

EXECUTIVE SUMMARY

INTRODUCTION

This executive summary presents an overview of the main findings of the Environmental Impact Assessment (EIA) report for the construction of an Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited” (Hazardous Waste Storage Site) located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura.

SALIENT FEATURE OF PROJECT

1.	Project title	“Covalent Metal Concerns (SMC) Pvt Limited” (Hazardous Waste Storage Site)
2.	Location	Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura.
3.	GPS Coordinates	Lat:31.64301258, Long:74.25784329
4.	District	Sheikhpura
5.	Name of proponent	Mr. Zohaib Qadir Nasrullah S/o Nasrullah Khan
6.	Present address of proponent	Nazam Udin Road, House No.275, Sector F Teen One, Islamabad.
7.	Area of the project	10890 SFT
8.	Type and category of project	Schedule II (EIA) – Section G, Hazardous substance or waste storage warehouse.
9.	Nature of the	It is a proposed project i-e open land at all. Proponent will start all activities after the approval by EPA as per



	Project	requirement.
10.	Total cost of the project	60 million in PKR
11.	List of hazardous items	Batteries, tetra pack, thinner and chemicals, treatment waste (sludge), water septic tank, medical waste, laboratory waste, paint waste, compressors, chemical canes, drums and all type plastic waste etc.
12.	Availability of resources	Transportation, water supplies, electricity will be available at that specified area.
13.	Source of electricity	WAPDA Electricity is available at that specified site.
14.	Manpower requirement	8-10 workers in constructional site and 10-15 workers in operational site.
15.	Water requirement	The whole project will require about 2000 gallons/day of water during constructional phase and approximately 100 gallons/day of water during operational phase. This will be met by ground water.
16.	Solid waste and its management	Solid waste during construction phase will be re-used in construction activities. Solid waste generated at the site involves broken bricks, wrappers, gravel which will be collected and transported to the collection station by vehicles. During operational phase, solid waste will be managed by solid waste manager and sanitary workers of that area will collect the solid waste on daily basis.
17.	Wastewater and its treatment in	Wastewater quantity will discharge after treatment through septic tanks into sewerage nallah.

	proposed project	
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Environmental Consultants:

An Environmental Impact Assessment (EIA) study report has been prepared to identify and predict the significant environmental impacts likely to arise from the commencement of the proposed project along with environmental impact statement followed by delineation of appropriate Environmental Management Plan and Environmental Monitoring Plan to check the implementation of the EMMP. Proponent of Industrial Waste Storage Warehouse has decided to conduct EIA report through environmental consultants, Ecosphiron Environmental Services, Office # 5, F-2, 9 Kashmir Block, Jalal Center, Allama Iqbal Town, Lahore.

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Email Address: ecosphiron@gmail.com

A Brief Outline of Proposal

Respective project is an open plot where there are no any squatter settlements. There are no any structures on the proposed site so no structure will be demolished. The project site will be constructed as Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited” (Hazardous Waste Storage Site) located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura, where industrial hazardous waste (Batteries, tetra pack, thinner and chemicals, treatment waste (sludge), water septic tank, medical waste, laboratory waste, paint waste, compressors, chemical canes, drums and all type plastic waste will be stored for temporary time period. This Warehouse will be constructed as single story building for sake of temporary waste storage, this waste will further sold out contractors who will reuse or discard that material. There will be no any sort of industrial activity of manufacturing in the Warehouse. The proposed project is environment friendly from all aspects. WAPDA supply will be used only and there will be only domestic wastewater for which purpose septic tank will be constructed while for domestic solid waste local sanitary workers of that area will be hired who will collect the solid waste. There is already small green belt around the project which will enhance the aesthetic as well as environment beauty of the project site.

The Major Impacts & Recommended Mitigation Measures

Keeping in view, all the findings of the baseline study, and through general observation and desktop study, and understanding of the activities and processes involved in the project, environmental impacts have been anticipated. Following impact assessment methodology; i.e. defining the criteria for evaluation of the impacts, identification of mitigation measures (all possible options), evaluation of the residual impacts and identification of the monitoring requirements, adequate and effective mitigation measures have been proposed for all construction and operation related likely environmental impacts of the project. These mitigation measures have been proposed in order of attempts to eliminate or minimize the impact, provide some compensation or rehabilitate the environment by some means.

Weather describes an impact as having both spatial and temporal impacts, which can be described as the change in an environmental parameter over a specified period and within a defined area, resulting from a particular activity compared with the situation which would have occurred had the activity not been initiated. The expected impacts from the project are mostly insignificant and others are of limited nature. In this regard possible improvements and mitigation measures have been taken. The study also shows that there will be no exploitation and consequential depletion of the local natural resources. The general approach to Environmental Management Plan for the project, for the construction and operational phases of the Project has been presented, along with an outline plan for the project Environmental Management Plans (EMPs). Site specific and practically suitable mitigation measures are recommended to mitigate the impacts.

Proposed Monitoring:

Monitoring at the proposed sites has been conducted for ambient air, Noise level and ground water and the reports demonstrated that results are within the limits prescribed by PAK-PEQS (2016). The values of these parameters are present in baseline study of project.

Conclusion

The Environmental Impact Assessment contains description of the project, description of the environmental baselines, potential environmental impacts and suggested mitigation measures. An implementation mechanism for mitigation measures in the form of an Environmental Management Plan is included in the study. While the objectives of this study have been to describe the project and its environmental impact, it also identifies adverse environmental factors associated with the project. Appropriate mitigation measures as explained in the environmental study should reduce, if not eliminate, these impacts so that these are within acceptable limits.

It is further concluded that all potential environmental concerns associated with the project have been adequately addressed, and no further study is required in this context.

The mainpersons involved in finalizing EIA report are following;



Mrs. Shakeela Rani

(Environmentalist)



Mr. Manzoor Ahmad

(Environmentalist)

For the Proponent

I have reviewed the project EIA report and found the contents to be valid and true to the best of knowledge and belief.

Mr. Zohaib Qadir Nasrullah S/o Nasrullah Khan

(Proponent)

“COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura



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CHAPTER I INTRODUCTION

1.0 Purpose

Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited (Hazardous Waste Storage Site)” located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpurais intending to construct an industrial waste storage warehouse for industrial hazardous waste (Batteries, tetra pack, thinner and chemicals, treatment waste (sludge), water septic tank, medical waste, laboratory waste, paint waste, compressors, chemical canes, drums and all type plastic waste.) for temporary time period and further sold out to contractors/vendors in local market. There will be no any industrial activity at the site. The study has been carried out to estimate the potential environmental and social impact assessment, both positive and negative, on the environment as well as socio-economic of the surrounding environment during construction as well as operational phase. This report intends to provide satisfactory mitigation measures to avoid/eliminate any chance of adverse environmental impact on the socio-cultural, economic and environmental components. This report also intends to fulfill the regulatory requirements set under Punjab Environmental Protection Act 1997 (Amended 2012) and its consequent legislative framework for IEE/EIA including the IEE/EIA Regulations 2000 and the guidelines drafted for EIA and EIA under numerous sectorial heads. The entire set of legislative framework requires any new development project to undergo an EIA or EIA based on the categorization of the project under Schedule I and/or Schedule II.

1.1 Identification of the Proponent

Contact Person

Mr. Zohaib Qadir Nasrullah S/o Nasrullah Khan (proponent)

Address of the Proponent:

Nazam Udin Road, House No.275, Sector F Teen One, Islamabad.

1.2 Environmental Consultants

The Environmental Impact Assessment (EIA) has been carried out by aptly skilled and duly qualified group of professionals working for the environmental consulting Services namely Ecosphiron Environmental Services (EES). The consulting team can be approached through the following contact details:

Ecosphiron Environmental Services (EES).

Office # 5, F-2, 9 Kashmir Block, Jalal Center, Allama Iqbal Town, Lahore

+92-322-4908520, +92-301-4276787, ecosphiron@gmail.com

Names	Designation	Roles and responsibilities
Ms. Shakeela Rani	Manager Environmental legal	Technical Support.
Mr. Manzoor Ahmed	Manager operation	Baseline study/ Report preparation/EMP
Mr. Ahmed	Assistant Manager Op.	Logistic and report preparation
Mr. Ali Raza	Field Coordinator	Assist for Baseline Study

1.3 Nature and Size of Project

The project aims to be a construction of single story industrial hazardous waste storage warehouse where industrial hazardous waste will be stored for temporary time period. There will be no any industrial activity at the project site; the proposed project site will be used only for sake of storage. The said project has been planned on the norms of sustainable designs and patterns provided under the legislative and sectorial guidelines of Environmental Protection Agency, Punjab. The total area of the proposed project is 10890 SFT.

The design of the industrial warehouse has been finalized while keeping all the environmental factors under consideration. A green belt is present at the project site. A total of 8-10 people will work on the project during its constructional and during

operational phase also 10-15 will be engaged for loading/unloading, staff for look after and maintain the record.

An efficient disposal system for domestic wastewater has been incorporated into the basic structural design. The nature of wastewater will be domestic only. This is further explained under Environmental Impacts and Mitigation Measures. For domestic wastewater septic tank will be made in the premises of project site. An important aspect to be kept under consideration is that, the proposed project is planned in an open plot.

The whole project will require about 500 gallons/day of water per day during construction phase and approximately 100 gallons/day water during operational phase. This will be met by ground water. The construction will be completed within one month after getting Environmental Approval.

Solid waste during construction phase will be reused in construction activities while solid waste during operational phase will be managed by sanitary workers of that area. Adequate firefighting arrangements will be provided at the proposed project site to deal with any case of emergency. Adequate and safe ducting and routing has been designed for electricity and telecommunication lines.

Along with the secondary facilities, the proponent of the proposed project has planned provision of the basic facilities/utilities for the proposed project. Provision of natural gas, infrastructure for provision of telecommunication services will be developed to meet the future demand. Adequate open space has been provided around the building in order to maintain the aesthetic beauty of the area.

