local villagers are buses and wagons. Personal transport includes bicycles, motor cycles and cars owned by the residents of the surveyed settlements.

The proposed project site is located approximately 50 m from Khanewal road. Public transport is easily available to access the site.

### ***Road and Street Condition***

The main access tracks that connect the settlements to main Khanewal road are metaled roads. Most of the settlements streets are brick paved and concreted.



Exhibit: 5.11: Black top road in 48WB



Exhibit: 5.12: Brick paved street in 26WB

### *Civic Amenities*

#### Potable Water Supply

There is no government water supply scheme in the area. Ground water is the only source of water for the area being used by the community for all domestic purposes. Inhabitants have installed the electric motors at the depth of 100 to 300ft in their premises.

Water quality is excellent in terms of physic-chemical parameters but contaminated with bacteria. No precautionary measures are undertaken before the consumption of water. Furthermore, there is no filtration plant available for the residents of the village.

#### Electricity Supply

Multan Electric Power Company (MEPCO) provides electricity to the area. Inhabitants of the area face 8hours/day load shedding of electricity.

#### Natural Gas Supply

Most of the area lacks natural gas supply. Inhabitants use wood and cow dung cake as cooking and heating fuel in their houses.

#### Telecommunication Network

Majority of the residents use cellular phone for communication.

#### Religious Resources

Religious sites include shrine, mosques, graveyards and historical buildings. There are 15 mosques, two shrine, four graveyards in the study area. Mosque has been built in the recent past and has no historical or architectural significance. Shrine is regarded as a sacred place and receives devotion from the locals of nearby population built not well known outside the area.

***Recreational Areas***

No recreational site of regional or national importance is found in the study area.

**5.6.4 Demographic Characteristics of the Study Area*****Population and Family Size***

Based on socioeconomic survey, the population of 241 households is calculated as 1,787 as given in the Table 5.7. Average household size was calculated as 7.4. The shares of male and female population are 54% and 46%, respectively. Male to female ratio is 1.19. The percentage of younger population (85%) is higher than above 40 years of age. Table 5.7 shows the gender wise population of sample based survey.

**Table 5.7: Gender Wise Population**

Gender	Number and %age	Sex ratio	Household size
Male	972 (54%)	1.19	7.4
Female	815 (46%)		
<b>Total</b>	<b>1,787 (100%)</b>		

Source: Socio economic Census Survey, May, 2015

***Type of Family***

According to the sample based socioeconomic survey, population of the area live under nuclear, joint and extended family system. The distribution of household with respect to the type of family is given in the Table 5.8.

**Table 5.8: Type of family**

Type of Family	Distribution	Percentage (%)
Nuclear	180	75
Joint	61	25
<b>Total</b>	<b>241</b>	<b>100</b>

Source: Socio economic Census Survey, May, 2015

The population of the village resides largely in nuclear families e.g., family unit consisting of parents and their dependent children.

***Religion***

The main religious groups in the area are Muslims and Christians. The population of the surveyed settlement is predominately Muslims.

***Language Spoken***

Punjabi is the most common language spoken by majority of population in the area. Urdu is spoken as secondary language.

***Castes and Ethnicities and Minority Groups***

The project area is inhabited by the people of various castes including Sheikh, Rajpoot, Ansari, Qureshi, Chaddar, Araen, Mughal, Butt, Dhaha, Malik, Khokhar and Tawri. Reportedly, lower castes associated with hereditary menial professions are also the part of the village population.

***Educational Status***

Educational facilities in any area predict the educational level and the interest of the people towards the education. Educational status of the respondents of surveyed village is shown in **Table 5.9**.

In the **Table 5.9**, 10 children having age group 1-4 have been excluded. Out of remaining, majority of the respondents had primary level education. It is also obvious from the table that the ratio of the matric, intermediate and graduates is very low as compared to those having education up to primary and middle.

**Table 5.9: Educational Level of the Respondents**

Education Level	Male	Female	Male (%)	Female (%)	Total	%age
Primary	202	194	21	24	396	22
Middle	200	116	21	14	316	18
Matric	87	40	09	05	127	07
Intermediate	40	16	04	02	56	03
Graduate	31	08	03	01	39	02
Masters	06	01	01	00	07	00
M.phill	01	00	00	00	01	00
Deeni Taleem	04	02	00	00	06	00
Illiterate	325	350	34	43	675	38
<b>Total</b>	<b>969</b>	<b>808</b>	<b>100</b>	<b>100</b>	<b>1777</b>	<b>100</b>

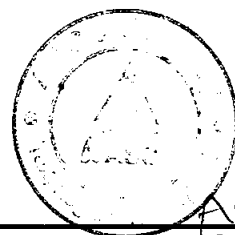
Source: Socio economic Census Survey, May, 2015

### 5.6.5 Economic Conditions of the Study Area

***Occupations and Employment***

Various income generating activities are practiced in the area. Leaving the categories of housework and students, which mainly pertains to the housewives and children, the major earning occupations are wage labor and agriculture.

Based on the sample-based socio-economic survey of the project area, **Table 5.10** presents distribution of the household members by occupation.



**Table 5.10:** Distribution of Household Members by Occupation

Occupation/ Source of Income	Number	%age
Agriculture	173	11
Housewives	321	20
Domestic Work	144	07
Students	462	29
Wage labor	164	10
Business	79	05
Government Servant	29	02
Unemployed	170	11
Retired Servant	05	00
Overseas	02	00
Private Jobs	78	05
<b>Total</b>	<b>1597</b>	<b>100</b>

Source: Socio economic Census Survey, May, 2015

### *Income Levels*

**Table 5.11** shows the distribution of households with respect to their reported average monthly household income. It is evident from the table that the income level of most of the respondents is reasonably good.

**Table 5.11:** Distribution of Households by Average Monthly Household Income

Income Group	Number	%age
10,000-20,000	40	17
20,000-30,000	71	29
30,000+	130	54
<b>Total</b>	<b>241</b>	<b>100</b>

Source: Socio economic Census Survey, 3-5 May, 2015

### *Housing Characteristics*

Housing condition is an important indicator for determining the economic conditions of the population as it reflects the financial position and living standards of the inhabitants.

Most of the houses in the study area are semi pucca. Rooms are built with cement and bricks and permanent roofing structures while yards are muddy. All the respondents (100%) are living in their own houses and none was found to live in the rented houses. Nature of the housing conditions of the study area is shown in **Table 5.12**.



**Table 5.12: Housing Type**

Categories	Number	%age
Pucca	166	69
Katcha	30	12
Semi Pucca	45	19
<b>Total</b>	<b>241</b>	<b>100</b>

Source: Socio economic Census Survey, May, 2015

### Number of Rooms

The number of rooms depends upon the need of the family. In larger families with marital extensions of sons, additional rooms are built to fulfill the additional space requirement.

Most of the surveyed houses (85%) have 1-4 rooms, whereas 14% have 5-8 rooms and only 01% have 9-10 rooms. Details are shown in **Table 5.13**.

**Table 5.13: Number of Rooms**

No. of Rooms	1	2	3	4	5	6	7	8	9	10
No. of Respondents	42	65	50	47	12	11	06	05	00	03
%age	17	27	21	20	05	05	02	02	00	01

Source: Socio economic Census Survey, May, 2015

## **5.6.7 Livestock**

The people of area keep the animals at house hold level for their personal necessities and livelihood. Livestock also plays a vital role in economies and particularly lower class and lower middle class as a main source of their income.

Major livestock animals of the area are cows, buffalos, goats, sheep, donkeys and poultry birds. Cow, Goats and Sheep are kept for the whole year and sold and sacrificed on the event of Eid Ul Adha. People of the area were of the view that sufficient fodder is available for the livestock.

## **5.6.8 Industries/ Commercial Activities**

### **Industrial Activities**

In district Vehari, there is one textile composite unit, 3 textile spinning and 6 textile weaving units, 25 rice mills, 11 flour mills, 4 vegetable ghee/cooking oil units and a number of oil expelling units and cotton ginning/pressing factories. Among these, Burewala Textile Mill (BTM) Ltd. and its sister concerns i.e. BTM Ginning / Pressing Factory, BTM Oil Extracting/Cooking Oil and BTM Poultry Feed Mill is very good example of linkage between the industrial units.

Being one of the best cotton growing districts of the country, district Vehari possesses very good potential for textile spinning, weaving and processing, textile made-ups etc.

hosiery, terry towel, sportswear, bed sheets, tents / tarpaulins, canvas cloth, etc. which are directly exportable items.

These industries have both positive and negative impacts on the people. On one hand, these industries are the source of employment for local people but on other hand deteriorating the quality of life and health of people by generating uncontrolled emissions into environment.

#### 5.6.9 Agricultural Activities in the Area

The climate of this area is very suitable for agriculture and most of its population is depending upon agriculture. The major crops of the district are wheat, sugarcane and cotton. The average annual production of wheat and sugarcane during the period 1998-2001 was 763 and 650 thousand Million Tons and of cotton was 863 thousand bales. The average annual productions of fruits i.e. citrus, mangoes, and guava are 61, 46 and 18 thousand Million Tons during 1998-2001, respectively.

#### 5.6.10 Perceptions and Apprehensions of the Community Regarding Proposed Project

Public consultation provides an opportunity to the various stakeholders to share their views and experiences about the proposed activity in the area. Public involvement leads to the better and more acceptable decision making. There are following broad objectives of decision making.

- Informing the community about what is being proposed and anticipated impacts during construction and operational phase on the socioeconomic environment of the area.
- Providing the opportunity to the stakeholders to ascertain their views regarding various aspects of the proposed project.
- Reducing the conflicts through early identification of contentious issues and find appropriate and practical solution.

In order to achieve the aforementioned objectives, comprehensive consultation with the community of the project area was carried out. Five group discussions were held in the area. **Table 5.14** shows the number of participants.

**Table 5.14:** Participants of Group Discussions

Session	Date	Venue	No. of Participants
24WB	May, 2015	Village	10
30WB	May, 2015	Village	08
48WB	May, 2015	Village	15
28WB	May, 2015	Village	20
26WB	May, 2015	Village	05

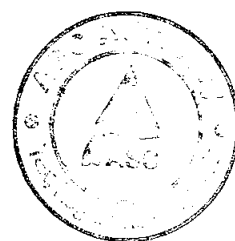
During public consultation and meetings with other stakeholders, the overall response was positive. Most of the people of the project area were not aware about the proposed project. The overall project including proponents, components, environmental and socioeconomic were introduced to the local people and asked to mention positive and negative concerns related to the proposed project. A summary of feedback received is given in **Table 5.15**.

**Table 5.15:** Summary of feedback

Comment Category	Issue/Comment	Response
Job creation	<ul style="list-style-type: none"> <li>➤ Unemployment is an issue of the area. It seems that this issue will increase even with increasing industrial activities in the area.</li> <li>➤ Communities in the project area emphasized that local villagers should be given priority when employing people for various project-related works and activities according to their skills.</li> <li>➤ People complained that cement industries of the area don't prefer the local people for hiring.</li> </ul>	<ul style="list-style-type: none"> <li>➤ The proposed project will create the limited job opportunities for the local people.</li> <li>➤ Project director assured that local of the area will be given preference during hiring of labor based on their skills.</li> </ul>
Traffic congestion/accidents	Accidents will increase at main Khanewal road branch road approaching the VIE.	<ul style="list-style-type: none"> <li>➤ Management will consider this issue and management plan will be implemented.</li> <li>➤ Any aggrieved person from the community can forward any project related complain to the management. Complain will be considered and action will be taken to rectify the problem.</li> </ul>
Cattle disturbance	<ul style="list-style-type: none"> <li>➤ Heavy vehicles may disturb the cattle and livestock may get hurt or run away or die accidental death due to vehicular movement when crossing or going along the road</li> </ul>	<ul style="list-style-type: none"> <li>➤ Management will consider this issue and management plan will be implemented.</li> </ul>

Comment Category	Issue/Comment	Response
Air quality	➤ Would the project emit hazardous emissions in the air like other industries	➤ Mitigation measures are suggested in the report. Management will implement these measures to control the emissions. ➤ As per environmental law, People may note their environmental related complaints to district Environment Department.
Community relations	➤ We are thankful to the proponent for providing the opportunity to voice our concerns	➤ Noted and Thanks
Positive achievement	➤ Installation of such type of mega projects will reduce the unemployment in the country	➤ Noted
Communication	➤ Public hearing arranged at the project site so that locals could also attend the event. ➤ Local language should be used in the meeting	➤ Noted and informed that public hearing will be advertised in the national and local newspaper. ➤ Local language will be used to discuss the project related issues. ➤ Every project related question will be invited happily and suggestions of the local will also be considered in the report, if applicable.
Wastewater	➤ Will the wastewater be discharged into the environment?	➤ Wastewater will be treated prior to discharge. Management is considering various options for safe disposal of treated wastewater.
Communication	➤ Management must be available when any public issue arises	➤ Noted
Communication	➤ Authorities should maintain a cooperative attitude towards	➤ Noted

Comment Category	Issue/Comment	Response
	community and pay attention to all the community concerns that may arise during the project implementation	
Area development	➤ Apart from industry related activities, natural gas, paved streets, schools, vocational training center and medical facilities are the necessities for the development of the area.	➤ Noted



ASC

## **Chapter-6**

# **ENVIRONMENTAL AND SOCIOECONOMIC ISSUES AND IMPACTS AND MITIGATION MEASURES**

## **CHAPTER-6**

### **ENVIRONMENTAL AND SOCIOECONOMIC ISSUES AND IMPACTS AND MITIGATION MEASURES**

#### **6.1 General**

This section identifies the overall impacts (both positive and negative) of the proposed project during design, construction and operational phases on physical, biological and socioeconomic environments of the project area. Furthermore, it also describes the appropriate mitigation measures to eliminate or reduce the adverse environmental impacts on human and natural environment to an acceptable level within prevailing legislative and regulatory framework.

##### **Identification of Potential Impacts**

For the identification of potential impacts, screening of all the activities causing impacts has been carried out in different phases of the project. The major project activities were identified and the impacts on physical, biological and human environment of the area were evaluated.

All the project activities are divided into three phases;

- Design phase
- Construction phase; and
- Operational phases

Environmental impacts and issues that need to be carefully addressed during aforementioned phases with appropriate mitigation measures are presented in detail.

#### **6.2 Design Phase**

This phase mainly comprises of feasibility study and appropriate design selection for the proposed industrial estate.

There will be no major activities during this phase except site inspection and soil investigation at the proposed site. Soil investigation will be carried out through soil sampling. Most of the activities do not require extensive physical interference in the project area, therefore, no significant environmental, socioeconomic and health impacts have been identified.

##### **Mitigation Measures**

No mitigation measures are required for design phase of the project.

#### **6.3 Construction Phase**

Construction phase includes the activities related to leveling of site, construction of structures, utility installations and installation of equipments. Most of the construction

phase impacts will be of a temporary nature and their magnitudes are subject to the management practices adopted during construction.

### **6.3.1 Water Quality Deterioration**

Wastewater generated from sanitary facilities provided to the workers may affect the ground water resources if proper treatment system is not established.

In the first phase, admin block has been completed. Sanitary facilities are provided with septic tank system therefore, impact would be insignificant.

#### **Mitigation Measures**

No other measures are needed.

### **6.3.2 Disposal of Solid Waste**

The main sources of solid waste, associated with the construction of the project are domestic solid waste from admin block and excavation activities. The solid waste will be generated in the form of excavated soil, residual from construction material (construction debris etc) and domestic waste.

The extent of environmental impacts of the solid waste depends upon their disposal practices and pollution control measures. Indiscriminate disposal of solid waste may lead to generation of obnoxious smells/odor and unhygienic conditions. The impacts of solid waste are predicted as insignificant.

#### **Mitigation Measures**

- It is desirable to utilize the surplus construction material for fill up the low laying areas or in other construction activities taking place in the immediate vicinity or within the project area;
- Domestic solid waste from all the sources should be collected at a common point and then safely disposed off only in demarcated waste disposal sites.
- During the wrapping up of the construction phase, machinery and equipment will be packed up and transported back. For the sake of site clearing, discarded pieces of machineries, construction material should be disposed of at the dumping sites.

### **6.3.3 Air Pollution**

Pollution causing activities during the construction phase are as follows:

Dust would be generated due to open storage of construction material blown by wind, land clearing, excavation, dumping, spreading, grading and compaction and use of uncovered trucks for the transportation of construction materials.

The dust emissions from the above sources and operations would cause public health hazards and nuisance, to the nearby communities particularly since these emissions get released at the ground level, with less chances of diffusion. Much of the fugitive dust



generated by construction activities consists of relatively large size particles, which are expected to settle within a short distance from their source.

Construction material transport vehicle to and from the site and construction machinery and equipment would cause the production of gaseous emissions including carbon monoxide (CO), oxides of sulfur (SO<sub>x</sub>) and oxides of nitrogen (NO<sub>x</sub>). Generators, to be operated as standby in case of shut down of electricity supplies from the WAPDA, shall also contribute to air pollution. Most of the construction equipment is mobile; the emissions are likely to be fugitive. Ambient air levels are not expected to increase from the standards, therefore the impacts would be insignificant.