1.4 Eco-Friendly Features of the Project

Special feature of the project is its eco-friendly design through provision of unique elevation and landscaping. The basic idea of the concept is to create a safe, modern as well as environmental friendly design to ensure improved working conditions required by the potential users. The reason of adopting sustainability or 'bioclimatic' approach to the design provides opportunities to address problems relating to energy usage and air quality.

1.5 Location

The proposed project is Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited (Hazardous Waste Storage Site)” located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura.

The project site is surrounded by:

East: Open Plot

West: Open Plot

North: agriculture + main road

South: Open Plot

Based on the current land use of the proposed project, the said project is not located in an ecologically sensitive area.

1.6 Extent/scope of EIA Study

This EIA report has been conducted in accordance with the requirements of PEPA, 1997 (amended 2012), IEE/EIA regulations 2000 as well as section 2.3 of the guidelines for the perpetration and review of environmental reports, November 1997/2000. This EIA report presents screening of potential environmental impacts of the proposed construction and operational phase and presents the necessary mitigation measures to eliminate or reduce the negative impacts to an acceptable level. The report provides an Environmental Management and Monitoring Plan and the institutional requirements for the implementation of this plan.

The EIA process followed all the complementary stages described in the guidelines for IEE/EIA preparation and review. A brief flowchart exhibiting the different stages involved is in figure 1.1.

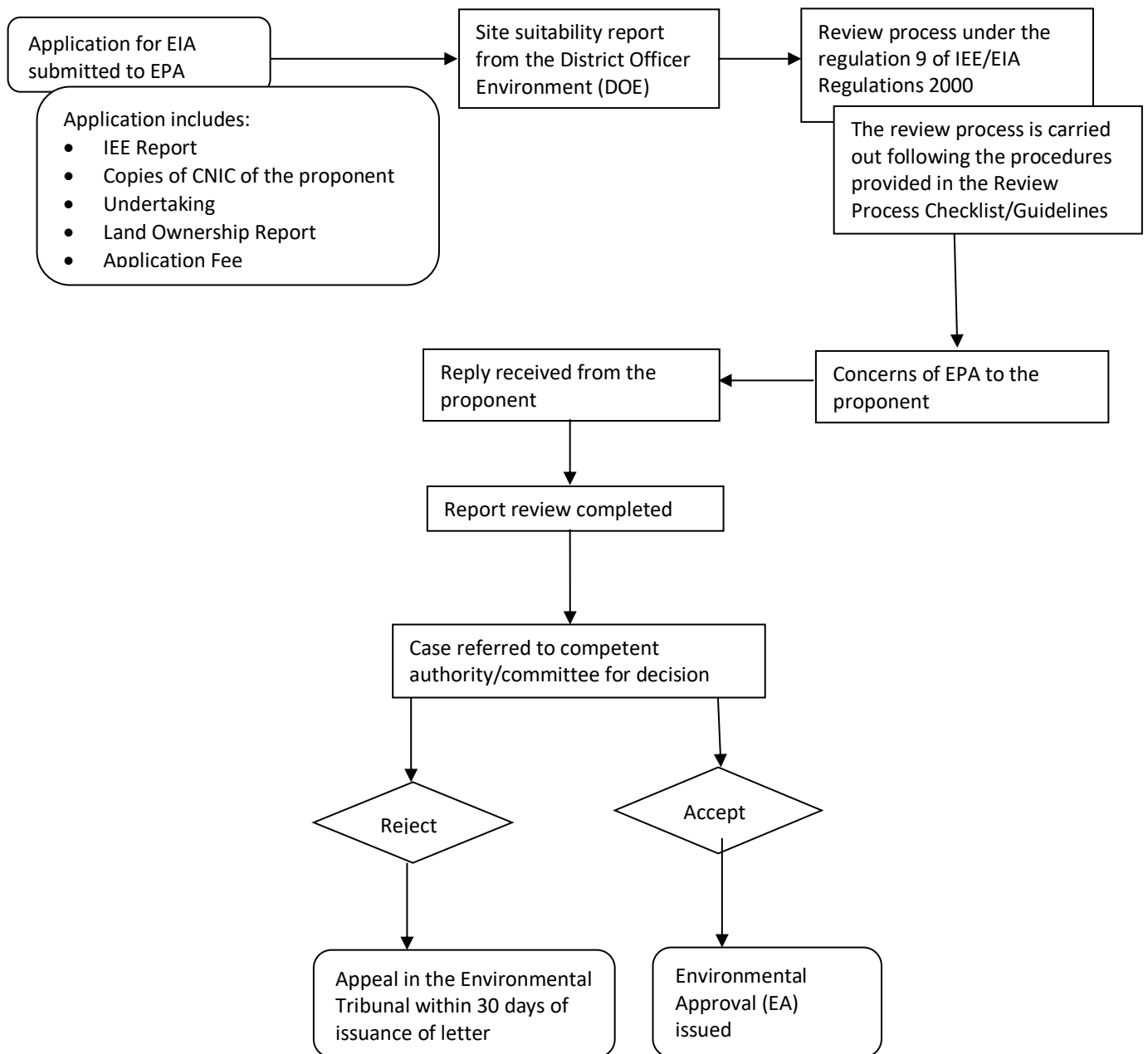


Fig 1.1: The EIA process flow chart

The format of this EIA covers the followings:

1.7 Structure of the Report

EIA report comprises following chapters:

Chapter 1: Introduction (A description of the project, proponent and consultants, the need for the project and the report and method of preparing it).

Chapter 2: Project Description (Full description of the relevant parts of the project and summary of project inputs and outputs).

Chapter 3: Policy, statutory, and institutional Framework (A description of the pertinent national & provincial legislations, regulations and policies that are relevant and applicable to the project and a demonstration of how the project conforms to these aspects).

Chapter 4: Description of the environment (Description of project area's existing physical, biological and socio-economic condition, including geomorphology and soils, water resources, air quality, flora, fauna and demography).

Chapter 5: Project Impacts and mitigations (Presents an assessment of the project's impacts, suggested mitigation measures on the Physical, Biological and Socioeconomic environment, residual impacts and the monitoring requirements).

Chapter 6: Environmental Management Plan (Provides Environmental Management Plan & Environmental Monitoring Plan for the construction & operational phase of the project).

Chapter 7:

Chapter 7: Conclusions & Recommendations (Concludes the EIA report with a few recommendations to conduct the project in environment-friendly manner).

CHAPTER II:

DESCRIPTION OF THE PROJECT

2.0 Type and Category of Project

According to projects categorization for environmental assessment studies, the proposed project that is an industrial warehouse falls under the others projects in **Section G** category of projects mentioned in Schedule II for Environmental Impact Assessment (EIA). This report is required to fulfill the legal requirements set under section 12 of the Punjab Environmental Protection Act, 1997 (Amended 2012). This section of the study renders a detailed account of the project and its salient features, such as location and various phases. Inputs and discharges relevant to different phases of the project, such as electricity & materials etc. have also been examined as a response to possible environmental concerns.

Category of Industrial Waste Storage Warehouse

This will be an industrial waste storage warehouse which will be used for sake of storage of industrial hazardous waste from different industries for temporary time period.

2.1 Objectives of the Project

The objective of the proposed Project is as following;

- This will be a small storage warehouse where industrial waste will be stored in packed form and further sold to local contractors for disposal and recycling.
- Said project will facilitate the industry.
- This project will ensure the product will remain safe and intact as receive from industry and whenever customers receive it.

2.2 Site Alternatives Considerations

The construction of this industrial waste storage warehouse is about to design where there is availability of access roads, communication facilities, electricity, gas, basic infrastructure, sewer etc. Neat and clean environment is also the other consideration.

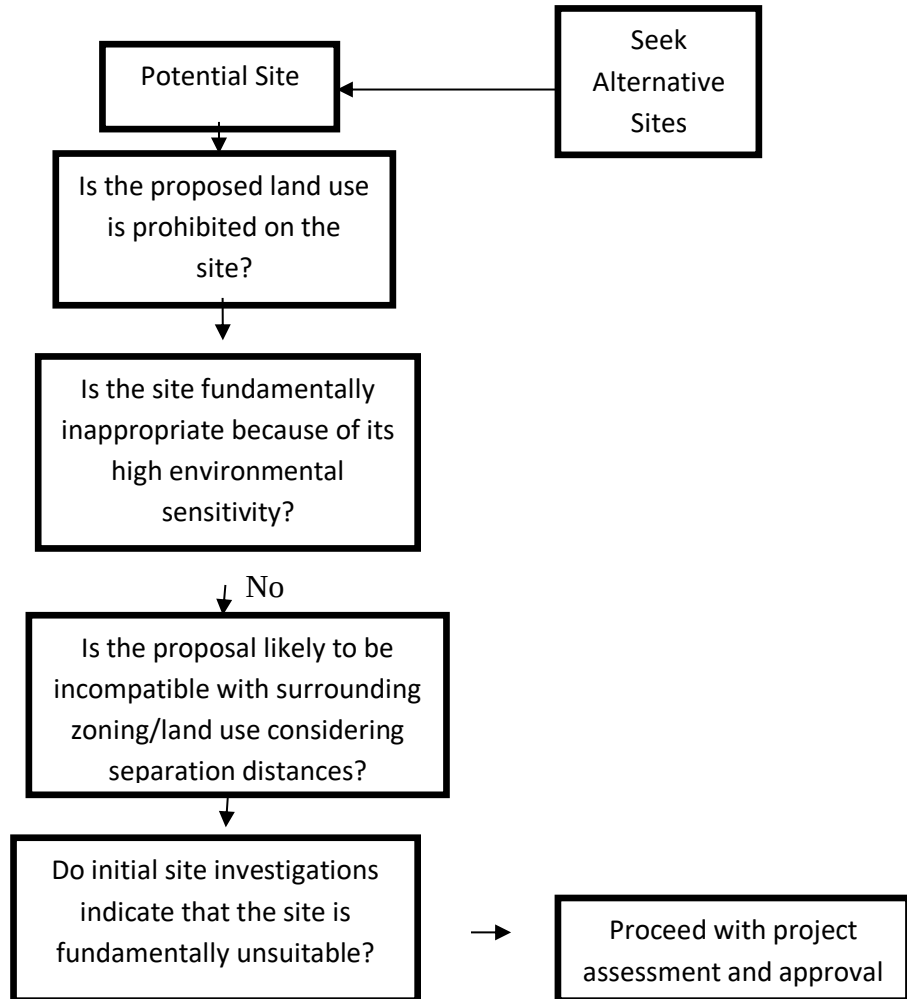


Figure 1.2: Site Selection Principles

Keeping these considerations in mind four alternatives considered which were:

- i) **Alternative I – No Project:** There should be 1st option that there should be no project. The said project may cause the pollution regarding waste of different industries, which will be unhealthy if not handle properly. So there should be not considered this project.
- ii) **Alternate II-Scope of Project**
The industrial activities are the key source of economic development of any country. The growth of industry has strengthened the economics of that area. So by increasing the development, this graph will increase day by day and from its waste we can't deny. So its handling in environment sound manner is challenge which should be according to health



environment. So by considering scope of the project it is impossible to deny the project while there should be some sound practices to handle its waste.

iii) **Alternative II – Construction of Industrial Waste Storage Warehouse “COVALENT METAL CONCERNS (SMC) PVT Limited” at Approachable Location:**

Industrial Waste Storage Warehouse should be approachable distance where it can sale and purchase the material in market at competitive price. Said project should have all fundamental facilities regarding project.

The considering all factors, said project is at ideal location where all fundamental necessities are available and surrounding people can get job opportunities as well.

iv) **Alternative III-Proposed Location Outside of City:**

The project should be away from city due to any nuisance etc. there may be air pollution and water pollution at some extent during construction phase while during operational phase waste will be here in warehouse. There is no any water body around the project site and project site is without any surface slops hence adding to its suitability. Another significant parameter was presence of adequate infrastructure facilities. Keeping all these parameters under consideration, the current site was identified. Since the proposed site incorporates sustainability parameters e.g. reducing energy consumption by reducing distance for transportation between commercial and industrial hub. Moreover said project does not require cutting of trees, provision of infrastructure etc, therefore selection of alternative III was considered most suitable.

Alternative IV-Sustainability Aspects: Sustainable Design: Though this alternative does not relate to identification of site, however, this is an equally important alternative which has been considered by the management Industrial Waste Storage Warehouse. Moreover there is no population between the radius of 2 to 3 km which is plus point for project as well. A thorough survey needs to be done to ensure that any such location does not fall under the prudence of flood or seismic activities. The site has adequate facilities for drainage, waste collection, communication, transportation, and electricity. These have been considered while selecting the choicest alternative. As for the design, different criteria were considered for finalization of a safe design. For this, a site where fundamental necessities are available will be feasible for project as well as will be good

decision for project. Moreover, there is no ecologically sensitive or declared protected area such as Territorial Waters, forest, game reserve or biodiversity parks within a 10 km radius of the project site, requiring the proponent to look for site alternatives.

2.3 Location Plan/Map

The proposed project Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited” located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura.

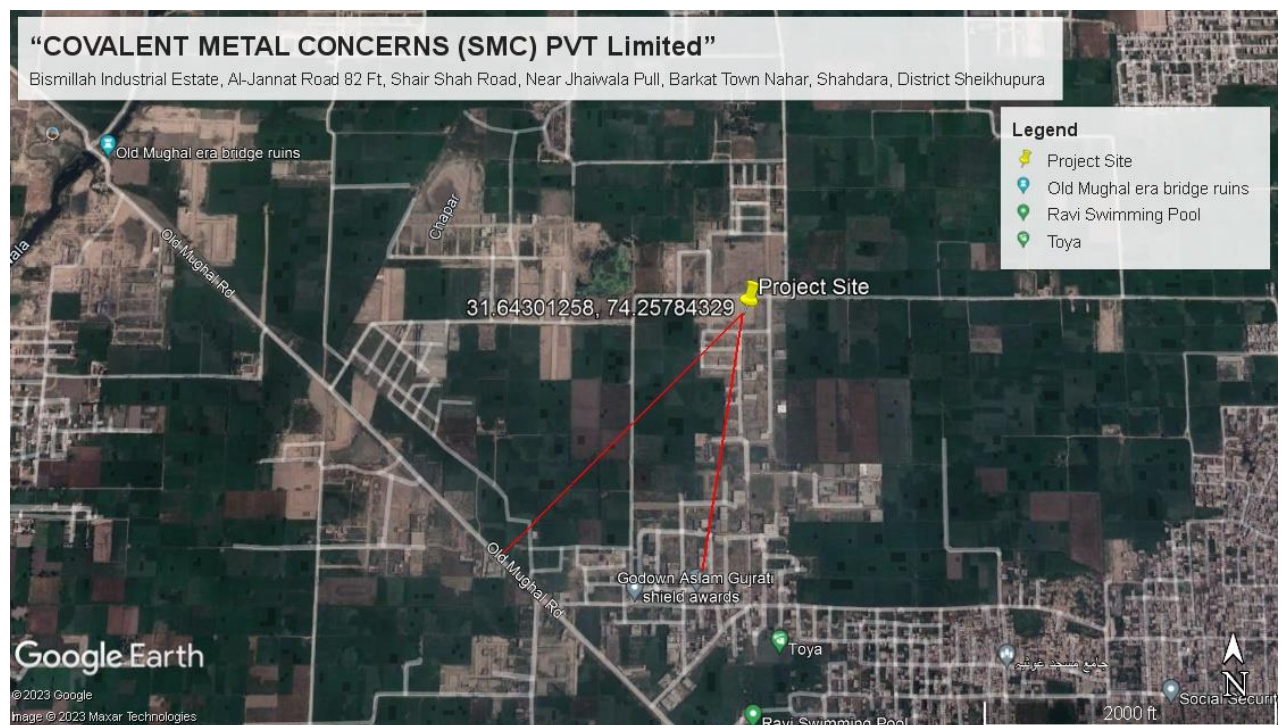


Figure: 1.3 Google Earth Map of the project

2.4 Land Use

Current land use for Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited” located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura is an open land.

2.5 Road Access

Project site is an easy access road area. The main Old Mughal Road which is approximately 745.56 meter from the project site.

2.6 Magnitude of the Operation Including Capital Cost and Associated Activities

The proposed project intends on constructing a small scale industrial warehouse where industrial hazardous waste will be stored for temporary time period and sold after sometime to local market vendors. The construction will be started after getting environmental approval from EPA, Punjab. The cost of the project is 60 million.

2.7 Vegetation Features on Site

The said project is open plot where there are some *Eucalyptus*, *Keekar*, *Ficus Religiosa* trees. There is no threatening fauna and flora which will be affected by this project.

2.8 Proposed Schedule of Implementation

It is estimated that the completion of construction phase of entire project will be started after getting environmental approval from EPA, Punjab.

Activities involved are:

- Land acquisition – already done (Land rent documents are along with this report)
- Lay out plan of project
- Leveling of land
- Excavation for foundation building
- Work on pavements, roads, sewer system, electricity and telecommunication grid installation etc.
- Construction of site
- All finishing work of the entire construction work will be furnished after last step.

2.9 Description of Industrial Warehouse

The said project which is an industrial waste storage warehouse has area of 10890 SFT and it's a single story building. Proponent is the owner of the land. Industrial Waste Storage Warehouse is intended to construct a small level warehouse for the storage of hazardous industrial junk waste including Batteries, tetra pack, thinner and chemicals,

treatment waste (sludge), water septic tank, medical waste, laboratory waste, paint waste, compressors, chemical canes, drums and all type plastic waste from different industries for temporary basis and further it will be sold out to local contractors for further final disposal and recycling, as proponent has the agreement with them. There will be no any industrial processing/manufacturing activity on the site; this warehouse is only for storage purpose.

2.9.1 Water Requirement

The surplus water during the construction phase of the whole project will be estimated to meet any unforeseen situation. The water demand will be fulfilled from ground water. Water demand for various uses has been estimated on the basis of WASA specifications. Water requirement for maintenance of green belts will be done on daily basis by ground water through pumps and pipes to avoid wastage of water. The water requirement for the construction phase will be 500 gal/day while during operational phase water requirement will be 20-25gal/day. The water will be in operation phase for sake for cleaning and drinking purpose.

2.9.2 Wastewater Generation and Disposal

Wastewater to be generated from the project during construction phase will be reused for multi purposes like sprinkling on dust, making of construction material etc. while domestic wastewater during construction & operational phase will be no issue because workers will use surrounding bathrooms. Septic tank will be constructed for this purpose. Wastewater will be discharged in nearby small drain which is quite passing through the project site. This small drain is further connected to the main sewerage nallah.

2.9.3 Solid Waste Generation and Disposal

Estimated quantity of solid waste during construction phase is varied. The reason being, solid waste will have excavation material as major part of its overall composition. However, the earth material will be reused within the site eventually leaving zero waste due to excavation activities. Therefore, solid waste during construction phase will include the solid waste generated due to workers activities. To get rid from solid waste, sanitary workers of this area will collect this waste.

2.9.4 Energy Demand

The energy will be supplied by WAPDA.

2.9.5 Manpower Required

The man power during construction phase will be approximately 8-10 and operational stages will be approximately 10-15 persons including management, loaders etc. Thus the project is a small level source of employment for economic development activities of the area.

2.9.6 Environmental Impacts at Industrial Warehouse

The study team reviewed the Project site with the aim to determine the likely impacts of the project on the environmental and socio-economic conditions of the area. All the necessary elements of the project were reviewed and compared with the existing conditions in the vicinity of the Project Area. The EIA report identifies the adverse environmental impacts due to the construction and operational activities of the project and also suggests proper measures for their mitigation, as described in Environmental Management Plan (EMP).