### **Mitigation Measures**

- All the construction equipment and vehicles should be maintained in good operating condition and properly tuned in order to minimize the exhaust emissions;
- Open burning of solid waste should be avoided;
- Excavation activities should be avoided during excessive windy days;
- Construction material transportation vehicles should be covered;
- Sprinkling of water should be performed during the construction stage;
- Chimneys and particulate scrubber should be provided to the plants generating particulate matter; and
- Masks should be provided to drivers and operators of vehicles and construction machinery.

#### **6.3.4 Noise Pollution**

Noise is a byproduct of human activities and potentially a serious pollutant and threat to environmental health. The major sources of noise are construction and erection of electrical and mechanical equipment.

Construction equipment generate the noise ranging between 75-95 depending on type and number of the construction equipment being operated, their noise generation characteristics and their distance from that location.

**Table 6.1 and 6.2** shows the maximum limits of noise levels of construction equipment and machinery.

**Table 6.1:** Maximum Limits of Noise Levels

Sr. No.	Equipment	Noise Levels dB (A)
1	Earth Moving Machinery	75-85
2	Material Handling Equipment	75
3	Stationary Equipment	75
4	Tools, Hammers and Drivers	80-95

Source: The General Services Administration, Construction Noise Specification, USEPA 1972



**Table 6.2:** Maximum Limits of Noise Levels at 5 m distance from the source

Sr. No.	Equipment	Observation Point from the Source (m)	Noise Levels dB (A)
1	Grader	5	90
3	Bulldozer	5	86
4	Truck	5	92
5	Concrete Mixer	5	91
6	Concrete Pump	5	85

Source: Guangzhou City Centre, Inner Ring Road Project, Environmental Assessment Report (1997)

During baseline survey, the recorded noise levels were below the standard value.

It is expected that when the project activities will start, the existing noise levels would be slightly augmented. The increased noise levels will be site specific and of temporary nature. Moreover, all the settlements are located at a fair distance from the project site therefore; no major impacts within the project area and on the surroundings are expected.

#### **Mitigation Measures**

- Up-to-date and well maintained machinery with reduced noise levels should be used; and
- Construction workers should be provided with suitable hearing protection like ear plugs.

#### **6.3.5 Impacts on Land Use**

The land use of the project area will be permanently changed from agricultural/barren land to industrial category. Construction of buildings industrial activities will permanently change the aesthetics of the area to some extent. However, this change will be limited to the industrial estate area only.

#### **Mitigation Measures**

- In order to improve the environment, green belt should be developed. This will improve the aesthetic of the project site.

#### **6.3.6 Impacts on Flora**

The proposed project site is devoid of major vegetation. No rare, endangered, endemic or any commercial or ecological important terrestrial plant species were observed during the survey. Therefore, the site clearance would not bring about any damage to the flora.

#### **Mitigation Measures**

- Plantation in the area will result in positive shift in the ecological status of the area.

### 6.3.7 Impacts on Fauna

During the site survey, no endangered or threatened species were found to inhabit the project area. Similarly, no special status of wildlife is reported from the project site. Therefore, the construction of proposed project will not result in any significant loss or damage to species or habitats of special status.

### 6.3.8 Meteorology of the Area

Construction of the proposed project will not have any impact on the climate of the area. Hence, impact on the meteorology of the area would be insignificant and no mitigation measures are required.

### 6.3.9 Socio- economic Impacts

#### Local Employment

During construction phase, there will be positive impacts on the local employment. Local people will get opportunities of direct construction-related jobs. Contractor should give the preference to the local people while hiring labor. As the limited job opportunities will be available for the locals therefore, the impact would be low beneficial.

### 6.3.10 Occupational Health and Safety

Various activities during the construction phase of the project could have health & safety impacts. Workers safety hazards are associated with the operation of construction machinery and equipment, loading and unloading, concrete mixing and conveyance, and installation of structures.

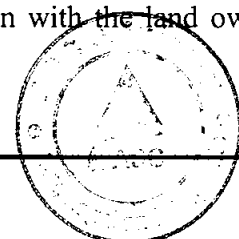
The causes of safety hazards are human errors, operational faults of machinery and unforeseen incidences. The impact on workers health and safety is high adverse, if safety measures are not adopted.

#### Mitigation measures

- Proponent should depute a person to supervise the construction activities; and
- Contractor should provide the PPE to the workers, where necessary.
- Efficient management, staff training, equipment maintenance and other preventive measures. Accident prevention is essentially an engineering and administrative problem and rests mainly on strict compliance with the established safety rules and regulations.

### 6.3.11 Land Acquisition

Land acquisition will not be the issue for PIEMDC as approximately 277 acres area has already been acquired by the management. Most of the land is government owned. Private land has been acquired through voluntarily negotiation with the land owners. Judicious compensation has been paid based on market rate.



### 6.3.12 Loss of Cultural Resources

There is no cultural, historical or archaeological site within or in close vicinity of the project area. Hence, no impact is envisaged on the places of interest.

### 6.3.13 Loss of Assets/Structures

No public or private assets will be affected due to the execution of the project.

## 6.4 Environmental Impacts during the Operation Phase

The proposed project, right from the decision for its implementation to the operation phase, will cause environmental impacts on three environmental settings such as physical, biological and human.

### 6.4.1 Wastewater Impacts

#### a) Sources of Wastewater Generation

Following are the major sources of wastewater generation from industrial estate;

- Sanitary wastewater
- Industrial wastewater

#### Sanitary Wastewater

The sanitary wastewater sources are administration office, commercial area and the other facilities provided in the VIE. **Table 6.3** presents the typical characteristics of untreated sanitary wastewater.

**Table: 6.3:** Typical Composition of Untreated Domestic Wastewater

Sr. #	Parameter	Concentration (Medium Strength)
1	Total Dissolved Solids (TDS)-mg/l	500
2	Total Suspended Solids (TSS)-mg/l	210
3	Biochemical Oxygen Demand (BOD <sub>5</sub> )-mg/l	190
4	Chemical Oxygen Demand (COD)-mg/l	430
5	Chlorides-mg/l	50
6	Sulfate-mg/l	30
7	Oil and Grease-mg/l	90
8	pH	7

*Source: Wastewater Engineering-Treatment and Reuse (Metcalf & Eddy, 186)*

#### Industrial Wastewater

It is estimated that about 12 cusec flow including sanitary and industrial process will be generated from the proposed VIE when fully developed. As the specific nature of industries to be constructed in the VIE is not known therefore wastewater

characteristics, expected from the VIE cannot be established. The generated wastewater will be treated in CETP prior to disposal.

#### b) Impacts of Wastewater

Table 6.4 presents impacts of wastewater on environment and human health.

Table 6.4

#### Impacts of Wastewater on Environment and Human Health

Parameter	Impacts
pH	Growth inhibition of bacterial species (responsible for removing organic pollution) under highly acidic or alkaline conditions
	Corrosion of water carrying system and structures with acidic wastewaters having low Ph
	Malfunctioning and impairment of certain physico-chemical treatment processes under highly acidic or alkaline conditions
Organic Pollutants	Depletion of dissolved oxygen (DO) levels, of the receiving water body, below limits necessary to maintain aquatic life (4-5 mg/l)
Suspended Solids	Sedimentation in the bottom of water bodies leaving adverse impact on flora and fauna
	Localized depletion of dissolved oxygen in the bottom layers of water bodies
	Reduced light penetration in natural waters and consequent reduction in photosynthesis
	Aesthetic nuisance
Oil and grease	Reduced re-aeration in natural surface bodies, because of floating oil and grease film and consequent depletion in dissolved oxygen levels
	Reduced light penetration in natural waters and consequent reduction in photosynthesis
	Aesthetic nuisance

The impacts of untreated wastewater on physical, biological and human environments would range from low adverse to medium adverse.

#### Mitigation Measures

- The wastewater impacts are in the category of low adverse to medium adverse. Such impacts can be managed by incorporating the pollution control technology. Some of these impacts can be eliminated through the administrative controls but not all. The control technology is the CETP (at the VIE level) and pre-treatment plants (at the industrial level) whereas the administrative controls include training of workers, implementation of operational and process control, preventive maintenance, and environmental monitoring and reporting. The management has incorporated wastewater pollution control measures in the planning stage.

The management of the VIE is recommended to implement the following measures to manage the process wastewater.

**a) Water Consumption Monitoring**

Water consumption both for the process and sanitary purposes should be monitored and its quantities recorded by each industry in the VIE. All the main water inlets shall be provided with flow meters to record daily water intake. Unit water consumption with respect to production and water consumption per capita per day for domestic use can be established by this measured water quantity.

**b) Sanitary Wastewater Disposal**

The management should encourage the use of the septic tank for pre-treatment of sanitary wastewater in each industrial unit. This system is the partial treatment of wastewater. The BOD and suspended solids are decreased 40 per cent and 70 per cent respectively from this system. In this process, the suspended solids are settled down by the provision of retention time of about 18-24 hours. The BOD is reduced by anaerobic treatment, in which organic matters are converted into methane,  $H_2S$  and  $CO_2$ . The overflow water from the septic tank will be conveyed to the CETP prior to disposal.

**c) Process Wastewater**

To comply with the NEQS, the management should treat wastewater of all industries by adopting Activated Sludge Process technique.

**d) Wastewater Monitoring and Reporting**

Wastewater discharged from all the industries including the CETP will be monitored with respect to its quantity and quality. As per the NEQS (Self Monitoring and Reporting) Rules, 2001, the priority parameters for wastewater from different industries will vary accordingly. After monitoring water consumption and wastewater discharges, water balance can be established. On the basis of monitoring, the departments consuming huge water quantities can be controlled through water audit.

The frequency of reporting of the priority parameters to the concerned authority will vary according to the nature of industries in the VIE. The services of some reliable private laboratory can be hired or an in-house laboratory can be established and training can be imparted to its own professionals for this exercise

#### **6.4.2 Solid and Liquid Waste Impacts**

The solid waste will generally comprise empty containers of lube oil and chemicals, metal scrap, discarded mechanical parts and domestic solid waste from all the industries in the VIE. Other major solid waste streams will depend upon the varying nature of industries in the VIE. Solid waste will also be produced from commercial and institutional activities in the VIE.

The liquid waste is generally the used lube oil from different machines, especially from the gears and from the vehicles. The quantity of this waste stream is not possible to estimate at this stage. The improper disposal of liquid waste can cause air, water and soil pollution. The solid and liquid waste impacts on different environmental conditions would be mainly medium adverse.

### Mitigation Measures

- For safe disposal of industrial wastes, the management can encourage the use of three R's concept (reduce, reuse and recycle the solid waste). The plant operators should be trained to do their best to produce less solid waste from the process by employing different cleaner production techniques. The solid waste management team should explore ways to reuse waste in house as such. If it is possible to reuse any waste after making some change on it (called *recycling*); it should be practiced.

Monitoring of the solid waste with respect to its source, type, and generation rate is essential. For such monitoring, there will be solid waste management system in the organizations in which, waste segregation, collection and storage will be integrated with the industries operations. The management will ensure that these wastes are used under no objection circumstances. A sanitary landfill site will be constructed by the management of the VIE to dispose of industrial solid waste.

- The domestic waste generated from the administration buildings in the VIE will be collected and dumped at appropriate bins. From waste collection bins, it will be transported to the VIE designated solid waste dumping site daily.
- Major liquid waste streams include used lubricants. There should be a mutual agreement with the major suppliers of lube oil to take them back after use. Their safe disposal or reclamation will be the responsibility of the suppliers.

### 6.4.3 Air Pollution

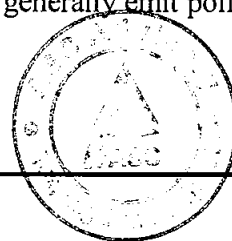
#### a) Sources of Air Pollution

There will essentially be the following major sources of air pollution in the VIE:

- Generators/Power Plant
- Boilers
- Vehicles

#### Generators/Power Plant

Diesel oil is used as fuel normally in generators used for standby electricity generation, but now gas fired generators are also being used. Gas fired generators are preferred for because their emissions are quite clean. Diesel based generators generally emit pollutants like CO, NO<sub>x</sub>, SO<sub>2</sub> and particulate matter.



Boilers

The boiler flue gases are the major air emissions in the industry. The major pollutants in the gas fired boiler are CO, NO<sub>x</sub>, CO<sub>2</sub>, and PM. This is a visual nuisance as well as health concern.

Vehicles

With the commencement of the VIE, the traffic in the area will increase. Such increase in traffic would cause fugitive dust emission in the area. The traffic will mainly comprise trucks, vans and office cars. These vehicles will also increase air emission due to fuel combustion. The major pollutants present in air emission will be oxides of nitrogen and carbon, particulate matter and un-burnt hydrocarbons. For well maintained vehicles, the air emissions will remain within the NEQS.

The VIE will be a blend of different industrial clusters which will produce air emissions (of varying intensities) relative to their respective processes. The CETP and the land fill site will also be the sources of air pollution. All the industries will be required to have their own EIAs prior to construction in the VIE.

**b) Impacts of Air Pollution**

**Table 6.5** presents impacts of air emission on environment (E) and human health and life (HL).

Table 6.5

**Impacts of Air Emission on Environment (E) and Human Health and Life (HL)**

Parameter		Impact
Particulate Matter	E	Damage to plants by choking the leaf pores and restricting photosynthesis
		Impairment of the atmospheric visibility affecting transportation safety
		Deterioration of aesthetic quality of atmosphere, land and water
		Soiling of materials, physical properties and infrastructure
	HL	Increase in the frequency of respiratory infections such as bronchitis
Carbon Monoxide	HL	Heart attack by reducing the oxygen carrying capacity of blood
		Birth defects including mental retardation and impairment of fetus growth
		Dizziness, headache, and nausea
		Increase in reaction time of the drivers, a threat to the road safety
Oxides of Sulfur	E	Chlorosis and Plasmolysis in plants
		Damage to materials and property, by acid rains, resulting from oxidation of sulfur oxides to sulfuric acid, after reacting with water vapors



Parameter		Impact
	HL	Serious lung damage, particularly in sulphate form
		Respiratory diseases like chronic bronchitis
Oxides of Nitrogen	E	Formation of photochemical oxidants
		Damage to materials and property, by acid rains, resulting from oxidation of oxides of nitrogen to nitric acid, after reacting with water vapors
		Retardation of growth in plants
	HL	Reduction in oxygen carrying capacity of blood
		Impairment of olfactory sense and night vision
		Dryness and roughness of throat
VOC		Formation of photochemical oxidants
Photo Chemical Oxidants	E	Leaf discoloration and cell collapse in plants
		Damage to rubber, textiles, paints and other materials
	HL	Severe eye, nose and throat irritations
		Severe coughing and shortness of breath

However, the impacts of air pollution are assessed as low adverse to medium adverse.

### Mitigation Measures

#### a) Air Emission Control Program

The following measures are recommended for air emissions control:

- ✕ Process control of combustion chambers
- ✕ Air emissions monitoring and reporting

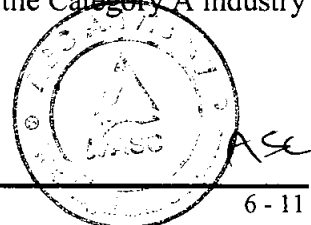
#### Process Control of Combustion Chambers

The combustion process can be controlled to make air pollutants within the NEQS level. The parameters to control are the uniform supply of fuel, control on air supply and fine tuning of the combustion equipment and burners.

There should be regular monitoring of boiler flue gases for  $\text{NO}_x$ ,  $\text{CO}$ , excess air supply, the PM, and generator emissions for  $\text{CO}$ ,  $\text{NO}_x$ ,  $\text{SO}_x$  and the PM by the industries. In case, these parameters are above the desired level, the appropriate measures can be taken.

#### Air Emissions Monitoring and Reporting

As mentioned in Section 3.1 that the VIE falls under the Category A for effluent and air emissions. For the EPA monitoring and reporting requirement, the Category A industry has to monitor its air emissions and report to the EPD monthly.



The priority parameters for air emissions monitoring and reporting for different industries in the VIE will vary accordingly.

#### **6.4.4 Noise Pollution and Vibration**

There are two types of noise sources i.e., plant noise and vehicular noise.

##### **a) Sources of Noise**

###### Plant Noise

The possible sources of noise after the establishment of the VIE would be different process equipments (depending upon the types of industries), boilers and generators.

###### Vehicular Noise

The industrial activities in the VIE will increase traffic in the area. The vehicular noise will be one of the added nuisances for the nearby community. An area of about 2 km radius will be directly affected by vehicular noise. The office vehicles will also contribute to this noise level, which will further increase after startup of the VIE operations. Generally, the well maintained vehicles have noise levels within the NEQS level of 85 dBA.

##### **b) Impacts of Noise**

The high noise levels result into various health impacts such as hearing loss and number of physiological and other effects.

###### Hearing Loss

Exposure to sufficiently intense noise for long enough duration results in damage to the inner ear and thus decreases one's ability to hear. It is specifically the organ of corti that is most commonly affected. In addition to a general decrease in the ability to detect sounds, the quality and clarity of auditory perception can be affected as well.

###### Acoustic Trauma

Acoustic trauma, which results from a single or relatively few exposures, is defined as "immediate organic damage to the ear from excessive sound energy." If the noise is intense enough, other structure outside the inner ear may also be affected, such as the eardrum, which may become ruptured. However, such damage is rare, and occurs only in instances involving extremely intense noise and blasts. Additionally, acoustic trauma often causes some degree of permanent damage to the auditory system.

###### Temporary and Permanent Threshold Shift

In temporary and permanent threshold shift, the person's auditory sensitivity decreases. The difference between these two effects is that, in temporary threshold shift, the auditory level returns to its original level, whereas in permanent, problems remain permanent. Thus a person with permanent threshold shift, no further recovery is

possible. Sometimes, the permanent threshold shift results from acoustic trauma but it often results from long period of repeated exposure of noise.

#### Physiological Effects

In addition to effects on hearing, noise also causes some physiological effects. These include cardiovascular and gastric effects. The studies have shown that anti-hypertensive medication consumption is generally higher in the noisy areas. Loud noise is related with the vasoconstriction with the consequent increase in blood pressure. One laboratory study showed that plasma cortisol and blood cholesterol levels were increased with the increase of noise level above 85 dBA.

Exposure to noise can also lead to gastric changes. A study showed noise level above 80 dBA resulted in a reduction in stomach contraction strength and helped in ulcer development.

#### Other Effects

Some of the other effects of noise are cognitive performance, occupational performance, psychological functioning, effects on social behavior and effects on aggression.

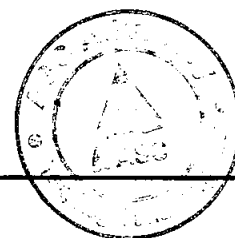
Various studies related with cognitive performance reveal that recall is detrimentally affected by background noise. Vigilance and attention are also impaired by noise exposure.

Occupational performance exerts its influence either directly or indirectly on the person through annoyance or job dissatisfaction. It has been seen that in the situation involving noise levels over 90 dBA, there are often increased number of errors in tasks requiring continuous attention. Also the occupational tasks involving sensory input can be hindered by noise. Poor concentration, irritation, nervousness, frustration, headaches, accidents, aggressive social behavior, fatigue and anxiety are some of the common other effects. There would be mainly medium adverse impacts on different environmental conditions.

#### **Mitigation Measures**

The management should encourage the use of the following sequence to control noise at various plants locations within the VIE:

- Noise measurement of the noisy areas (if required)
- Audiometric testing of workers exposed to high noise levels
- Record keeping of medical tests and follow up
- Engineering control for noise reduction
- Administrative control for noise reduction
- Training of employees
- Vehicular noise



**a) Plant Noise Measurement**

**Table 6.6** provides threshold limit values (TLV) of the noise according to the American Conference of Government Industrial Hygienists (ACGIH).

Table 6.6  
Noise Threshold Limit Values

Duration per Day (Hours)	Sound Level (dBA)
16	80
8	85
4	90
2	95
1	100
1/2	105
1/4	110
1/8	115

When the sound levels listed above exceed, the feasible administrative or engineering controls should be instituted. If these controls fail to reduce the sound levels to within those listed above, the hearing protection devices should be provided and used to reduce sound levels to an acceptable level.

**b) Audiometric Testing**

The management should implement audiometric testing of the workers exposed to high noise levels.

Audiometer is used to measure the hearing threshold of employees. These tests can detect changes in hearing threshold of employees. A negative change represents hearing loss within a given frequency range. The initial audiogram establishes a baseline-hearing threshold. After that, audiometric testing should occur at least annually.

**c) Follow Up**

It is very important to follow up monitoring of those employees having early stage of noise induced hearing loss. Hearing loss can occur without producing any evidence of physiological damage. Therefore, it is important to follow up on even the slightest evidence of a change in an employee's hearing threshold.

**d) Engineering Control**

There are three components of noise hazards i.e. noise source, noise path and noise receiver. The most desirable noise controls are those that reduce noise at the source. The second priority is to reduce the noise along its path. The last resort is noise reduction at the receiver using personal protective devices. The latter approach should never be substituted for the two former approaches.

- Noise can be reduced at its source by enclosing the source, altering the acoustical design at the source, substituting equipment that produces less noise, making alternations to the existing equipment, or changing the process so that less noisy equipment can be used;
- Noise can be reduced along its path by moving the source farther away from receivers and improving the acoustical design of the path so that more sound is absorbed as it travels toward receivers; and
- Noise can be reduced at the receiver by enclosing the worker, using personal protective devices.

#### **e) Administrative Control**

Administrative controls are the controls that reduce the exposure of VIE employees to noise rather than reducing the noise. There could be many operations in which the exposure of employees to noise could be controlled administratively, that is, production schedules can simply be changed or jobs can be rotated so that exposure times are reduced. This includes such measures as transferring employees from a job location with a high noise level to a job location with a lower one if this procedure would make the employee's daily noise exposure acceptable.

Administrative controls should be considered a second level approach with engineering controls given top priority.

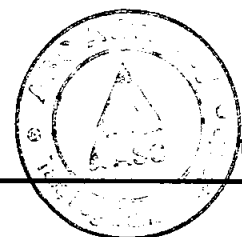
#### **f) Training**

The workers' training and education will be helpful for the management of each industry in the VIE to convince workers for the implementation of noise control strategies. The training and education program will provide information about the adverse effects of noise and how to prevent noise induced hearing loss. At a minimum, all trainings will cover the following topics:

- Noise induced hearing loss
- Recognizing hazardous noise
- Symptoms of overexposure to hazardous noise
- Hearing protection devices (HPD) - advantages and limitations
- Selection, fitting, use, and maintenance of the HPD

#### **g) Vehicular Noise**

The vehicles maintenance program should be implemented for carrying out regular maintenance of the office vehicles. Maintenance should focus on noise monitoring, engine tuning, oil change and general up keep. Generally, well maintained vehicles, in all respects, cause less noise pollution in the area.



#### 6.4.5 Socio-economic Impacts

After start up of the industrial operations, there will be increase in traffic in the project area, which may result in road accidents. There may also be the job opportunities available to the local residents.

#### 6.4.6 Impacts on Occupational Health and Safety

There could be a number of safety issues in the industrial operations. General impression in the industrial operations is that the workers hesitate to use the occupational health and safety equipments.

##### Mitigation Measures for Socioeconomic Impacts

- The traffic management measures are required as a means of reducing road accidents, improving the residential living environment and reducing the chance of collisions between vehicles, pedestrians and cyclists. After the VIE is in operation, there will be traffic load on the major external Khanewal-Vehari road as well as internal roads.
- As a measure to streamline heavy traffic in the area, proper road marking and signboard posting should also be done. Proper pedestrian precincts should be provided where development has encroached the human passages.
- The vehicle drivers should be apprised of the local customs and values, and be advised to remain courteous to the local population.
- The raw material transport activities scheduling should be such that most of the tasks are executed in a manner so as not to cause traffic jams and congestion in the area. Preference for job opportunities should be given to the local affected communities for their social and economic uplift.

##### Improvements in Occupational Health and Safety

###### a) Training of Workers

Workers of the industries in the VIE need training on the OHS issues such as the use of the OHS equipment, fire fighting, first aid, emergency response etc. Frequency of these trainings can be established according to the need. The consultants, trainers and people from different agencies working on these issues can provide in house trainings.

Each new entrant will undergo such trainings at the time of joining. Afterward he/she will also attend the scheduled trainings. To evaluate the effectiveness of these trainings, people of the facility should be tested time to time through different drills.

###### b) Comfortable Working Environment

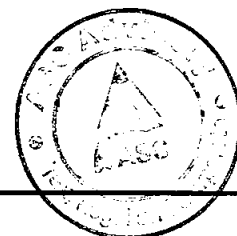
The management of the VIE should ensure the following sequence to be adopted to control heat stresses on workers and to improve the working conditions in industries:

- Measurement of heat stresses at high temperature working areas
- Establishing rest break schedules for workers of heat stress areas
- Improving working conditions by improving ventilation

- First aid training to workers to fight heat stresses

**c) Enforcement and Use of the OHS Equipment**

Workers should be enforced to use the OHS equipments in the plants. The management should also adopt such practices to motivate workers. Workers should be trained on these issues and provide knowledge of all the occupational hazards and associated diseases. After getting knowledge, they will definitely follow safety protocols. All such measures can eliminate the chances of accidents in the working areas. The management has the responsibility to supply these equipments to the workers uninterruptedly.



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**Punjab Industrial Estates  
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**Final Feasibility/ Preliminary Design Report**

- Design Criteria
- Final Master Plans

February, 2014

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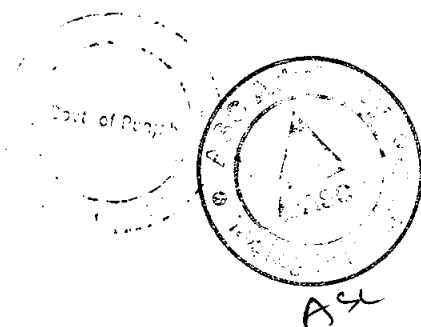
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## 1. BACKGROUND

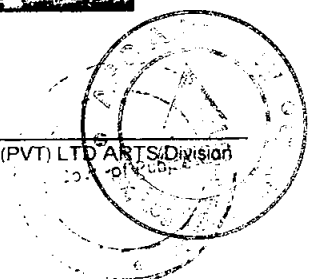
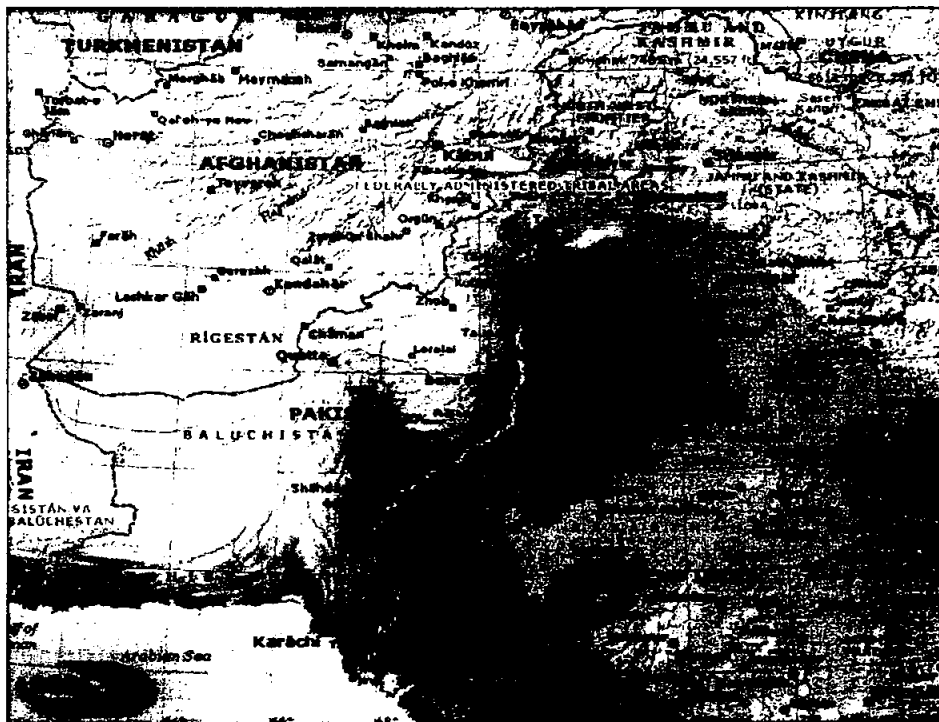
This Plan provides and seeks directions for the way Vehari Industrial Estate should be planned. A key goal is protecting the natural environment in the course of planning and development. This requires environmentally responsible development practices and the integration of natural features into development design.

M/S ACE was appointed consultant by PIEMDC under an agreement dated 28<sup>th</sup> May, 2013 to survey, plan and design the proposed Industrial Estate. This Feasibility Report is based on site visit, initial discussions with the Client and study of the relevant documents provided by PIEMDC.

This document describes the site for the proposed project, concept plan for the master planning and tentative land use distribution, including proposed pattern of development; location of different categories of plots with respect to one another, road network and community facilities as specified in the TOR.

Although the requirement as per TOR is preparation of a Preliminary Master Plan, but the Consultants on their own initiative will prepare three alternate preliminary plans, to give a wider choice to PIEMDC and facilitate finalization of The Plan based on feedback received from the Client. In Final Plan, each plot will be numbered and dimensioned to facilitate plot identification and allotment.

We are confident that the proposed scheme will emerge as a decent and productive Industrial Estate by virtue of its location and dexterous planning.



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## 2. PROJECT OBJECTIVES

The objectives of proposed industrial estate are:

- i) To provide turnkey solutions to the prospective entrepreneurs thereby generating economic activity and creating mass employment opportunities.
- ii) To provide structured platform to set up industries.
- iii) To support services/utilities at one location.
- iv) Attract/Make available skilled & unskilled manpower.
- v) Capitalize on strengths of Vehari region.
- vi) To provide secure industrial environment.
- vii) To ensure that industrial and related land uses are functional and mutually compatible arrangement, and are easily accessible through efficient road network allowing free flow of traffic.
- viii) To ensure compliance with environmental regulations.
- ix) To ensure provision of amenities including medical centre, emergency 1122, food areas, truck parking, parks/sports facilities, commercial areas, vocational training centre, container terminal, computerized weigh stations, petrol pumps/CNG stations, restaurants, motels, and Jamia Mosque.

## 3. INDUSTRIAL ESTATE SITE IN CONTEXT OF VEHARI CITY

Vehari is a small town about 96 km from Multan and is the headquarter of Vehari District. It is located at an altitude of 135 m (446 ft) and at a distance of about 300 kilometers from Lahore and about 37 kilometers North of River Sutlej – the southernmost of the five rivers of Punjab.

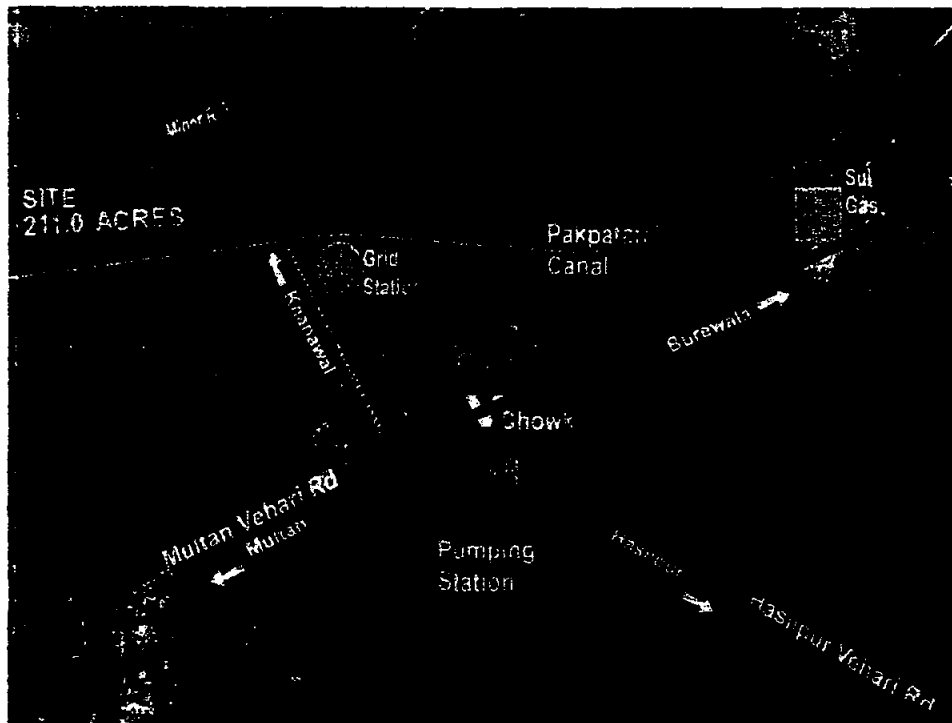
Vehari is known to be city of cotton, among other crops. The summer in Vehari is very hot, however, the weather becomes much more pleasant between October and February. Occasionally, light rainfall leaves the land generally arid and dusty. Vehari has dozens of cotton processing factories and cottonseed oil manufacturing plants.

The climate of the district is hot and dry in summer and cold in winter. The maximum and minimum temperature ranges between 42°C and 28°C in summer. During winter, the temperature fluctuates between 21°C and 5°C.