There are no significant or well-shaped trees and shrubs on the project site which will be cut, small number of trees are present in surrounding of project site which will be saved. No fresh water bodies are known to exist in the vicinity of the project area; therefore there will not be any deterioration of surface water quality. During the construction vehicles and machinery will be employed. These will generate some dust and smoke temporarily which will definitely stop on completion of the construction work.

The potential negative impacts during construction and operational stage of the project will be mitigated to an acceptable level. Comparison of potential adverse and beneficial impacts of the project shows that project will prove to be beneficial for the inhabitants of the area. Hence the proposed project will prove to be beneficial and also increase the socio economic status of the nearby inhabitants, and will contribute in the overall economy of the country.

Necessary mitigation measures are recommended in the report to make the proposed project Environment Friendly. Environmental Management Plan identifies monitoring needs and implementation on Environmental Management Plan is also recommended. The EIA concludes that the proposed project have indicated that there are no significant environmental impacts associated with the construction and operation phase of the project, if the anticipated impacts are properly mitigated; therefore, no further EIA study is required.

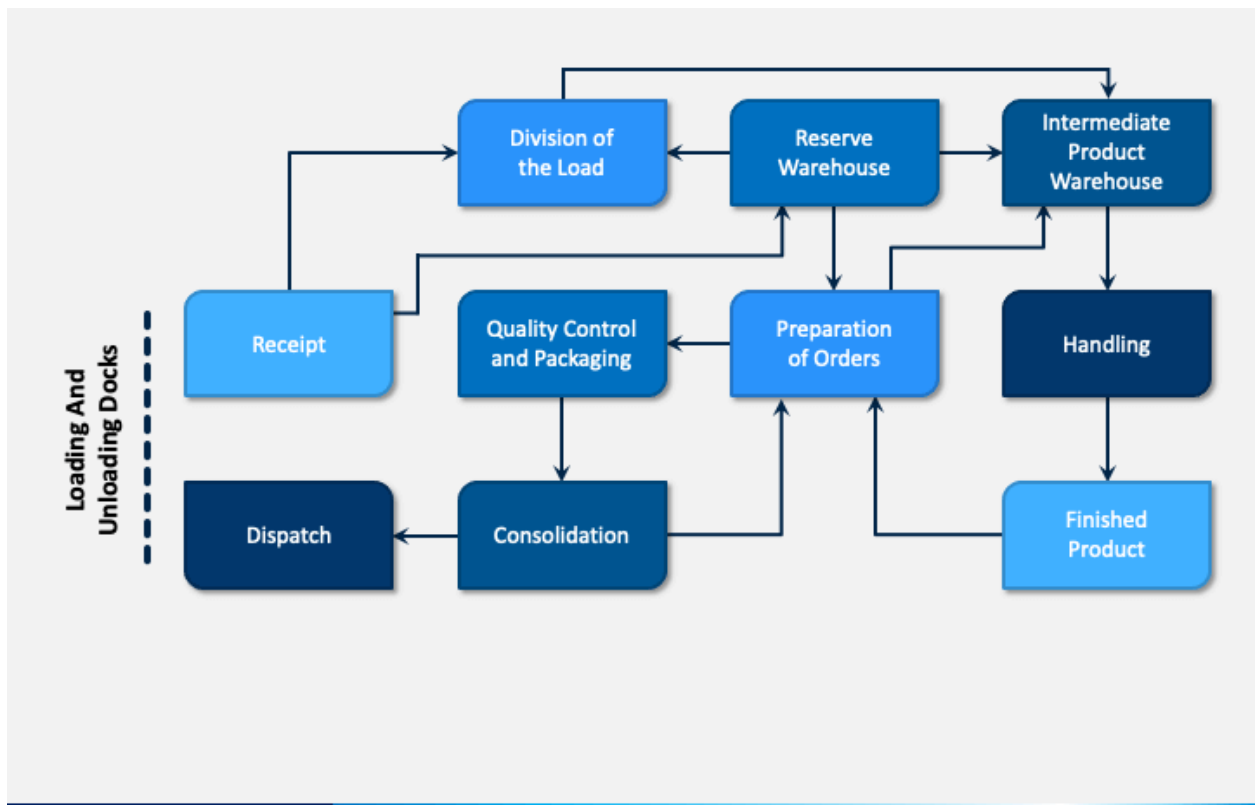


Fig: Process flow diagram

2.10 Details of Restoration and Rehabilitation at the End of the Project Life

Industrial warehouse will staff more people for the proper maintenance of the proposed project under the skilled supervision of the site supervisors. This staff will add to the already working staff for the maintenance of activities. Regular maintenance can increase the life expectancy of such project considerably. However, if and when the end of life time period of the project comes, safety measures will be adopted.



2.11 Government Approvals

Acquisitions of approvals are not required because said project is about a warehouse.

2.12 Safety Measures at Industrial Warehouse

Emergency exits in the rooms have already been planned. Firefighting equipment will be provided and adequate trainings will be provided to tackle any situation of fire hazards. Call points at suitable locations will be installed. Training will be provided to workers for health and safety during construction and operational phase of the project.

CHAPTER III **STATUTORY REQUIREMENTS**

3.1 General

Sustainable development and green economy is a concept that has emerged over the past decades to describe a new framework aimed at economic and social development while maintaining the long term integrity of the ecological system and environmental resources. The principal of sustainable development is in the process of being incorporated into the national policy and legislation through various statutory instruments. This chapter describes the current legal responsibilities of the proponent in context of environmental and sustainable development, and the institutions that exist in the country that may influence the environmental management of the project.

This section deals with the current policy as well as legal and administrative framework related to carrying out of Initial Environmental Examination (IEE) of the project. An efficient and effective organizational structure is essential for successful implementation of the mitigation measures identified for the project. Like other projects, the project, before its implementation, is required to go through an Environmental Assessment, in accordance with the provisions of the Punjab Environmental Protection (Amendment) Act 2012.

3.2 Existing Legislation and Legal Framework

The Federal Ministry of Environment was responsible authority for policy making on environmental protection in Pakistan but after 18th Amendment in the Constitution, the Provincial Governments have taken over the subject of Environment. This EIA study has been carried out in the light of the policy guidelines of the Preparation of IEE/EIA Reports under the procedures and practices formulated by the Pak EPA and adopted by the Punjab Environmental Protection Agency (EPA).

3.3 Institutional Setup

3.3.1 Environmental Protection Councils

The Punjab Environmental Protection Council (PEPC) is the apex decision-making body of Punjab. It has been developed under the provision of Punjab Environmental Protection (Amendment) Act 2012. It is headed by Chief Minister of Punjab with other members. The purpose of EIA is basically to obtain Environmental Approval from the Environmental Protection Agency (EPA), Punjab in compliance with Pakistan Environmental Protection Act (PEPA) - 1997, now having been replaced by Punjab Environment Protection (Amendment) Act 2012.

3.3.2 Environmental Protection Agencies

Pak EPA has been established at the Federal level and EPAs are established at Provincial level also. In Punjab an independent Environmental Protection Agency is constituted headed by the Director General.

3.3.3 Environment Protection Department, Punjab

The Punjab Government has established Environment Protection Department (EPD) administratively controlled by the Secretary, Government of Punjab. The EPD has its independent Minister. According to the provisions of the Punjab Environmental Protection (Amendment) Act, 2012, EPD has a significant role in policy making and implementation of the environmental laws in the Punjab Province.

3.3.4 Relevant Legal / Institutional Framework

The applicable laws for the environmental study of the project are briefly given below. The proponent of the project will abide by the applicable laws and regulations.

A number of laws have been promulgated by the Government of the Pakistan to deal with the environmental and social aspects related to the implementation of various development projects in the country. In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) that was replaced by the PEPA, 1997,

through an Act of Parliament. According to the 18th Amendment in Constitution, the PEPA 1997 has been confined to Federal Area and provinces have been allowed to formulate their own environmental legislation in the subject of environment.

Under the PEP Act, it is mandatory to carry out EIA or EIA for all development projects. The Pak EPA has also framed guidelines for environmental assessment of projects in various developmental sectors, According to PEPA 1997; the National Environmental Quality Standards (NEQS) were established for effluents discharges and gaseous emissions of various Municipal and Industrial sources. The latest revision of NEQS as carried out in year 2000.

Provincial Environmental Protection Departments are also working on the formulation and enforcement of environmental statutes and by-laws. The Pak EPA has issued several policies guidelines and adopted measures for streamlining the environmental assessment. Though, the need for environmental screening and assessment has received some weight during the recent past, strict implementation of the NEQS is still a dream to be realized. The applicable laws for the environmental study of the Project are briefly described below:

3.4 Pakistan Environmental Protection Order (PEPO) 1983

In 1983, the Government of Pakistan issued an Environmental Protection Ordinance (EPO) 1983. It was the first legislation promulgated for the protection of environment. According to PEPO, 1983 it was necessary to carry out EIA / EIA for all development projects, but there were no EIA / EIA regulations under that ordinance.

3.5 Punjab Environmental Protection (Amendment) Act 2012

Section 12 of the Punjab Environmental Protection (Amendment) Act 2012 makes it mandatory for the proponent of a project to file with the Environmental Protection Agency either an Initial Environmental Examination (EIA) or Initial Environmental Examination (EIA), as the case may be, in respect of the project.

As per definition given in the Punjab Environmental Protection (Amendment) Act 2012, Initial Environmental Examination (EIA) means an environmental study comprising collection of data, prediction of qualitative and quantitative impacts, comparison of alternatives, evaluation of preventive, mitigatory, and compensatory measures, formulation of environmental management & training plans & monitoring arrangements, and framing of recommendations and such other components as may be prescribed. The provision of Section 12 has been incorporated “as it is” in the new Punjab Environmental Protection (Amendment) Act, 2012.

3.6 National Environmental Policy 2005

Government of Pakistan has notified National Environmental Policy 2005, for different projects/aspects in which guidelines/priorities have been given to undertake/commence the projects having significant environmental impacts.