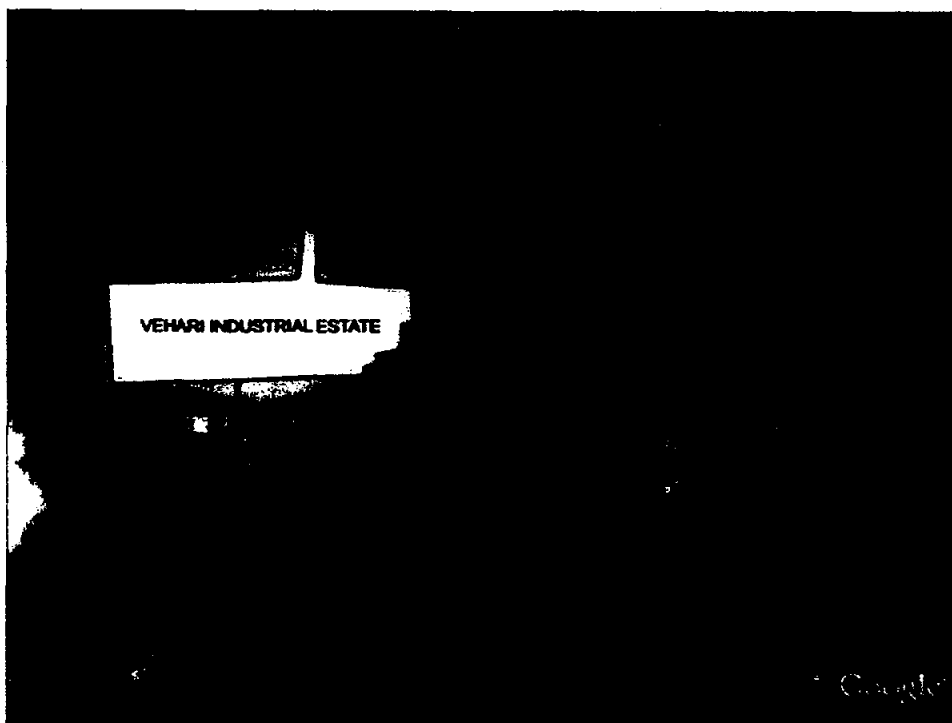
Vehari Chamber of commerce & industry (VCCI) was established on 26th of April 2013. At present there is no industrial estate in District Vehari.



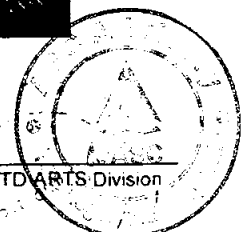
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**Figure 1- Satellite Image of Industrial Estate, Vehari**



**Figure 2- Satellite Image of Industrial Estate, Vehari**



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The main crops grown in District Vehari are Cotton, Sugarcane, Wheat, Maize and Rice (cleaned), main Fruits are Citrus, Mango & Guava and Main Vegetables are potatoes, onion and cauliflower.

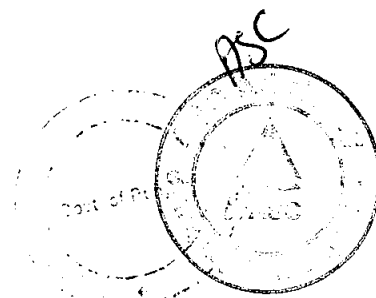
The existing industrial units in District Vehari pertain to Auto Parts, Cotton Ginning & Pressing, Flour Mills, Pesticides & Insecticides, Poultry Feed, PVC Pipe, Rice Mills, Textile Composite, Textile Made Ups, Textile Spinning, Textile Weaving and Vegetable Ghee / Cooking Oil.

According to Punjab Development Statistics 2008, total population of Vehari district is 2,581 thousand persons, while the urban population is around 116,000.

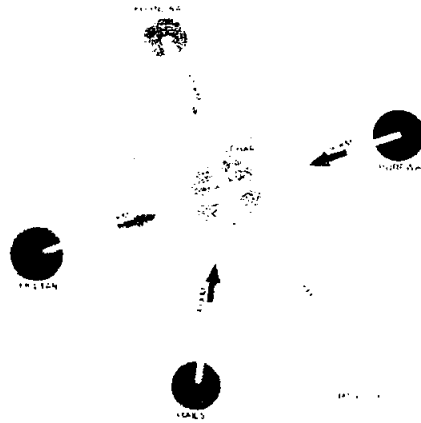
As regards availability of skilled labour, the following are the existing commercial and vocational/technical institutions in Vehari:

S. NO.	NAME OF INSTITUTION	COURSES OFFERED	DURATION OF COURSE	AVERAGE NO. OF STUDENTS ENROLLED (PER SESSION)
<b>FOR MEN</b>				
1	Govt. College of Commerce, Vehari	Diploma in Software Engg., D.Com, B.Com M.Com	3 to 24 Months	937
2	Govt. Technical Training Institute, Vehari	G-III (Ref. & AC, Auto Mechanic, Electrician, Machinist, Radio & TV	24 Months	206
<b>FOR WOMEN</b>				
3	Govt. Vocational Training Institute, Vehari.	Certificate in Computer Applications, Machine Embroidery, Beautician, Vocational Certificate, Vocational Diploma, Spoken English, Domestic Tailoring, Fabric Printing	3 to 24 Months	373

In pursuance of the Clause 4 of the Location Policy Notified on 30-09-2002, by the Industries Department, Government of the Punjab, District Govt. Vehari has declared certain areas as negative for setting up industries.



However, the District Government has identified and approved the following areas as positive for setting up industrial undertakings in Tehsil Vehari:

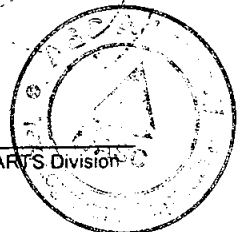


- Burewala-Vehari Road (about 30 KM)
- Multan-Vehari Road (about 40 KM)
- Khanewal-Vehari Road (about 10 KM)
- Luddan-Burewala Road (about 14 KM)
- Mailsi-Multan Road (about 20 KM)
- Mailsi-Syphon Road (about 17 KM)

#### Existing Industries in District Vehari:

There are about 336 large, medium and some small industrial units in the district, as given below:

1	Cotton Ginning & Pressing	200
2	Flour Mills	60
3	Rice Mills	55
4	Vegetable Ghee / Cooking Oil	5
5	Textile Weaving	5
6	Textile Spinning	2
7	Pesticides & Insecticides	3
8	PVC Pipes	3
9	Textile Composite	1
10	Textile Made Ups	1
11	Poultry Feed	1



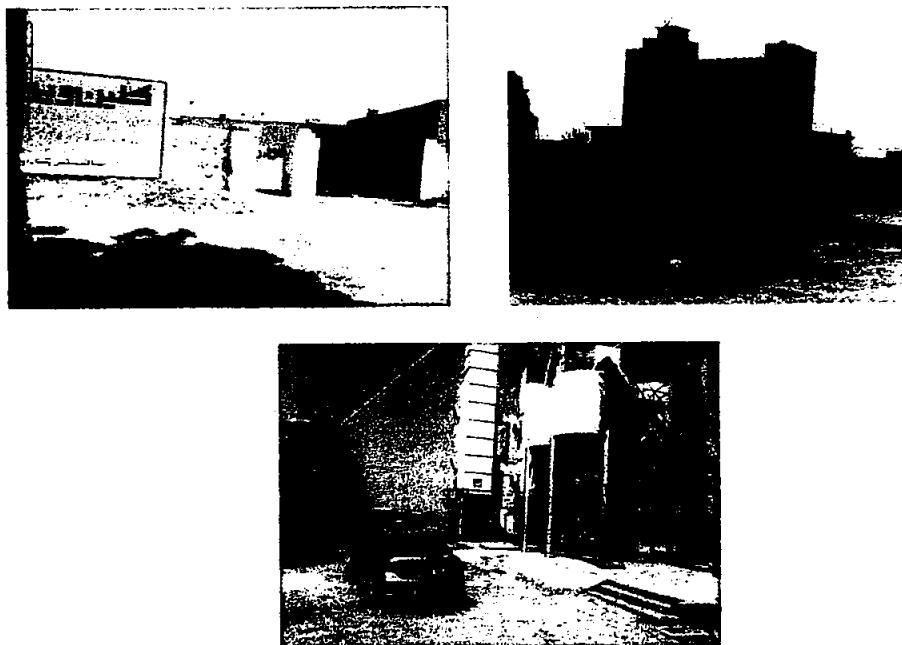
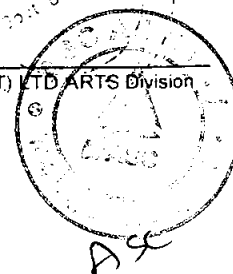
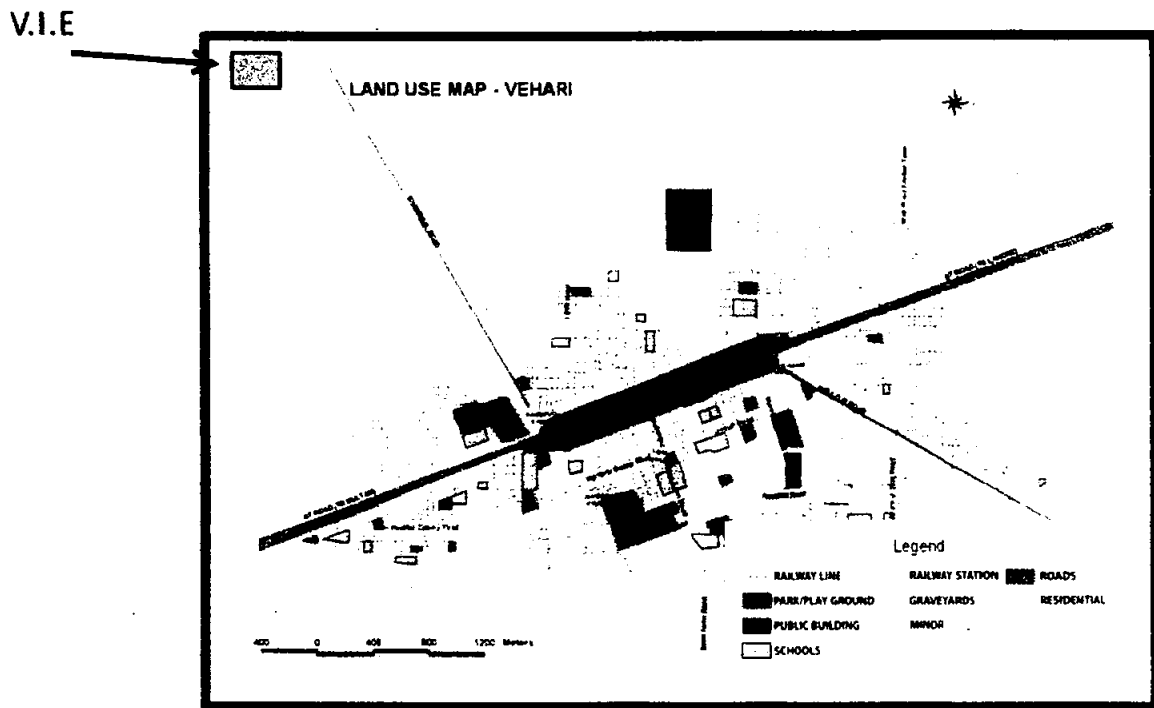


Figure 3- Photos of some Existing Industries

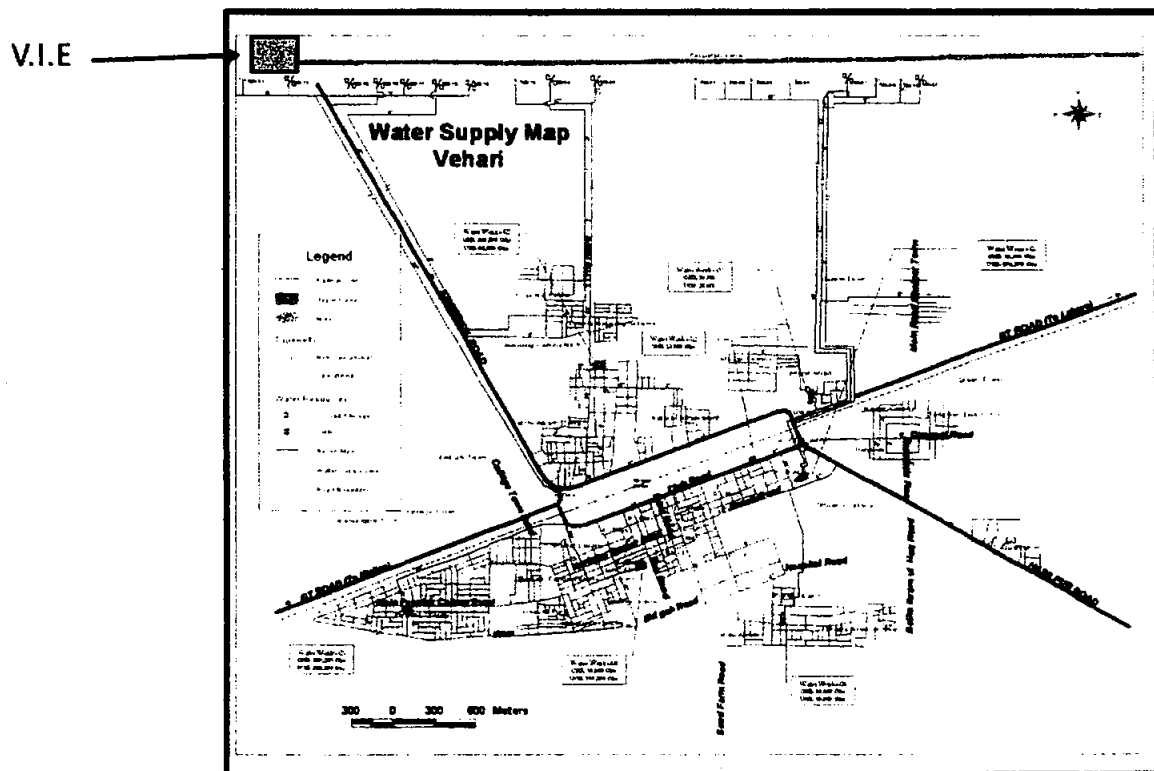


Figure 4- Expansion Pattern of Vehari in Last seven years





**Figure 5- Land use Map of Vehari**



**Figure 6- Water Supply Map of Vehari**

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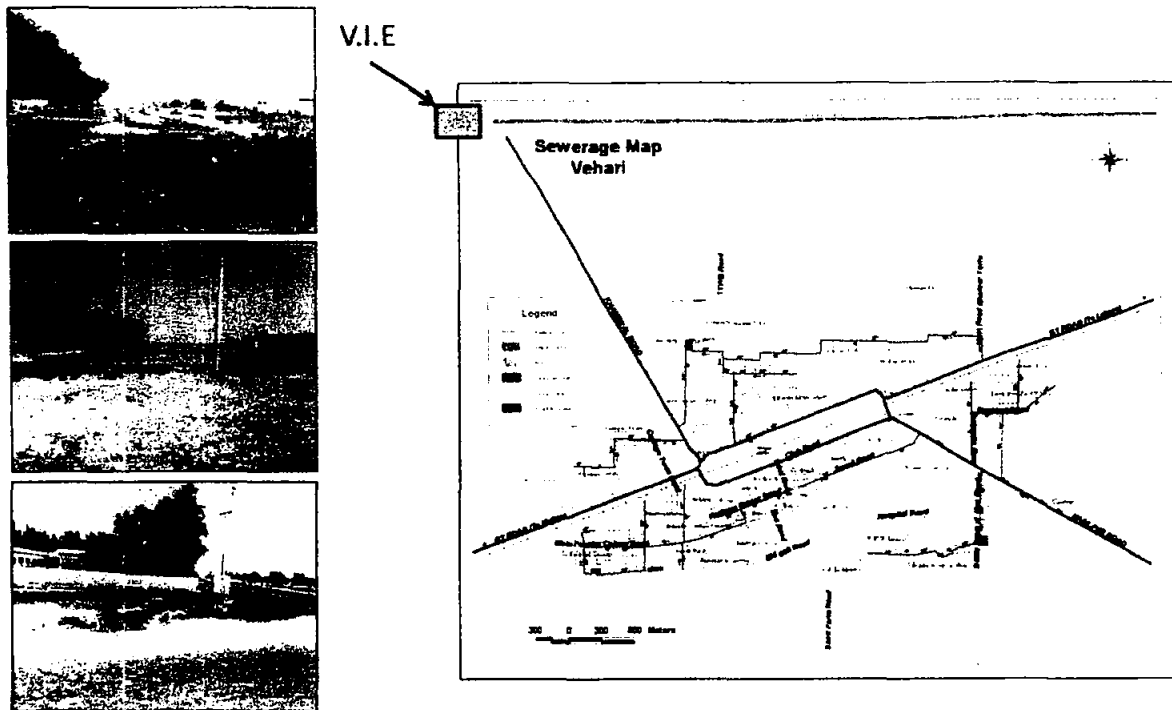


Figure 7- Sewerage Map of Vehari

#### 4. FUTURE INDUSTRIAL POTENTIAL IN VEHARI

Keeping in view the availability of raw material, skilled labour, linkage between the industrial units, local/national/international demand, future industrial potential of district Vehari is discussed hereunder, yet the entire success depends upon the investors/ entrepreneurs and the capabilities of the personnel having the managerial control.

There are a large number of cotton ginning/pressing factories and oil expelling units operating in the District, which reflect good potential for solvent oil extraction plant, cooking oil mill, laundry and toilet soap plant.

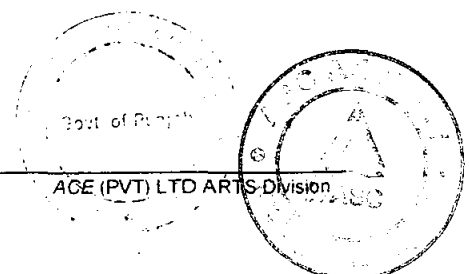
The development of more textile spinning and weaving units will create good scope for yarn sizing unit and paper cones manufacturing unit.

Vehari is mainly agrarian District. It is one of the best cotton growing areas of the country. With the increasing use of the pesticides, for cotton and other crops, there exists good scope for pesticides formulation units in the district.

Besides, in view of the general requirements of the local population there exists good scope for electric furnace, steel sanitary products, electric plastic products, houses, tyre-retreading, agricultural implements, desert coolers, pre-stressed cement girders/slabs, etc.

#### 5. THE INDUSTRIAL ESTATE SITE

The site for Vehari Industrial Estate is located 6 Km from Vehari City towards Pakpattan Canal on Vehari-Khanewal Road.



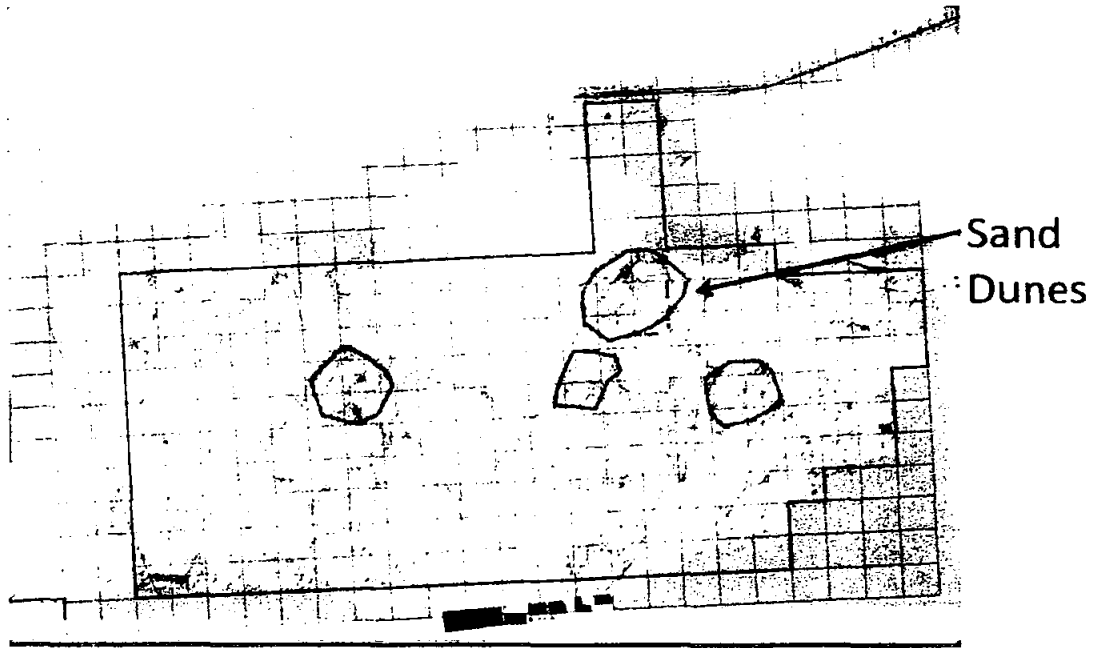
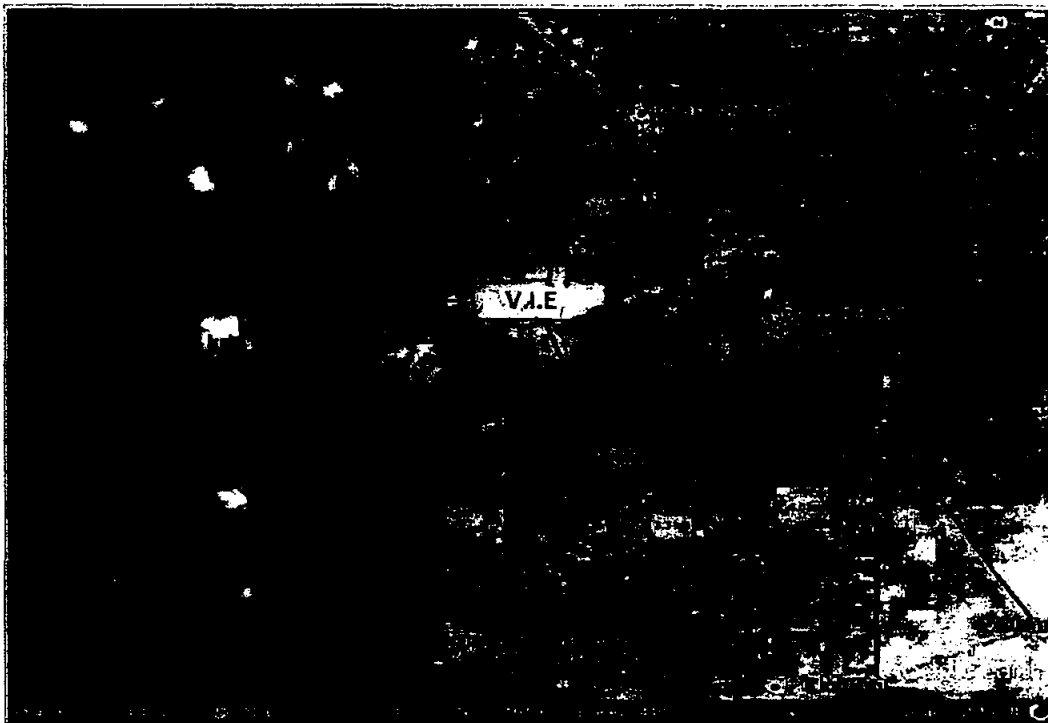
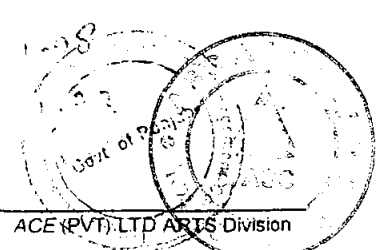


Figure 8- Contour Plan



❖ There are 14 settlements with in a radius of 4.75 km

Figure 9- Surrounding Settlements



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## 6. PICTORAL VIEWS OF SITE



The Bill Board near Entrance



The under Construction Road connecting Site with Vehari-Khanewal Road



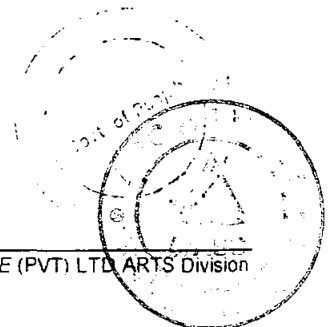
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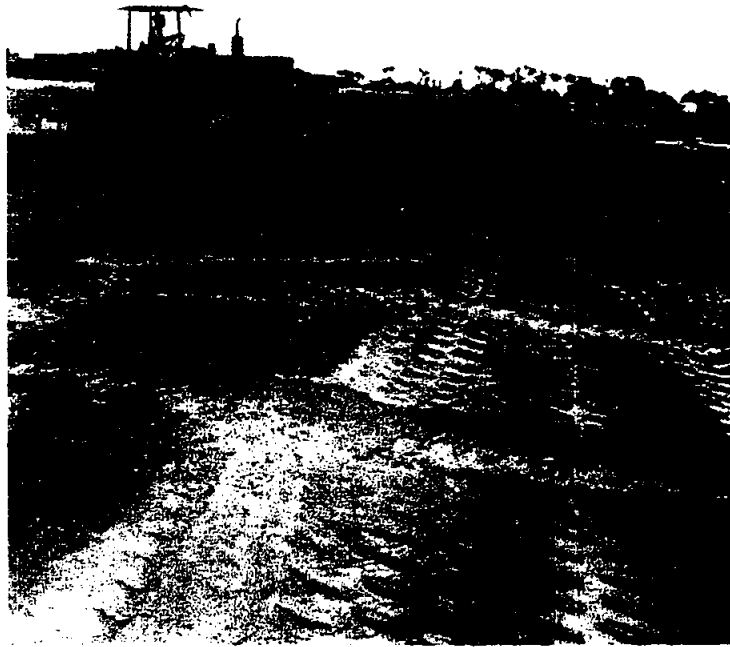
The Site Boundary Wall



The Under Construction Site Office



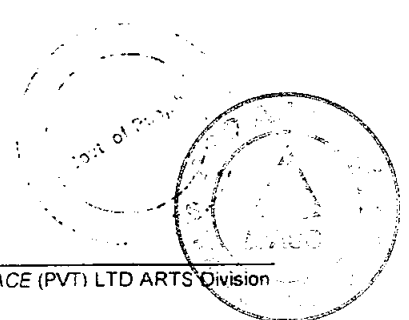
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100' Road from Estate Entrance into the Site Under Construction



Sandy Site



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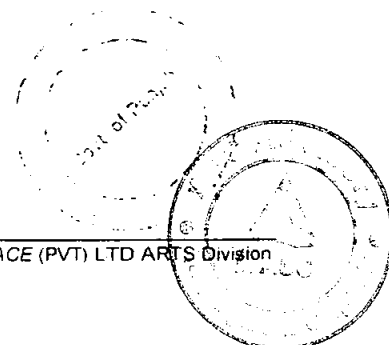




Sandy Site



Barren Land



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The site is roughly rectangular in shape in east-west direction, with entrance in the north and is connected to Vehari-Khanewal Road through an approach road which is under construction. The approach road is a local road and ends shortly after the main entrance of the industrial estate. Irrigation minor 1L/5R, minor runs along this road.

Within the industrial estate, the following works are already under construction:

- Boundary wall
- Main 100 feet road from entrance towards the site.
- Site office close to the estate gate.

The land is composed of alluvial soil mixed with sand. The site is generally flat with a few sand dunes, including a fairly large dune about 1,100 feet from the estate's gate.

The site has regular boundaries in all directions except towards east where a part of the boundary is in zigzag shape. The average length of site in east-west direction is roughly 3,850 feet while that in north-south direction (except approach road area from gate) is 1,980 feet.

The site has no developments/villages in its immediate neighborhood, and mostly the surrounding area is agriculture.

## 7. PLANNING CONCEPT

Being close to Vehari City, the site enjoys the advantage of being located in rural as well as pri-urban setting. For the master plan of an industrial estate, much depends on the size of estate, topography of the site and external factors such as the relationship of the estate to adjacent developments. Since the site in general is flat, there are numerous options for planning configurations, unlike areas where site features and contours dictate the planning of layouts.

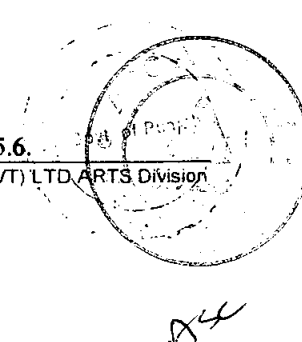
The Vehari Industrial site is roughly rectangular in shape, for which grid iron pattern is ideal. The recommended landuse distribution for medium sized industrial estates like Vehari is given in the Table below:

**Landuses in Industrial Estates<sup>1</sup>**

Category	Percentages
Industrial Plots	60-65
Roads	Up to 20
Open Spaces	Up to 20
Administrative & other Buildings	5-10

The Table shows that the area under industrial plots are recommended to range between 60-65% of the total area, followed by roads and open spaces covering up to 20% in each case. Administrative & other Buildings are recommended to cover 5-10% of the total site area.

<sup>1</sup> Source: National Reference Manual on Planning and Infrastructure Standards, Page 90, Table 5.6.  
Industrial Estate, Vehari



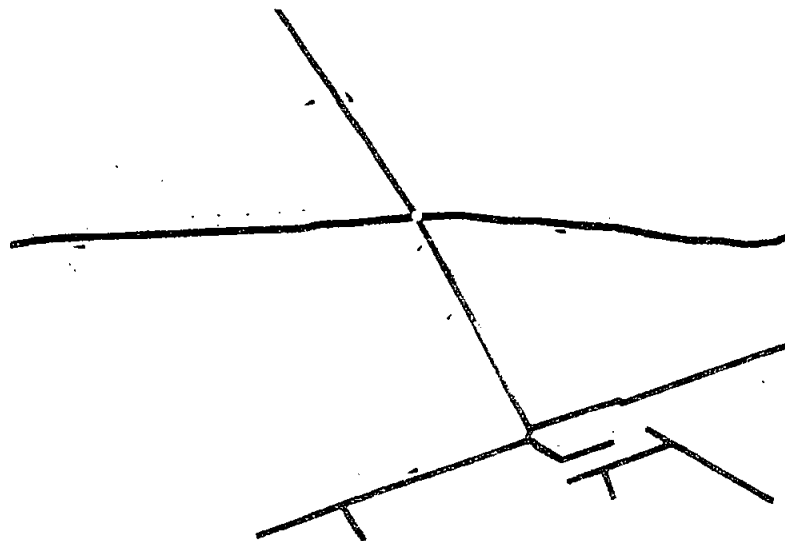


The fundamentals of master planning for PIEDMC Scheme, Vehari, were the project requirements that surfaced during initial meetings with the Client, site visit and the review of relevant literature. These factors influenced the extent and magnitude of various landuses which apart from industrial plots, also included the road network, and common uses.

The layout plan has been evolved to meet the objectives outlined earlier. In the landuse distribution of any industrial estate, industrial plots obviously get the highest priority and thus form the starting point of master planning.

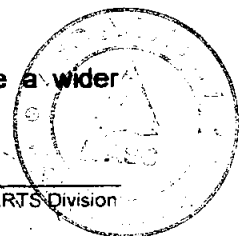
Master Planning of Vehari Industrial Estate respond to unique characteristics of the site, so as to:

- Contribute to the character of the site in a positive manner
- Integrate site features such as landform and drainage courses in the overall master plan.
- Maintain scenic quality of the site
- Be compatible with natural features
- Support economic and efficient construction and maintenance standards
- 11 kV feeders emanating from 132kV Grid Station (MEPCO), Vehari will supply electricity to V.I.E.
- Metering room of Multan Electric Power (MEPCO) with number of metering panels per feeder will be located near the main entrance of V.I.E.
- Underground 11kV feeder cables will be laid in underground trench and terminated on terminal poles after the main office building of V.I.E.
- Overhead 11kV feeder will be extended from terminal poles in the entire premises as per plan/design.



**Figure 10- Proposed Trunk Infrastructure in Site's Vicinity**

The Consultants have prepared three alternative preliminary master plans to give a wider choice to the Client and facilitate in finalizing of the Master Plan.



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## 8. PLOT SIZES

In order to achieve the flexibility as an in-built character of an industrial area, a dominantly modular approach is proposed to be adopted for master planning. The modular approach permits the adoption of an optimum size of space unit, various numbers of which can be combined to generate plots of varying sizes. The size of basic module is 4 kanals (@5,445 square feet per kanal or 4.84 kanals @ 4,500 square feet per kanal), its dimensions in general being 100 feet x 220 feet in former case, or varied at outer rows and corners. This versatile size permits its combinations into a large number of plot sizes of varying sizes. The modular approach however may not be strictly followed. Corner plots and those at the peripheries may have non-modular dimensions.

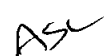
Plot Sizes	
Vehari	Lahore
@ 5,445 sq. ft per Kanal	@ 4,500 sq. ft per Kanal
4 Kanal (1/2 Acres)	4.84 Kanal
8 Kanal (1 Acres)	9.68 Kanal
16 Kanal (02 Acres)	19.36 Kanal

The following principles were kept in mind while preparing the preliminary master plans:

- i) Plots of smaller size have been grouped so as to separate small workshops from large scale industry.
- ii) Larger plots in general have been positioned in most visible locations.
- iii) Grid pattern road layout has been used with mostly staggered T-junctions.

It is inevitable that all the plots cannot be of above sizes because of the site features and constraints. Some of the plots therefore especially those along the periphery and along curves will have non-standard size/dimensions. Attempts will be made to keep such plots to minimum, and avoided wherever possible.

The length of industrial blocks will be optimum because too short result in inefficient space utilization and also result in undesirably large number of junctions. Blocks excessively longer create movement problems.



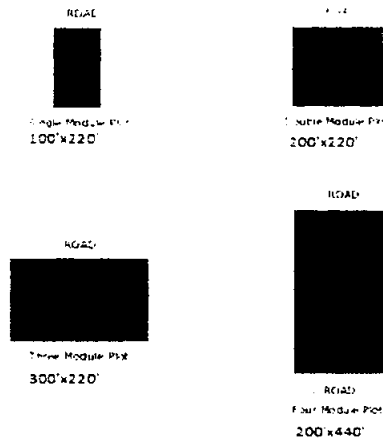


Figure 19- Modular Combination of Industrial Plots

## 9. THE ROAD NETWORK

Roads are the skeleton of any industrial estate, and apart from providing access, they also contain necessary services (sewer, water, electrical etc), and establish a pattern for plot development. The road layout proposed for Vehari Industrial Estate is generally in grid-iron pattern and sympathetic to terrain.