The National Environmental Policy (2005) provides a framework for addressing the environmental issues (particularly pollution of fresh water bodies and coastal waters, air pollution, lack of proper waste management, deforestation, loss of bio diversity, desertification etc.) confronting Pakistan. It recognizes the goals and objectives of the Pakistan National Conservation Strategy (PNCS, 1992), National Environmental Action Plans, and other existing environment related national policies, strategies, and action plans. It also provides broad guidelines to the Federal Government, Provincial Governments, federally administrated territories and local governments to address their environmental concerns and to ensure effective management of their environmental resources.

3.7 Review of EIA / EIA Regulations 2000

The Pak EPA has issued Review of the Initial Environmental Examination and Environmental Impact Assessment Regulations 2000, to review the Initial Environmental Examination (EIA) / Environment Impact Assessment (EIA) reports. Categorization of the projects for EIA and EIA is one of the main components of the Regulations. Projects have been classified on the basis of expected degree of adverse environmental impacts.

Projects type listed in Schedule I are designated as potentially less adverse effect, schedule I projects require an EIA and projects given in schedule II require EIA to be conducted.

Salient features of the Regulations are listed below:

- Categories of project requiring IEE and EIA are issued through two schedules attached with the regulations.
- A fee depending on the cost of the project has been imposed for the review of IEE and EIA.
- The submittal is to be accompanied by an application in prescribed format included as Schedule IV of the Regulation.
- The EPA is required to issue conformation of compliance within 15 days of receipt of request and complete documentation.
- The IEE / EIA approval for construction of the project will be valid for three years from date of accord.

3.8 Guidelines for the Preparation of IEE/EIA Reports

The Pak EPA has also framed Guidelines for the Preparation of IEE / EIA of projects in various developmental sectors.

3.9 The Punjab Local Government Ordinance, 2001

Schedules 4 and 8 of this Ordinance pertain to environmental pollution. There are not withstanding any specific provisions, every local government may perform functions conferred by or under the Punjab Local Government Ordinance, 2001, and in performance of such functions may exercise such powers, which are necessary and appropriate. Under the ordinance, the local councils are authorized to restrict projects causing pollution to air, water or land. They may also initiate schemes for improving the environment.

3.10 Pakistan Penal Code, 1860

This 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, which defines and recognizes noise as a public nuisance. "A person is guilty of a public nuisance who does any act or is guilty of an illegal omission which causes any common injury, danger or annoyance to the public or the people in general who dwell or occupy property in the vicinity, or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right".

3.11 The Land Acquisition Act, 1894

The Land Acquisition Act (1894) deals with the acquisition of private properties for public purposes. There are 55 sections in this Act mainly dealing with area notification, surveys, acquisition, compensation, apportionment awards, disputes resolution, penalties and exemptions.

Although quite old, this act laid out the legal basis for any property affected by a project and for compensating the effected owners of the land.

3.12 Factories Act, 1934

The clauses relevant to the project are those that concern the health, safety, and welfare of workers, disposal of solid waste and effluent and damage to private and public property. The Factories Act also provides regulations for handling and disposal of toxic and hazardous materials. Given that construction activity is classified as 'industry', these regulations will be applicable to the project contractors.

3.13 Labor Laws

Construction and operational activities during the course of construction may affect occupational health of workers. Employers are required to abide by labor laws in respect of their own employees and also to ensure that contractors to follow the relevant labor



laws and rules relating to safety of the workforce and creating a healthy working environment. The proponents shall ensure that the labor force engaged at the project site is not exposed to any danger by monitoring the contractor's work frequently.

CHAPTER IV

BASELINE DATA & ENVIRONMENTAL PROFILE

4.1 GENERAL

The existing environment around the site of project has been studied with respect to physical, ecological and socio-economic resources. The existing information to establish a database for the project was collected from different departments, review of previous studies and through the site visits carried in out in the project area.

4.2 PHYSICAL ENVIRONMENT

The study examines the physical resources, topography, soil, climate, surface and ground water and geology of not only the project site but also the city as whole to assess whether the project under review can or does impact on any of these parameters. The description of physical environment of Sheikhpura city and the project site is present in the following sub sections.

4.3 Geological Formation

The soil of the Sheikhpura belongs to the typical alluvium of the Indo-Gangetic plains. The majority of the soils are loamy or sandy loam consisting of soil crust of different depths. Hardly any profile characteristics are observed; soluble soils are present in considerable amounts. The lower layer consists of kankar nodules. The soils have generally an alkaline reaction and are adequately supplied by phosphorus and potash, but are deficient in organic matter and nitrogen.

Geologically the alluvium is divided into khaddar, i.e., the newer alluvium of sandy generally light colored and of less concretionary composition; and Bhangar, i.e., the older alluvium of the more clayey composition, generally of dark appearance and full of kankar.

The soil differs in consistency from drift sand to loam and from fine silt to stiff clay. A few occasional pebble beds are also present. Layers of kankar in the Indo-Gangetic alluvium of the district are also observed.

4.4 Climate

The Climate of Sheikhpura is tropical. It is very healthy and salubrious. Except of few months of summer, Sheikhpura is a suitable place to live. The people of Sheikhpura have to experience extremes of temperature. The summers are really hot and the winters are very cold. There are three main seasons in Sheikhpura, namely, summer, winter and rainy season. During the summers Sheikhpura experiences heat waves.

Table 4.1: Seasons in Sheikhpura

Weather	Months
Autumn	1 Oct – 15 Nov
Winter	15 Nov – 15 Feb
Spring	15 Feb – 1 Apr
Summer	1 Apr – 30 Sep
Monsoon	July – Sep

4.5 Temperature

Sheikhpura weather is hot and humid. The city experiences an extreme climate during the months of May, June and July, when the city witnesses summer season. The temperature in Sheikhpura ranges between 40°C to 45°C, during the summer months. Sheikhpura experiences winters during the months of December, January and February. The temperature during this season varies between 5°C to 8°C.

4.6 Rainfall

Sheikhpura has a distinct rainy season, during which the weather is very humid. The rainiest months of the year are July and August, with June and September also gets some rain. During the rest of the year, barely any rain falls in Sheikhpura.

4.7 Topography

The city of Sheikhpura is bound by Sheikhpura district in the west and by Wagah on the east, while on south it is surrounded by the Kasur district. On the northern side, it is watered by the Ravi River. The city occupies around 404 square kilometers of land and is still expanding.

4.8 Wind Direction

The Sheikhpura region experiences westerly and north westerly winds during the winter and spring seasons, known usually as the dry stable times of year and southerly and south easterly winds during summer and monsoons. Wind speeds are low during winter picking up during spring season and peaking during the summer months.

4.9 Ambient Air Quality

Atmospheric pollution particularly in urban area has a strong impact upon daily life. Its economic growth and rising energy consumption are causing the increase in air pollution. The main sources of the air pollution are motor vehicles and industrial activities. SO₂, NO₂, CO₂, CO, O₃ and Particulate Matter (PM) are investigated as the pollution indicators.

The overall air quality in the study area is of moderate nature. Dust particles along with oxides of Nitrogen, Sulphur and Carbon are the major causes of air pollution in the ambient air quality.

It was however observed during the visit that environment of the project area is clean as the area is far away from the city center. Results of tests conducted to assess ambient air quality of the project area are given in annexure of the report.

4.10 Water Resources

- **Surface Water**

There is no fresh surface water resource like canal or ponds, near the project area.

- **Ground Water**

The city of Sheikhpura is underlain by the deep permeable aquifer formed within the alluvial plain of the Ravi River, which is the part of Greater Indus Plain.

Groundwater is the principal source of municipal water supply in Sheikhpura. This is also the case in the immediate vicinity of the site. The City's drinking water is obtained from groundwater aquifer by means of tube wells located throughout the area. Groundwater is pumped from 400-800 feet and is generally good for direct consumption. About 83% of the city's population is consuming groundwater for drinking purposes. Results conducted to assess the groundwater quality in the area in context of six parameters of concern for drinking water have been annexed with this report.

4.11 Drinking Water Quality

WASA (Water and Sanitation Agency Sheikhpura) is providing drinking water to the residents of Sheikhpura. WASA claims the quality of water conform to the Drinking Water Standards.

The increase in population will have direct impact on the water sector for meeting the domestic, industrial and agricultural needs. Pakistan has now essentially exhausted its available water resources and is on the verge of becoming a water deficit country. The quality of water supplies in many cities of Pakistan is deteriorating fast. Over pumping of groundwater due to extended drought has affected the water quality adversely.

4.12 Noise Level

Sheikhpura city of Pakistan has population around ten million. There are many a large, medium and small industries which are still working within city premises. Industrial activity and vehicular emissions are causing excessive noise in the city.

The affluent areas of Sheikhpura are quieter than rest of the city; the noise level in these areas is still far higher than the standards set by the World Health Organization and the Pak-EPA. Noise pollution in the city is on the rise with most residents complaining that the noise is becoming a public nuisance.

4.13 ECOLOGICAL ENVIRONMENT

Sheikhupura is enriched with the presence of natural flora and fauna, although with the growing population and development activities, the presence of the same has been somewhat affected. There are no significant or well-shaped trees and shrubs on the project site as the site is located in plane land within the premises of unit.

4.13.1 Flora

Trees, also called the ‘lungs’ of the earth, are important for the restoration of the eco-system. People can benefit immensely from their survival and existence. Trees have also been a source of medicine for thousands of years and a refuge for various species of birds. Several species of the trees in Sheikhupura are being used in medicine and provide excess raw material for Indian ayurvedics. Trees such as Neem, Bhaira, Harrar, Dhair and Moosri have great medicinal value and can be grown easily in the city.

No trees are found in the vicinity of the project area. Therefore there is no adverse impact on the flora. There is no Reserve Forest in the 5 km radius. No threatened or endangered species and no medicinal plants are present in the project area.