To coordinate different landuses in the Master Plan, efficient and functional road system has been provided. Three types of roads have been proposed:

Table 3.2: Types of Roads Proposed

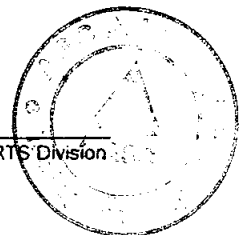
S.No.	Road Type	R-O-W
i)	Primary roads	120 feet
ii)	Secondary roads	100 feet
iii)	Local roads	80 feet

Road alignments conform to the natural topography. Also, efforts have been made to branch-off the roads from one-another at right angles, in order to facilitate easy turnings and vehicular maneuverability.

Cross-junctions are avoided as these result in large number of traffic conflict points. The roads generally meet in form of T-junctions, which have relatively less number of conflict points and even these can be minimized through traffic management techniques.

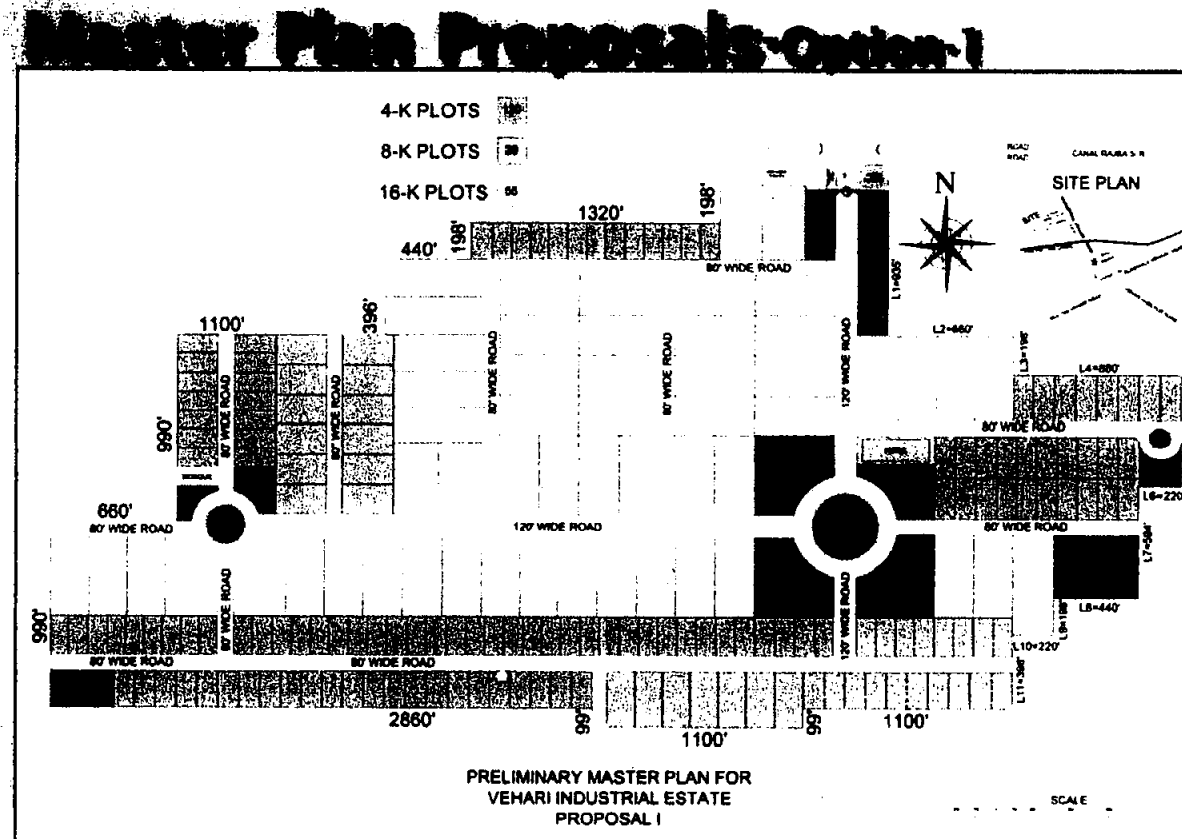
## 10. THE COMMUNITY FACILITIES

The common uses (community center, commercial area, mosque and the central park etc) will be placed at central location to ensure easy access by all residents of the respective zones. However, a number of open spaces and corner shops (Dhaba) will also be provided in other appropriate locations.



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## 11. MASTER PLANNING



# PRELIMINARY MASTER PLAN FOR VEHARI INDUSTRIAL ESTATE PROPOSAL I

SCALING

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## INDUSTRIAL ESTATE DISTRICT VARIANCE

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Industrial Plots	201.73	72.75
Roads	47.06	16.98
Common Facilities	28.49	10.27
<b>TOTAL</b>	<b>277.28</b>	<b>100 %</b>

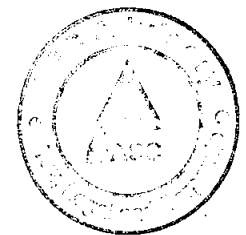
Industrial Plots	201.73	72.75
Sale able Facilities	15.86	5.72
<b>TOTAL</b>	<b>217.59</b>	<b>78.47</b>

4 Kanal	120	59.11 %
1 Acre & above	28	13.80 %
2 Acres & above	55	27.09 %
<b>TOTAL</b>	<b>203</b>	<b>100 %</b>

### Option-1

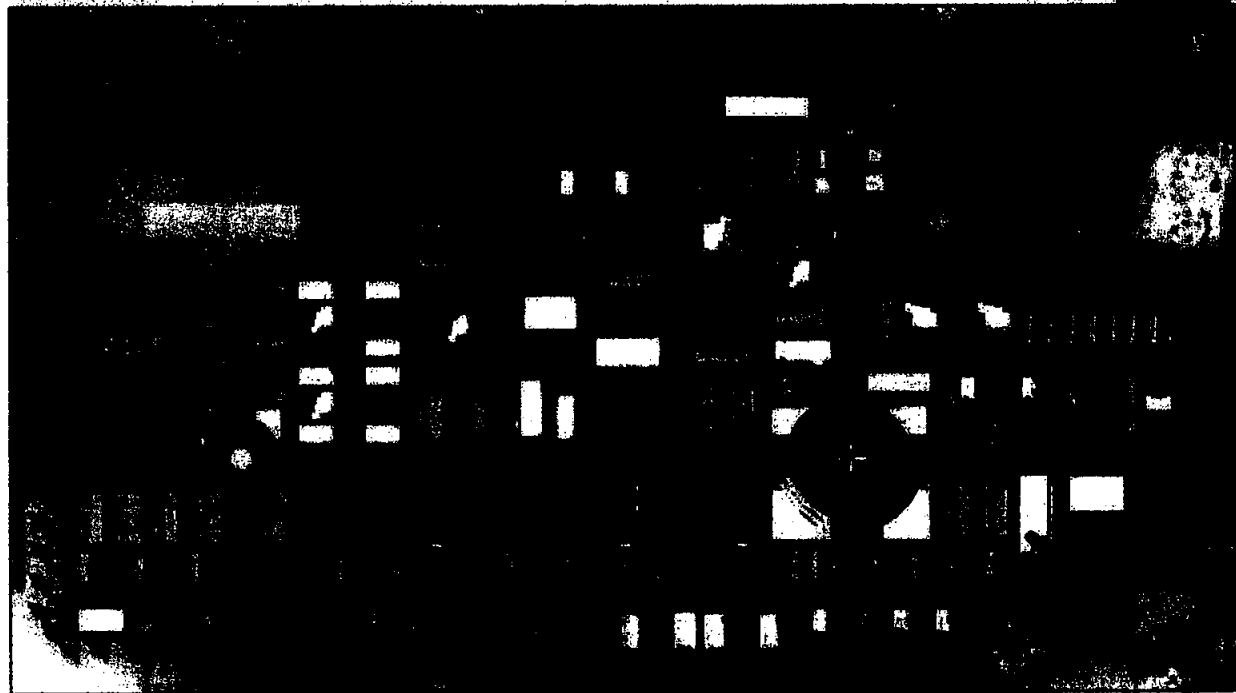
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## Master Plan Proposals Option-1



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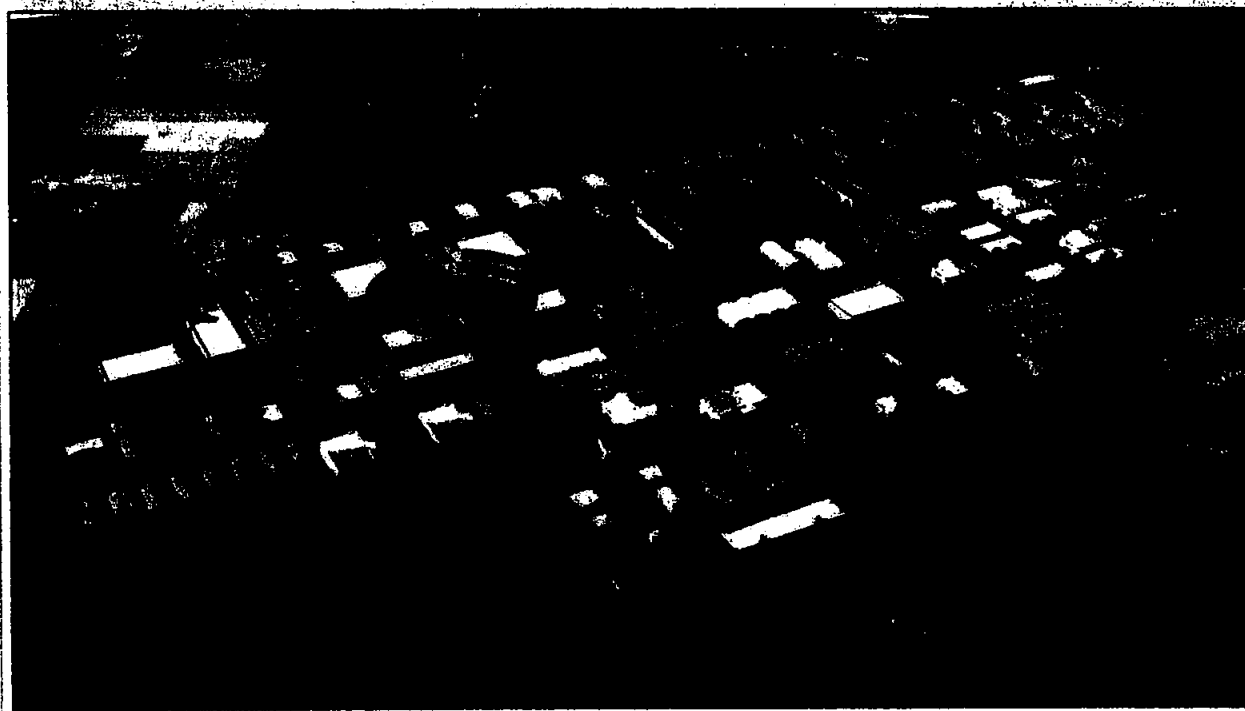
INDUSTRIAL ESTATE DISTRICT VEHARI

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## Three Dimensional View-Option-1

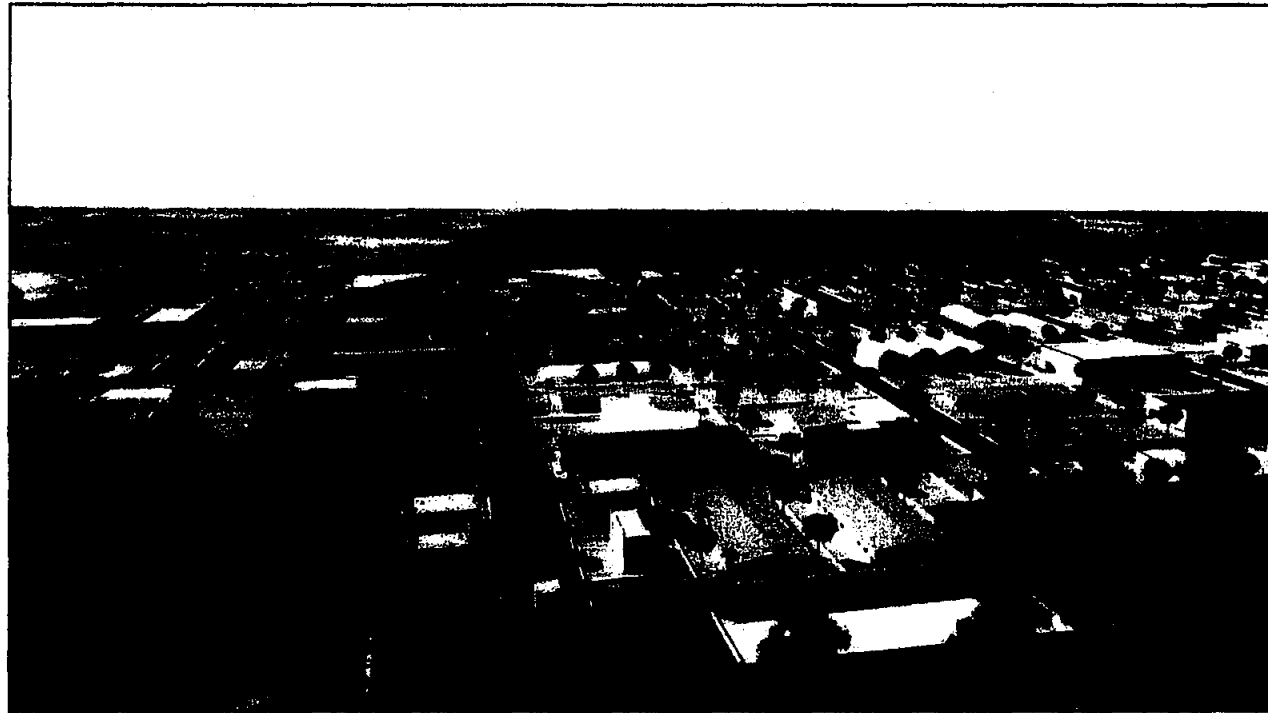


INDUSTRIAL ESTATE DISTRICT VEHARI

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## Three Dimensional View-Option-1



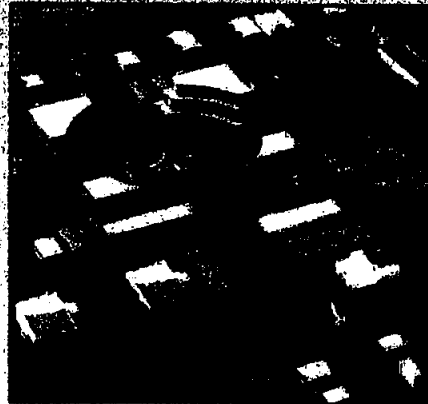
INDUSTRIAL ESTATE DISTRICT VEHARI

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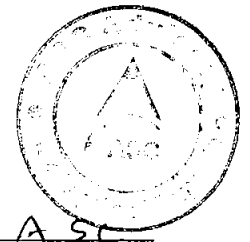
## Three Dimensional Views-Option-1



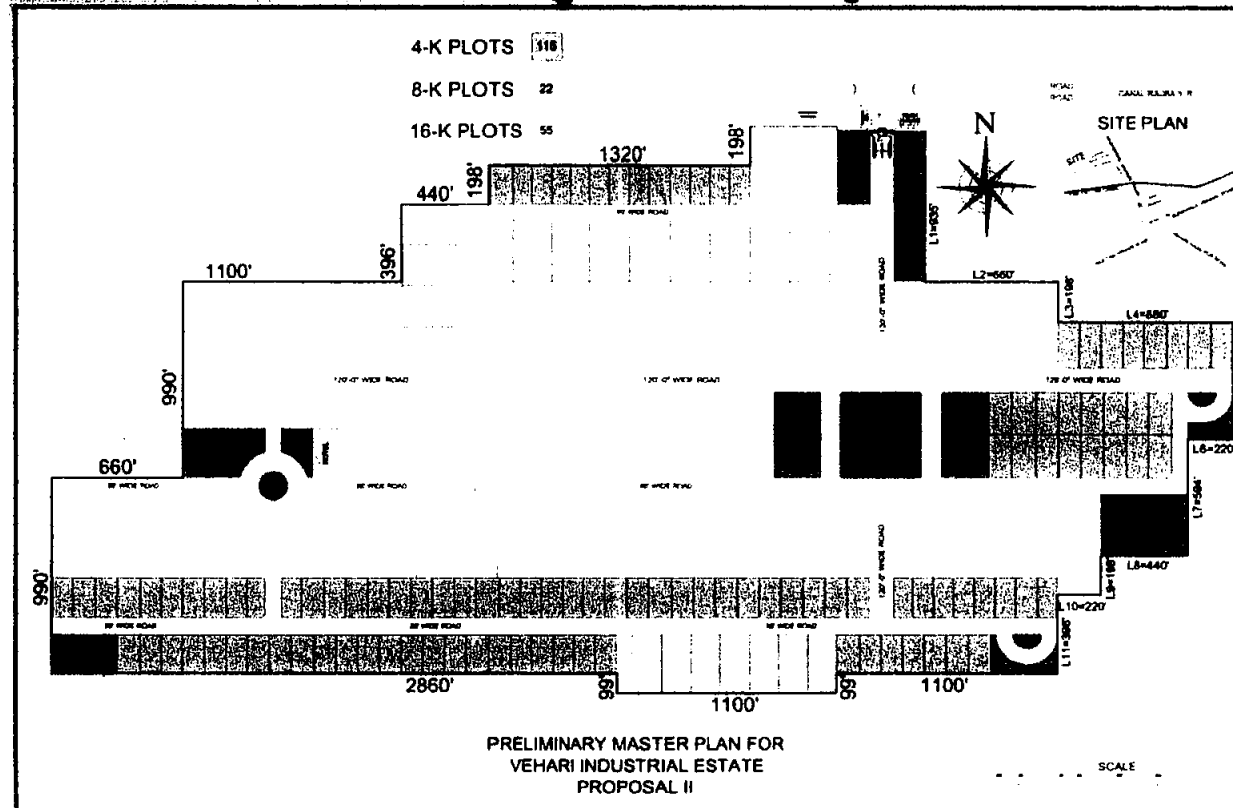
INDUSTRIAL ESTATE DISTRICT VEHARI

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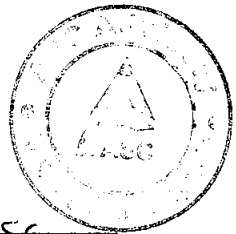