Table 4.2 Inventory of Flora of Sheikhupura

S.no	Common Name	Scientific Name
1	Indian Lilac	<i>Azadirachta indica</i> L.
2	Chinese date	<i>Ziziphus mauritiana</i> Lamk
3	Yellow	<i>Terminalia chebula</i> Retz.
4	Temple plant	<i>Crataeva adansonii</i> DC.
5	Bombax	<i>Bombax ceiba</i> Linn.
6	Bistula	<i>Cassia fistula</i> Linn.
7	India laburnum	<i>Acacia nilotica</i> (Linn.) Delile.
8	Indian banyan	<i>Ficus benghalensis</i> Linn.

9	Buddha tree	<i>Ficus religiosa</i> Linn.
10	Benzoil tree	<i>Moringa oleifera</i> Lam.
11	Devil tree	<i>Alstonia scholaris</i> (L.) R.Br.
12	Rosewood	<i>Dalbergia sissoo</i> Roxb.
13	Mango	<i>Mangifera indica</i> L.
14	Spanish cherry	<i>Mimusops elengi</i> L.
15	Jujube	<i>Ziziphus zizyphus</i> Mill.

4.13.2 Fauna

With an increase in the rate of urbanization, the ecology of Sheikhpura has been considerably affected and population of birds in Sheikhpura has reduced to just 85 including the resident and migratory ones.

Some birds and few animals like Buffaloes, cows, goats, donkeys, hen, rats, cats, dogs are present in the vicinity. Some reptiles like lizards are also present. The only amphibian seen the project area is frog. No threatened or endangered species are found in the project site. Similarly no wildlife is present.

Table 4.3 Inventory of Fauna of Sheikhpura

S.no	Common Name	Scientific Name
1	Intermediate Egret	<i>Egretta intermedia</i>
2	Indian-Pond Heron	<i>Ardeola grayii</i>
3	Red-Wattled Lapwing	<i>Hoplopterus indicus</i>
4	Common Sandpiper	<i>Actitis hypoleucos</i>
5	White Wagtail	<i>Motacilla alba</i>
6	Yellow Wagtail	<i>Motacilla flava</i>



7	Red-vented Bulbul	<i>Pycnonotus cafer</i>
8	House Sparrow	<i>Passer domesticus</i>
9	Common Myna	<i>Acridotheres tristis</i>
10	Bank Myna	<i>Acridotheres ginginianus</i>
11	Pied Myna	<i>Sturnus contra</i>
12	House Crow	<i>Corvus splendens</i>
13	Nectarinia asiatica	<i>Purple sunbird</i>
14	Black Drongo	<i>Dicrurus macrocerus vieillot</i>
15	Black kite	<i>Milvus migrans migrans</i>
16	Blue rocky pigeon	<i>Columba livia</i>
17	Little brown dove	<i>Streptopelia senegalensis</i>
18	White-breasted Kingfisher	<i>Halcyon smyrnensis</i>
19	Little Green Bee eater	<i>Merops orientalis</i>
20	Golden-backed woodpecker	<i>Dinopium benghalense</i>
21	Hoopoe	<i>Upupa epops</i>
22	Pheasant-tailed jacana	<i>Hydrophasianus chirurgus</i>

4.14 SOCIO ECONOMIC ASSESSMENT

Social change is the consequence of almost any intrusion into the community life of any society. The intrusion can be in the form of any developmental projects or nonspecific, less tangible forms such as increased exposure to other cultures, technological changes and so on. The social change that results from intrusion into community life can also be



beneficial, but can have undesirable or negative outcomes. Even that change in the long run may have positive effect on the social well-being of a community.

Social Impact Assessment is a methodology used for examining social change due to external sources, especially specific developmental projects, but also government policies, technological changes and social processes or anything that has a social impact.

The objectives of the given study are outlined as follow:

- To carry out the assessment of social impact.
- Acquire socioeconomic data to evaluate and identify the project interventions.
- Assess needs of community related environmental concerns.
- To assess adverse and beneficial socioeconomic and health impacts of the activity.
- To suggest remedial measures and solutions to improve socio economic conditions.
- To analyze socio economic conditions of community, with special
- reference to environment and conservation of natural resources

4.14.1 Study Population

The target population was comprised of workers around the project site which were of Sheikhpura District. Therefore, approximately a total of 10 workers of different socio-economic conditions were surveyed. Data collection tool was questionnaire; it was a 10-items based semi structured questionnaire.

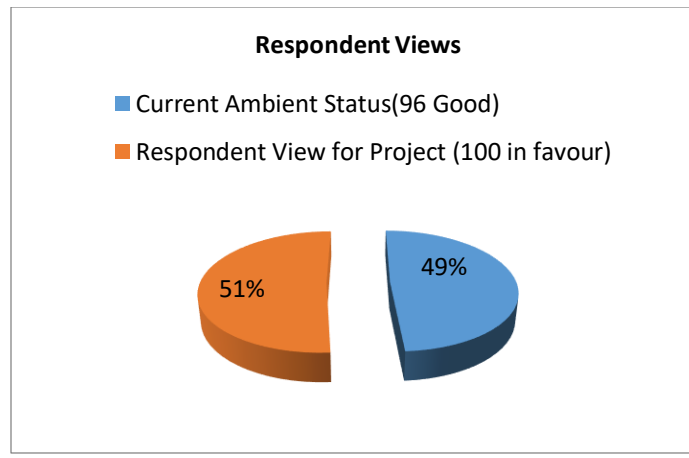
4.14.2 Description of Tables:

In the following table, only frequency and percentage has been measured (by SPSS) of those parameters which are probably present in maximum quantity.

Sr. #	Variables	Frequency	Percent (%)
1	Name & Address	-	-
2	Date	-	-
3	Address & CNIC	-	-
4	Age	89 (above 30 years)	89%
5	Education	93 (under metric)	92.8
6	Occupation	96 (Private jobs)	95.9
7	Marital Status	99 (married)	99
8	If married then no. of children	87 (> 4)	86.7
9	Total Family members	90 (< 5)	90
11	No. of earning members in family	88 (< 3)	88
12	Total income	97 (> 25 PKR)	96.3
13	Source of income	99 (Private jobs)	99

Table 4.4: Socioeconomic Questionnaire

Respondent View about Project



4.15 Demographic Profile of Sheikhpura

Sheikhpura comprises a large number of Pakistanis along with some foreign nationals. Demography of Sheikhpura is spread over an area of 1,014 square kilometers. Average household size in 1998 was recorded as 7.12. In 1998, the total number of male population was estimated to be 48 % and female population to be 52 %.According to the 1998 census, Sheikhpura's population was nearly 6.8 million. Mid-2006 government estimates put the population at somewhere around 10 million, which makes it the second largest city in Pakistan, after Karachi It is considered to be one of the 30 largest cities of the world.. The second largest city in the country was ranked the second most literate district in Punjab with a literacy rate of 64.7 percent.Urdu, which is the official language of Sheikhpura, is mostly used in the city. However, the people in Sheikhpura also use other languages like English, Punjabi and Pashto. It is noteworthy that Pakistan is an Aslamic country, where the majority of the population is Muslim. Sheikhpura, being a city in Pakistan, could not be an exception to this. As a result, 96% of the total population in Sheikhpura is Muslim. Other religions in the city accounting for the rest 4% are Christianity, Hinduism and Sikhism.

4.16 Health facilities

The city of Sheikhpura in Punjab Province of Pakistan is served by a number of private and government hospitals offering world class medical facilities. The rural and urban

areas are served by various other medical centers and dispensaries offering modern medical facilities. The hospitals, dispensaries and medical centers in Sheikhpura aim to provide the citizens best medical facilities and prevention from contagious and other harmful diseases. There is no health facility or any dispensary near the project area.

4.17 Educational Facilities

Sheikhpura is known as Pakistan's education capital, with more colleges and universities than any other city in the country. Sheikhpura is Pakistan's largest producer of professionals in the fields of science, technology, IT, engineering, medicine, nuclear sciences, pharmacology, telecommunication, biotechnology and microelectronics. The current literacy rate of Sheikhpura is 64%. No educational facility is present in the vicinity of the project area.

4.18 Transportation and Communication

Sheikhpura is one of the most accessible cities of Pakistan and the only unique city of Pakistan where you can find Public and private Transport, 24 hrs a day and 7 days in a week.

Public transport is always available in the project area. To fulfill the remaining needs of transport there are thousands of rickshaws and taxis which run on compressed natural gas to reduce pollution in the city and of course about 75 percent of the residents have their own conveyances.

4.19 Industrial Activities

Sheikhpura trade and industries thrives on certain large-scale industries such as steel, textile, carpet and IT industries. Sheikhpura is known as the industrial belt of Pakistan contributing the largest share in the GDP of the country. The city is home to 20% of Pakistan's industrial producers; manufactures include textiles, rubber, iron, and steel. Handicrafts, especially gold and silver work, also flourish.

The proposed project area is also present in a plain area and is surrounded by mostly industries and little agricultural land.

4.20 Water Supply

At the project site, the water requirement will be fulfilled by the ground water.

4.21 Telephone Facilities

Landline and Cellular telephone facilities are not present in the project area.

4.22 QUALITY OF LIFE VALUES

No residential area is present near the project site; therefore, individuals and workers from neighboring areas were interviewed. The individual assessed from the neighboring communities of the project area were involved in small businesses and private jobs in nearby industries. Most of the people hesitated telling their incomes; however, incomes average in the range of 20000 to as much as 100000 PKR; enough to meet their basic needs. They avail all the basic facilities of healthy living and enjoy human rights and civic liberties.

The diseases prevalent in the community were stomach disorders, fatigue, joint pain, diabetes and arthritis. But it was also observed that all these disease are commonly due to improper diet and water contamination.

Almost all of the interviewed members were in favor of the project rather they commented even more similar projects should be initiated in such areas as to yield lowering of goods prices and controlling inflation when not comprising on quality of the products and the environment.