# Master Plan Proposals-Option-2



INDUSTRIAL ESTATE DISTRICT VEHARI

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Industrial Plots	202.93	73.19
Roads	51.21	18.47
Common Facilities	23.14	8.34
<b>TOTAL</b>	<b>277.28</b>	<b>100 %</b>

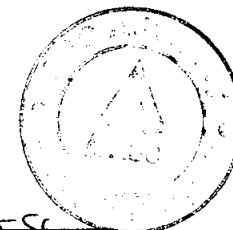
Industrial Plots	202.93	73.19
Sale able Facilities	11.01	3.97
<b>TOTAL</b>	<b>213.94</b>	<b>77.16</b>

4 Kanal	115	59.90 %
1 Acre & above	22	11.45 %
2 Acres & above	55	28.65 %
<b>TOTAL</b>	<b>192</b>	<b>100 %</b>

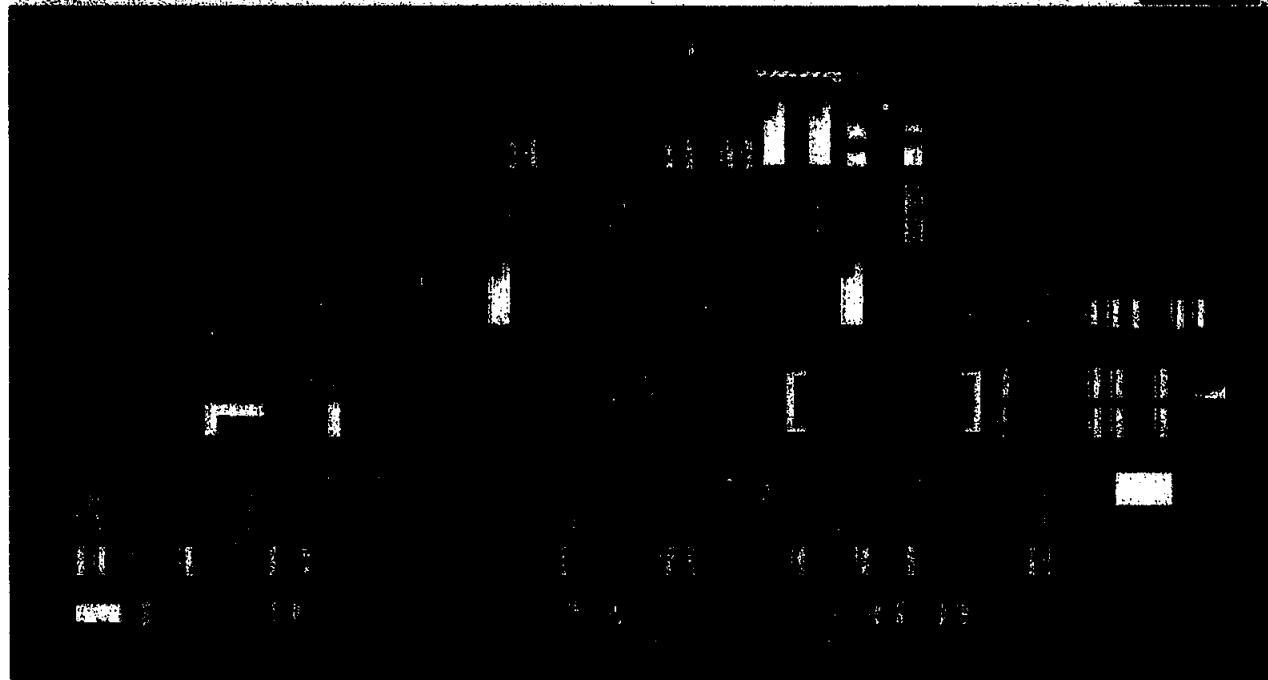
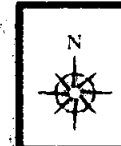
## Option-2

INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.



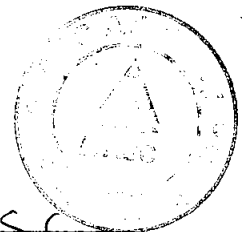
## Master Plan Proposals Option-2



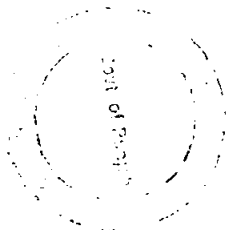
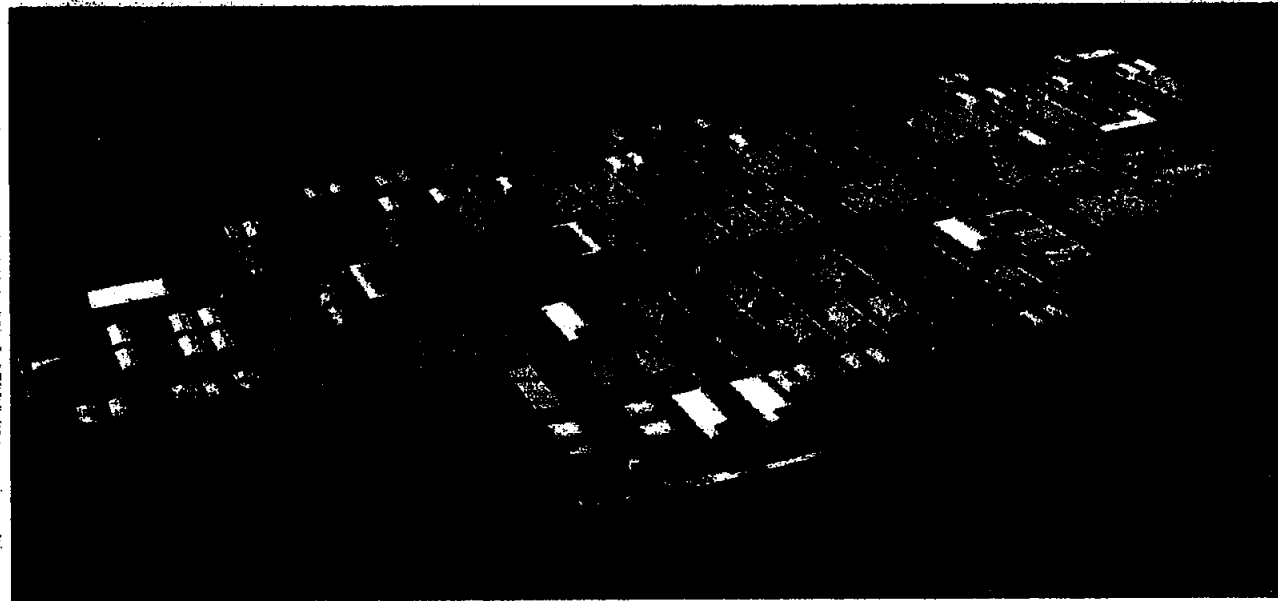
5

INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.



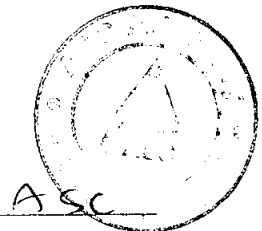
## Three Dimensional View-Option-2



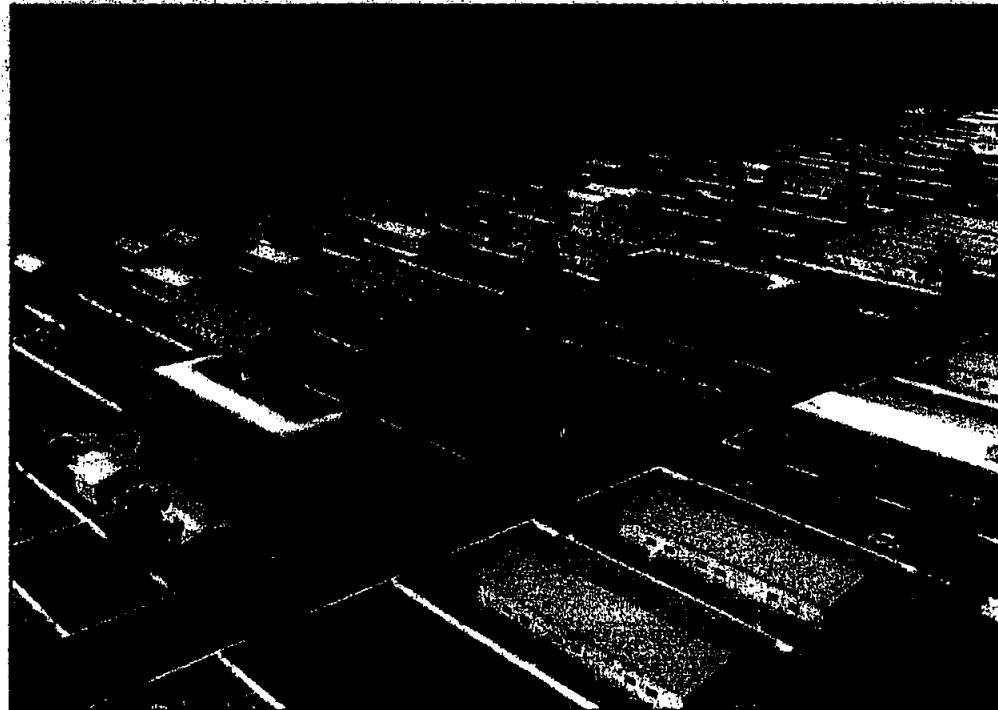
INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.

1



## Three Dimensional View-Option-2

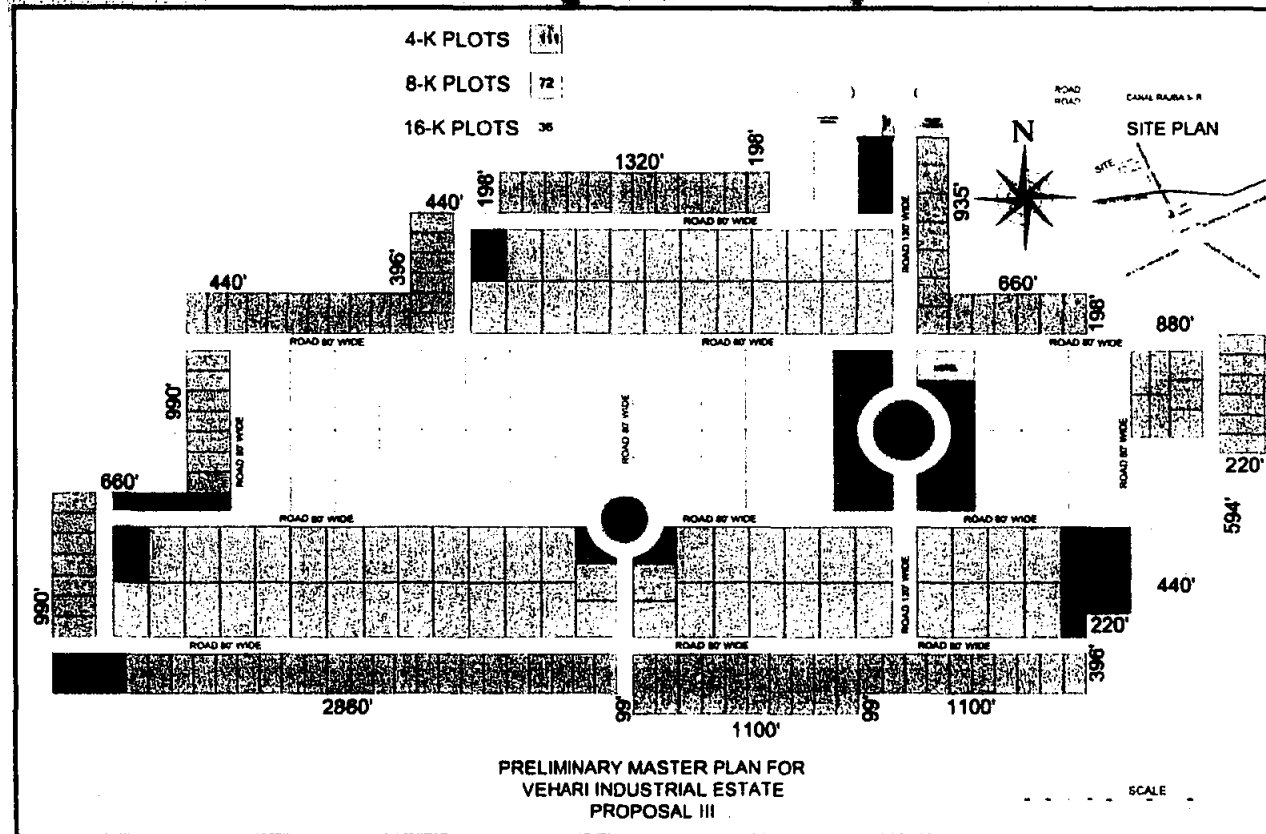


INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.

2

# Master Plan Proposals-Option-3



INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.



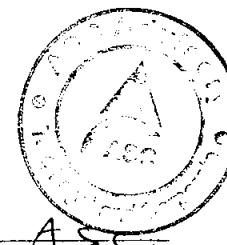
Industrial Plots	206.79	74.58
Roads	47.90	17.27
Common Facilities	22.59	8.15
<b>TOTAL</b>	<b>277.28</b>	<b>100 %</b>
Industrial Plots	206.79	74.58
Sale able Facilities	10.94	3.95
<b>TOTAL</b>	<b>217.73</b>	<b>78.53</b>
4 Kanal	111	50.68 %
1 Acre & above	72	32.88 %
2 Acres & above	36	16.44 %
<b>TOTAL</b>	<b>219</b>	<b>100 %</b>

## Option-2

39

INDUSTRIAL ESTATE DISTRICT VEHARI

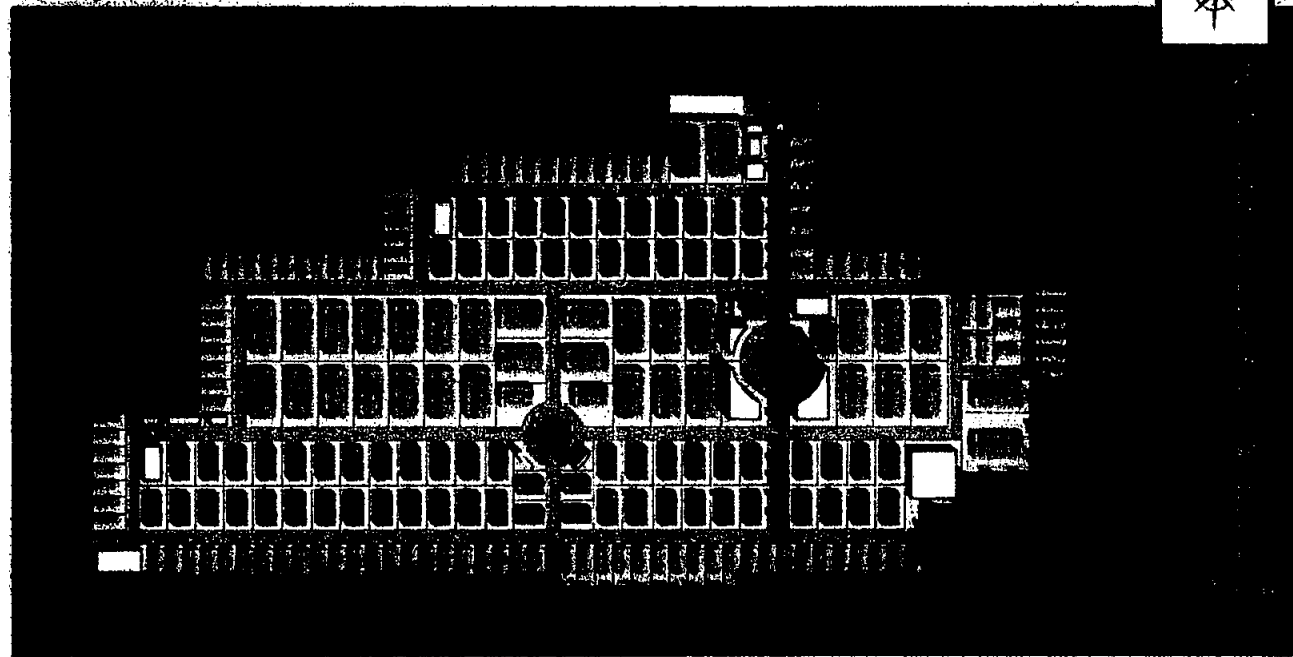
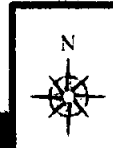
ACE (PVT) LTD.







## Master Plan Proposals-Option-3



4

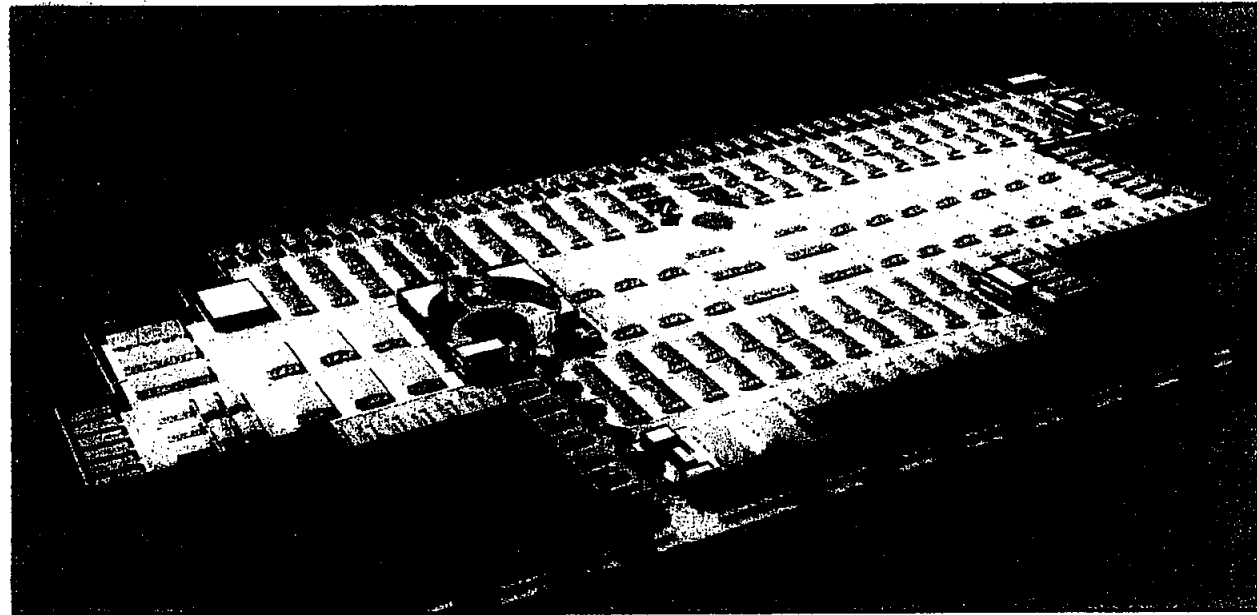
INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.



A S C

## Three Dimensional View -option-3



INDUSTRIAL ESTATE DISTRICT VEHARI

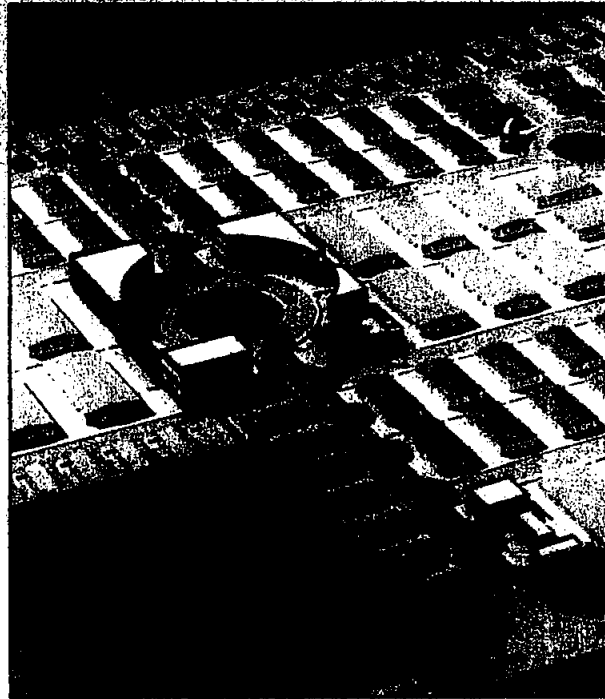
ACE (PVT) LTD.

6



Asc

## Three Dimensional View -option-3



INDUSTRIAL ESTATE DISTRICT VEHARI

ACE (PVT) LTD.

7

**Saleable Areas**

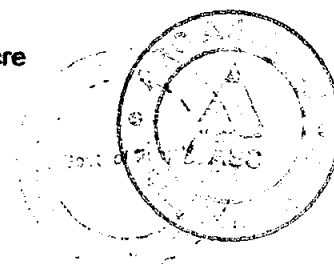
- ☐ Industrial Plots
- ☐ Multi-Purpose Commercial Complex:
  - Commercial Areas
  - Motel
  - Restaurants
- ☐ Petrol Pump

**Non Saleable Areas**

- ☐ Roads
- ☐ Parks
- ☐ Gas & Electric Sub-Station
- ☐ Treatment & Disposal Site
- ☐ Mosque
- ☐ Vocational Training Centre
- ☐ Medical Centre
- ☐ Truck Parking (Outside)
- ☐ Container Terminal (Outside)
- ☐ Office Building

**Land use comparison in Master Planning Options**

Land uses	Area in Acres		
	Option-I	Option-II	Option-III
Industrial Plots	201.73 Acre (72.75%)	202.93 Acre (73.19%)	206.79 Acre (74.58%)
Commercial Area	15.86 Acre (5.72%)	11.01 Acre (3.97%)	10.94 Acre (3.95%)
Common Facilities	12.63 Acre (4.55%)	12.13 Acre (4.37%)	11.65 Acre (4.20%)
Roads	47.06 Acre (16.98%)	51.21 Acre (18.47%)	47.90 Acre (17.27%)
Total	277.28 Acre (100%)	277.28 Acre (100%)	277.28 Acre (100%)



TSC

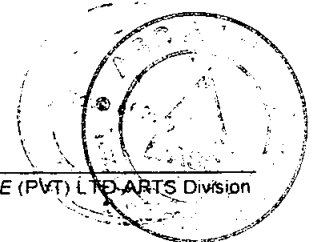
## Comparison of Land Use

	Area	%age		Area	%age		Area	%age	
INDUSTRIAL PLOTS	201.73	72.75	78.47	202.93	73.19	77.16	206.79	74.58	78.53
COMMERCIAL	12.97	4.68		8.80	3.17		7.98	2.88	
PETROL PUMP	1.47	0.53		0.74	0.27		1.97	0.71	
HOTEL	1.42	0.51		1.47	0.53		0.99	0.36	
DISPENSERY	0.27	0.09	21.53	0.27	0.99	22.84	0.30	0.11	21.47
RESCUE 1122	0.44	0.16		0.44	0.16		0.34	0.12	
FIRE BRIGADE	0.63	0.23		0.63	0.23		0.44	0.16	
JAMIA MOSQUE	1.92	0.70		0.59	0.21		0.99	0.36	
VOCATIONAL INST.	0.53	0.19		0.53	0.19		0.57	0.20	
PARS & OPEN SPACES	3.12	1.12		4.13	1.49		2.56	0.92	
GRID STATION	3.39	1.22		3.19	1.15		3.65	1.32	
TREATMENT/ DISPOSAL	1.50	0.54		1.50	0.54		2.00	0.72	
SITE OFFICE	0.83	0.30		0.83	0.30		0.80	0.29	
ROADS	47.06	16.98		51.21	18.47		47.90	17.27	

## Infrastructure Development Cost Comparison

1	Option-1	78.47%	6.4 millions
2	Option-2	77.16%	6.6 millions
3	Option-3	78.53%	6.5 millions

Mode II	B/M covered drains, Asphalt Roads, Overhead Electricity, PE Water Pipes	
Mode III	RCC Pipes, Asphalt Roads, Overhead Electricity, PE Water Pipes	



ASC

## **SCHEDULE III**

### **VIE INTRODUCTION & GEOGRAPHICAL FEATURES**

Vehari Industrial Estate is located Khanewal Road, Vehari. The geographical location map is attached.

The Electrification System had been designed by M/S ACE, Consulting Engineering firm duly registered with Pakistan Engineering Council and MEPCO / WAPDA. This proposal, prepared by the Consultant, deals with the design aspects of Electrification System and source of Power Supply for the Industrial Estate. The total area of the Industrial Estate is about 277 Acres with Plot sizes ranging from 1/2, 1, 2 Acres. The Current application is for 50 MW.

### **Project Technical Description**

**1. Distribution System Configuration, service territory, right of way, feeder maps.**

The Distribution system consists of 10 feeders, 08 feeders feeding system in open ring & 2 Nos. feeders are standby express feeders to cater for any emergency. Service territory is Vehari Industrial Estate for which land has been acquired and right of way has been procured, MEPCO has been approached to PIEDMC to take distribution license / NOC from NEPRA in favor of Vehari Industrial Estate for Power distribution within its territory.

**2. Voltage Levels and Regulation**

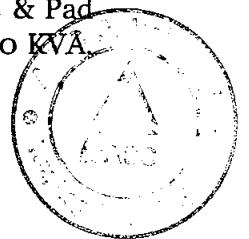
415V LV and 11 KV HV feeders are supplying power to loads as per WAPDA / MEPCO standards DDS-71 2004 and P - 13:66 for regulation 2.5%, -5%, -7.5%.

**3. Type of Distribution System**

Underground/Over Head Ring Main Cable/Conductor Distribution System' has been laid down providing electricity to all consumers in the premises of Vehari Industrial Estate.

**4. Line Equipment Characteristics**

The State-of-The-Art Equipment for Power Supply' has been selected as designed, like Aluminum (AL), Cross Linked Poly Ethylene (XLPE) armored cables of 500 mm<sup>2</sup> for HT and Al XLPE PVC cables for LT, ACSR Ospray, WASP and Ant Conductor, 4 Way 11 KV ring main units/switches for connecting feeders & Pad Mounted Transformers having capacity of 100,200,400,630,1000 and 1250 KVA. The under-ground cable structure is good enough up-to 65 MW.



## **5. Power Quality Control**

In Vehari Industrial Estate, 132 KV grid station within Vehari Industrial Estate is being made through WAPDA/MEPCO approved consultant which ensures the quality power. Also, all the equipment is placed in 'Insets' along the boundary wall of the Industrial Units and underground Power Supply Lines to ensure good quality control on the delivered Power. PIEDMC will do the O&M for the Distribution System at VIE and the electric system will be operated by PIEDMC, the O&M through a 'Central Operation Room' where all 'Open Points' of feeders & day-to-day changes in their positions are marked. The Manager Electrical along-with his team supervise the overall operation of the system. The electrical team will issue all the work orders for any electrical work. No work on any equipment is allowed, for the Distribution System without proper pre-arranged shut down. Safety measures are ensured by providing earthing of the equipment and issuance of PTW (Permit to Work) that is coordinated by the Chief Engineer Electrical PIEDMC.

Power quality shall be maintained as per the latest NEPRA/NTDC Standards as under:

- Voltage level at utilization end will be 415V/11 KV with +/- 5% permissible regulations limit of variation.
- Frequency 50 Hz with +/- 1% limit of variation.
- Power factor shall be maintained above 0.9 through decentralize/centralize PFI's plants.

## **6. Back up / Express feeder provision**

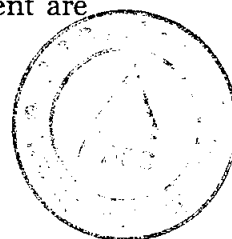
Two 11 KV feeders have been constructed to be used as backup/ express feeders (See the attached drawings) in case of main feeders' failure.

## **7. Accident protection / prevention procedures**

A well experienced and educated distribution staff has been hired by PIEDMC, who are working under well-qualified supervisors on three (3) shifts per day basis. Proper use of protective gears by staff and hanging / displaying of warning signs are ensured at two tiers-one by VIE electrical team second ensured by CE Electrical PIEDMC. The task risk analysis and detailed procedure have been prepared by the Consultant and adopted by the PIEDMC for its line staff.

## **8. Maintenance Plans and Procedures**

Routine maintenance of equipment is carried out by Vehari Electrical team after a work order is issued by the approval of Chief Engineer Electrical PIEDMC as per manufacturer's recommendations. Maintenance charts for each equipment are



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maintained and updated on regular basis. The procedure has been developed by the qualified consultant as per international standards and maintenance practices.

'Earth Fault Indicators' have been installed in MEPCO area to help in quick identification and then isolation of faulty portion. Cable Fault Localization Equipment has been procured by the PIEDMC for finding the fault to help

In early repair where a work order is raised by the VIE electrical team accomplishes the same. The troubleshooting procedures have been developed as per international standards.

#### **9. Fault location / trouble shooting procedure**

At each ring main station earth fault indicators have been installed which indicate any cable fault in the respective section, then the exact fault point will be located through standard fault locators and faulty cable will repair. This procedure has minimized the Power outage time.

#### **10. Emergency Provisions**

To cater for emergency express/ back up feeders have been provided, sufficient spares and Line Material is available with the VIE Store in inventory procured and provided by the PIEDMC.

#### **11. Patrolling and inspection procedures**

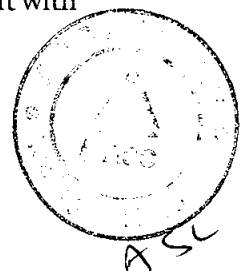
The PIE electrical staff at VIE patrol the area and carry out visual inspection of equipment for any physical damage or fault and reported to Central Operation Control Room. The same then is handed over to the required staff to do the needful under the supervision of qualified Supervisors. For this purpose, proper procedures have been prepared and implemented.

#### **12. Customer services data / manuals**

Separate Customer Services Section is taking care of all the requirements from the time of Customers complain regarding electricity Applications for power supply till the electric connection is provided. The idea of 'One Window Services' has been adopted in its true spirit.

#### **13. Billing and collection procedures**

The meter readers of VIE will take the readings and record the KHW energy meter on 01st of each month as the date fixed by the PIEDMC Electrical Department with



the help of 'PIE Chief Financial Controller'. Bills will be properly distributed and the consumers will deposit the dues in the designated bank or PIE finance section up to 10th of every month.

#### **14. Protection, Control & Measuring instrument**

Sensitive earth fault and overload protection relays have been provided on each 11KV Feeder at VIE Grid Station. Where in all individual pad mounted distribution transformers are fuse protected. The active power meters, energy meters, ammeters, Volt meters have been installed at individual 11KV Electrical feeders. All the distribution ring mains are fuse protected.

#### **15. Type of Metering System to be used**

Whole current (TOU) meters are installed for electrical connections up to 100 Amps and CT (Current Transformer) operated meters (TOU) are installed for electrical connections with a load greater than 100 Amps.

GSM/Net metering system is being introduced as per NEPRA policy and regulations.

#### **16. Metering and Testing Facilities**

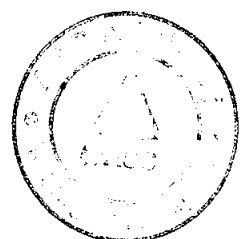
Meters are provided by the PIEDMC electrical section after the same are tested / certified for accuracy. However, the doubtful meters are tested at site with testing equipment. In case of any dispute with the customer indigenous laboratory or M&T Wapda for testing is utilized. The factory tested and calibrated standard energy meters are installed at each individual consumer premises that are tested as per manufacturer's recommendation for routine testing or on the complaint/dispute with the consumer/s.

#### **17. Communication System**

Communication between Central Control / Operation Room and the field staff has been established through "cell phones" and walki talkies.

#### **18. Training and Development**

PIEDMC has hired the services of Concerned Manufacturers of Equipment, Lahore that have trained staff for fault localization, Metering, Operation & Maintenance of the VIE Distribution System



# Training and Development Procedures

## Introduction

In order to keep PIEDMC Electrical staff fully updated with the electrification in Industrial Estates, PIEDMC has established a Training and Development Manual.

Training is provided to employees of Customer Services and the Electrical department.

Training at regular intervals is arranged by Chief Engineer for the Technical Staff where new and efficient maintenance and fault locating methods are being explained for implementation.

The Employees from customer relations are also updated at regular intervals of any change in customer policy and change of Tariff etc.

All the operations and maintenance (O&M) staff of Vehari Industrial Estate (VIE) are trained as per the training manuals of Lahore Electric Supply Company (LESCO). The staff is trained to provide high quality services and are trained in the following areas:

- Introduction to Training Programmed Organization and System
- Overview of role and duties of line superintendent
- Material of use in construction line
- Use and care of T & P
- Service installation (LT)
- Patrolling of lines
- First aid skills and practices
- Basic electricity concepts, testing/measuring instruments and their uses
- Distribution system standards and specifications
- Distribution system planning
- Installation of earth system



- Distribution system operation
- Distribution system maintenance
- Location of faults & consumer complaints
- Safety & safety equipment
- Fire prevention and control
- Distribution system mapping
- Energy meters – Installation, checking & maintenance