4.23 LAB REPORTS

4.23.1 Ambient Air Quality Monitoring

Ambient Air Quality was monitored for the parameters according to Punjab Environmental Quality Standards (PEQS) 2016 i.e. Carbon Monoxide (CO), Sulphur Dioxide (SO₂), Nitrogen Oxide (NO), Nitrogen Dioxide (NO₂) and Particulate Matters (PM₁₀), Ozone (O₃), Carbon Dioxide (CO₂), Volatile Organic Compounds (VOC's), Humidity (%), Suspended Particulate Matters (SPM) and Humidity of ambient air at proposed site at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near

Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura. This monitoring is carried out under standard time of monitoring i.e. 24 hrs. Monitoring reports are attached herewith Annexure

4.23.2 Ground Water Analysis

Ground water analysis was done for the parameters according to Punjab Environmental Quality Standards (PEQS) 2016 i.e. Alkalinity, Calcium, Carbonates, Total Coliform, Conductivity, Hardness as CaCO_3 , Magnesium, Odor, pH, Sulfate, Sodium, Taste, Turbidity, Nitrogen/Nitrates, Lead and Mercury of the water samples collected from the proposed site at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura. Results obtained by Laboratory are attached herewith Annexure.

4.23.3 Noise Monitoring

Monitoring of was done according to Punjab Environmental Quality Standards (PEQS) 2016 for proposed site at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura. Results obtained by Laboratory are attached herewith Annexure.

4.24 Conclusion

The gathered and assessed data produces the conclusion that commencement of the project will prove to be beneficial for the workers of the area. The project will provide job opportunities for the local inhabitants.

The project, overall, does not have major adverse impacts on the existing environment and people with due implantation of the mitigation measures. It is further concluded that project confirms to the local environment.

CHAPTER V

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND

MITIGATION MEASURES

5.1 General

The potential environmental impacts related to the establishment of the project have been studied related to design, construction and operational stages of the Project. Environmental protection measures are recommended to eliminate adverse impacts on environment or to reduce them to an acceptable level within the prevailing legislative and regulatory framework. These Impacts are evaluated on the basis of magnitude, immediacy and sustainability. A careful consideration of project aspect, their potential environmental impacts and mitigation measures are proposed in this chapter. Evaluation criteria are as follow:

- Magnitude: Type of impact (direct, indirect, and cumulative)
- Immediacy: Temporal extent (during construction, after construction)
- Spatial extent (local, widespread)
- Sustainability and Reversibility:
 - Mitigability (fully, partially)
 - Monitoring (fully, partially)

5.2 Environmental Problems Due to Project Location

The potential impacts assessed due to project location are change in land use pattern, pressure on the existing natural resources, natural hazards like floods, earth quake, changes in the socio-cultural patterns of the local community, local community displacement issues, and obstruction of accessibility to the community already residing in the locality. A detailed explanation of each potential impact is given hereunder in tabulated form:

Table 5.1: Environmental Problems/Mitigation Measures Due to Project Location

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Change in Land Use Pattern	
	Any new intervention has its first and foremost impact of changing the land use pattern of the area. The impact of this nature is irreversible therefore site selection needs to have careful consideration of the impacts that may arise due to the changes in land use patterns.	Prior to selection of site, the project proponent has had careful consideration of site alternatives and hence due to current land use nature, price, and comparatively less environmental impacts the site was selected out of the alternatives. Another factor adding to the feasibility of the proposed site was that it involved no displacement of local community, easily approachable to and from the site for the collection of the nonhazardous/hazardous waste to decrease the transportation cost as well as the impact on the environment. Proponent has rented the site. Boundary wall of the Site have been contracted for the safety.
2.	Pressure of Resources	
	Yet another impact to be considered prior to site identification is the availability of already existing resources e.g. water, gas, electricity, etc. any new intervention can exert pressure and marginalize the existing community. This could eventually create a sense of deprivation among the already existing community and may eventually result in social unrest.	Considering this very important factor, the site identification was done after evaluating the extent of provision of resources. The water requirements, energy requirement, social services (identified in the previous chapters) was done and based on the availability of resources to meet the present and future demand, the mentioned site was identified. Site identified as the suitable picture for the establishment of

		the Warehouse because of many positive factors. No disturbance to the local community because site is away from the local community. Easy access to road and collection of the waste to & from the site and industry.
3.	Natural Hazards	
	It is very important to assess the extent of damage any natural hazard e.g. earthquake, floods, landslides may cause. The geological formation of the capital territory is such that it has been categorized into earthquake zones.	The proposed site identified within environmentally /geologically safe and does not fall in any of the earthquake zones in which the capital territory is divided.
4.	Displacement of Local Community	
	Displacement of local community can tend to create social issues and aggravate negative feelings from the existing population towards the project.	The proposed project is planned on a site which has already been acquired by the proponents after going through its socio-culture, environmental and economic considerations. The proponent had rented this site because of suitability to resources (natural and manmade) security construction of boundary wall etc.
5.	Accessibility Issues to the Local Community	
	Another important impact considered was obstruction or changes in the patterns of transportation and increase travel time/distance for the local community.	The proposed project site is a vacant plot with boundary wall constructed for the security, within boundary surrounding it from all sides and does not involve damage to any roads. Nature, size and scope of work also limit the extent of activities during construction as well as

		operational phases. Site will not create any hindrance for the local passenger or the movement of the any private or commercial vehicle.
6.	Presence of Sensitive Areas	
	Development interventions can degrade the quality and life expectancy of ecologically, socially and historically sensitive areas.	The site is not within the boundary limit or near to the boundary of any kind of ecological/biological/historical social or any sensitive or protected area declared by the national or international authorities /agencies and corporations etc.
7.	Availability of Existing Infrastructure and Services	
	Unavailability of infrastructure can render the entire project void and impractical due to absence of important community infrastructure.	The proposed project is well connected to the rest of the city through major asphalt roads. Site can be easily accessed to any Commercial buildings, housing societies, hospitals, clinic and transport facilities available hence making the location ideal for the said purpose.

5.3 Environmental Problems Due to Project Design

Environmental issues may also arise during project design phase which may cause potential threats to the overall project life is not considered timely. The potential problems associated with project design phase are identified in the **table 5.2** hereunder:

Table 5.2: Environmental Problems/Mitigation Measures Due to Project Design

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Increased Energy Consumption	
	The design of building plays a vital role in determining the energy demand. Unplanned	The design of said project named Industrial waste storage Warehouse in such way that it



	design may lead to overall rise in energy demand.	allows passive solar energy consumption and natural ventilating process to eliminate the factor of suffocations. Design of the warehouse is access to the natural ventilation and energy from the sun like utilization of maximum daylight to decrease the consumption of the energy from other sources.
2.	Traffic Congestion	
	Unplanned traffic management and traffic infrastructure development may lead to traffic related issues such as accidents and traffic congestion.	The project has included traffic management as integral part of its overall design. The project construction activities are planned within the boundary walls. Transportation of heavy construction materials will be done during less traffic hours. Transportation and storage of material during construction is easy at the project site because of the availability of the land that will have no impact on the road traffic. Mainly the movement of the vehicles will be done during the less traffic hours congestion.
3.	Fire Exits /Emergency Evacuation Plan	
	Emergency evacuation plans especially for the industrial waste storage warehouse is necessary. Fire issues due to electric short circuit, gas leakages etc.	The project proposes Emergency Evacuation Plans in events of fire hazards. Quality of wiring work and gas lines will be ensured through installation of good quality wiring during construction and proper monitoring during operational phase. The site will be equipped with proper fire-fighting materials to ensure increased safety.

4.	Accessibility to Public Utility / Services	
	Inaccessibility to public utilities will render the project uninhabitable.	Resolving the issues of accessibility to public utilities / services will be resolved through proper design planning of infrastructure.
5.	Careful Planning of Greenbelts/Horticulture Plan	
	Unavailability of greenbelts would create aesthetic nuisance.	The design of proposed project involve establishment of green belts and develop aesthetically crafted lawns around the project building to increase its aesthetic value. As the project site is surrounded by agriculture area and front of the project is near the canal bank that will increase the aesthetic view. Proponent is also agreed for the plantation of trees and green lawns inside the project.
6	Underground Sewer /Drinking Water Lines	
	Wires and pipelines lay open and above surface may consequently give rise to leakages, contamination and short circuits in the lines.	There will be no any such issue at the Industrial Waste Storage Warehouse because water will be gained from ground. As per requirement water will be used from ground water.

5.4 Environmental Problems Associated With Project Construction Stage

Table 5.3 provides a detailed overview of the environmental aspects and subsequent environmental impacts that may arise during project construction phase. Appropriate mitigation measures are also proposed for the remedy of any such potential impacts.

Table 5.3: Environmental Impacts/Mitigation Measures during Construction Phase

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	Loss of Vegetation Cover / Biodiversity	
	Construction activity will involve excavation and removal of top soil. This may also lead to clearing of land for construction purpose which ultimately would mean that the respective area will be cleared of any sort of flora/fauna.	The proposed site has been selected after careful consideration of the land use, presence of biodiversity and other environmental parameters. Currently, there are no trees on the said location rather it is a vacant plot devoid of flora and or fauna. But to ensure aesthetic value, the proponent will plant trees once the construction phase is complete.
2.	Gaseous Emissions	
	Gaseous emissions including SO _x , NO _x , CO ₂ , lead and CO during construction phase. These gases are ozone depleting reagents. Besides, they also pose threat to human health.	EURO II quality fuel shall be used in the vehicles, generators to avoid emission of lead. Vehicles, machineries with good conditions which fall on the quality standards shall be used to control the exhaust emission. At the site there will be no any activity expect temporary storage so there be no any gaseous emissions.
3.	Dust Emissions	

	Generation of dust and particulate matters is an issue that could arise due to construction activities.	The construction materials e.g. soil, clay would be covered appropriately. Instead of open and dry dumping, sprinkling of water in a quantity that reduces the chances of dust generation would be done. The workers would be provided safety gloves, masks and ear buds and wherever necessary goggles to avoid health complications. PPEs will be provided and ensured the safety of workers.
4.	Noise Generation	
	Noise emissions due to transportation, movement of heavy materials, excavation, generators may create health nuisance for the workers and local community.	The working hours shall be limited to 08 in the morning till 05 in the evening to avoid noise during night shift. Vehicle maintenance would be ensured so that emissions of any sort, be it gaseous emissions of noise generation, would be controlled. The workers will be provided with ear plugs and other personal safety equipment to avoid invoking of any health issues.
5.	Solid Waste Generation	
	Unplanned dumping of solid waste generation during construction phase can lead to blockage of roads, waterways and also create unaesthetic sight of the proposed location.	Solid waste generation quantity during construction phase shall be reused in construction activities rather than dumping. The solid waste during construction phase will consist most of soil, packaging materials, plastic bags, cloths, iron rods, and food leftovers. Most of the items will be segregated and reuse, recycled or sold



		out to the local vendors. The organic portion of solid waste shall be collected by sanitary workers of that area.
6.	Wastewater Generation	
	Unplanned wastewater disposal may contaminate the surface water channels, surface soil and depending upon the quantity of wastewater generated, it has a potential to contaminate the ground water aquifers.	Wastewater generation during construction phase shall be reused again for material making for construction phase and sprinkling of dust on soil. Domestic wastewater will not be there at the site because at site works will use surrounding washrooms like of Masjid etc.
7.	Accidental Spills	
	Accidental spills of oil, fuel and lubricants can cause surface water contamination and surface soil contamination. It may also lead to fire hazards depending upon the quantity and nature of spills.	Accidental spills shall be avoided by following safe transportation rules which means that the loading and unloading of fuel, oil and any chemicals shall be carried carefully and under skilled supervision of the site in-charge at designated desks. Designated storage areas for fuel and oil storage for the excess fuel for generators shall be identified. The areas for storage of fuel shall be paved to avoid ground water contamination and/or soil contamination. No fire/ignitable materials shall be taken near and/or close to the fuels/oil to avoid fire incidents.
8.	Equipment Breakdown / Accidents	
	Accidents and/or emergency breakdown of the equipment/machineries/vehicles involved may create environmental, health	This situation can be avoided by regular maintenance of the vehicles for quality assurance. Besides, equipment will be



	and safety hazards.	checked prior to operation to avoid accidents and human health danger due to such accidents.
9.	Soil Erosion	
	Loss of vegetation cover and trees may lead to soil erosion hence resulting in dust emission and loss of fertile land cover.	The construction activities shall be planned in a way that reduces the chances of vegetation cover loss and its consequent soil erosion issues. Soil erosions are due to wind and water. The proposed project is planned for construction during the coming months after Environmental Approval, which are dry and sunny. Hence, the probability of soil erosion due to natural factor will be negligible to none.
10	Social Impacts	
.	Problems regarding privacy of local community may arise due to invasion of construction workers.	Improper social behaviors e.g. staring and teasing shall be discouraged and any such incident will be reported to the site in-charge, proponents directly. Workers will be hired from the local community to avoid social issues.
11	Training and Awareness	
	Unskilled workers may create issues in attaining the overall health environment and safety policy.	Regular onsite and offsite training of the workers shall be conducted. Impromptu meetings and discussions with the site in-charge and daily wages workers will be done to resolve any issues that may create health safety and environmental problems during construction phase.

5.5 Environmental Problems Associated With Project Operations

Table 5.4 provides a detailed overview of the environmental aspects and subsequent environmental impacts that may arise during project operational phase. Appropriate mitigation measures are also proposed for the remedy of any such potential impacts.

Table 5.4: Environmental Impacts/Mitigation Measures during Operational Phase

	POTENTIAL IMPACTS	MITIGATION MEASURES
1.	<u>Solid Waste Management</u>	
	Improper and unplanned solid waste dumping can cause environment, health and safety issues. It also can potentially deteriorate the living quality of the residents besides reducing the aesthetic quality of industrial warehouse.	At the site, only solid waste will be domestic like paper, polythene bags etc. which will be collected by sanitary workers of that area.
2.	<u>Wastewater Disposal</u>	
	Wastewater generated due to domestic/commercial activities will result in the spread of vector borne diseases like dengue, malaria, as well as spread the nuisance of foul smell.	To tackle wastewater septic tank will be constructed. The wastewater will be of domestic nature and of cleaning etc.
3.	<u>Energy Conservation</u>	
	Excessive use of energy will exert more pressure on the already dwindling energy resources of the city/country.	The workers/employees will be encouraged to follow energy conservation strategies developed during operational phase. Machineries and equipment will be kept in good maintained shape to avoid extra fuel consumption.
4.	<u>Noise Generation</u>	
	Noise emissions due to traffic and any activities will create issues to the residents.	Any activity that will lead to noise emission will be restricted to the outside of industrial waste storage warehouse.

		Installation of generators with exceeding PEQS decibels will be discouraged through keeping in canopy and generator will be used only in load shedding hours.
5.	Emergency/Fire Hazards	
	Emergencies e.g. fire incidents may lead to environmental, health and safety issues to the local residents.	Emergency exits in the rooms have already been planned. Firefighting equipment will be provided and adequate trainings will be provided to tackle any situation of fire hazards. Call points at suitable locations will be installed
7.	Training of Staff	
	Unskilled personnel will not be able to tackle environmental, health and safety related situations which may further aggravate any such issues and cause loss of human life and property.	Regular training of the staff will be conducted. Proper monitoring and reporting mechanism will be developed where the team will be responsible to communicate/report any illegal or hazardous situation to the team leader.
8.	Groundwater Consumption	
	The groundwater will be used for domestic at Industrial waste storage Warehouse. Water storage will also be required for emergency response in case of a fire. Prolonged water consumption may in the long run lower/deplete the underground water table. This will be a permanent and moderate negative impact.	An effective 'Water Conservation Plan' will be developed and for domestic purpose water will be gained from ground water Following operational measures will be adopted for water conservation: • It will be made sure that all faucets, circulating pumps etc. do not leak and are in good condition • Any leaking or dripping faucet, pump or toilet will be reported immediately

		to stop leakage • All the utility bills will be kept in a safe place to track the consumption of water; and • Purchase and use of water-saving equipment will be practiced; • An effective residents' training program will be implemented about water conservation.
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5.6 Potential Environmental Enhancement Measures

In order to enhance the environment the following measures will be adopted:

1. Trees will be planted within the premises to beauty the surrounding area.
2. A special budget will be designated for the environmental improvement of the environment on annual basis probably 0.1 million. The administration will be responsible for spending of this budget. The team leader will prepare the inventory of environmental improvement activities and communicate it with the rest of the team for implementation.

5.7 Occupancy

Adequate number of staff will be employed to maintain various facilities and activities related to environment and resource conservation e.g. water supply, electricity and other wastewater management, security, green areas, repair and associated infrastructures etc. some employees to be engaged for the maintenance and repair will also reside within the proposed project.

5.8 Additional Considerations

It is very importance to plan a project after evaluating its cumulative socio-environment and cultural impacts. The project is planned after keeping all the parameters of environment, health and safety for site identification, design, construction phase and operational phase. That's why the cumulative impacts of the project are negligible.

CHAPTER VI

ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

6.0 Background:

The purpose of developing this Environmental Management and Monitoring Plan (EMMP) is to provide a dynamic guideline to the concerned stakeholders to define details of who, what, where and when environmental management and mitigation measures are to be implemented besides providing the contractors and proponents better on-site environmental management control over the life of the project. The scope of this Environmental Management and Monitoring Plan includes the activities during construction as well as operational and eventually a decommission phase of the proposed project. However, to ensure the compatibility of the Environmental Management and Monitoring plan in accordance with the changing socio-cultural, economic and environmental factors, it would be used as a dynamic tool which means that the EMMP would undergo necessary modifications to keep catering to the changing environmental needs of the proposed project.

Table 6.1: Users of this EMMP would include but not be restricted to the following:

Sr. #	EMMP Elements	End Users
1	Background	All stakeholders – internal and external Community groups Approval or consent authority e.g. EPA Punjab
2	Environmental Management	The management and supervisory staff of Industrial Waste Storage Warehouse named as “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura EPA Punjab
3	Implementation	The management and supervisory staff of Industrial Waste Storage Warehouse “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura Community groups, EPA Punjab

4	Monitor and review	The management and supervisory staff of Industrial Waste Storage Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura. and EPA Punjab
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6.1 EMMP Context:

Being an environment conscious and law abiding entity, Industrial Waste Storage Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura has decided to identify, develop and implement an EMMP that identifies the environmental aspects of their project besides providing them a guideline to tackle any environmental issues that may arise in the future. Under the Punjab Environmental Protection Act, 1997 (Amended, 2012), conducting an IEE/EIA prior to commencement of a project is obligatory. This is further reinforced through the IEE/EIA Rules 2000. A more elaborated guideline for Environmental Report Writing further provides a step by step procedure for drafting of an IEE/EIA report. An Environmental Management and Monitoring Plan have been made a compulsory part of the IEE/EIA report under the same guidelines. It is for this reason that Industrial Waste Storage Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura has planned to meet pre-requisite of the Environmental Approval by drafting a meticulously planned EMMP.

6.2 EMMP Objective:

The objectives underlying the EMMP of Industrial Waste Storage Warehouse are:

1. To provide guideline to the management and supervisory staff for conducting their activities in an environmentally responsible manner
2. To mitigate potential risks during operational phase of the project
3. To coordinate with the responsible approval authorities regarding the environmental efforts
4. To identify roles and responsibilities for the implementation of EMMP
5. To meet the regulatory obligation put forth by Punjab Environmental Protection Act, 1997 (Amended 2012)

6.3 Environmental Policy

Industrial Waste Storage Warehouse strives for environmental reverence which is why it has devised its environmental policy stating vision of the company towards environmental conservation. Our policy is:

1. to provide a modern yet sustainable and environmental friendly working condition to its employees
2. conserve natural resources through adopting less waste policy
3. energy conservation through promoting environment friendly plant designs
4. to provide trainings to all employees to meet our environmental objectives

6.4 Environmental Management and Monitoring Plan Structure and Responsibility

Table 6.2: Roles and Responsibilities

Sr. #	Positions	Significance	Stage	Environmental Responsibilities
1	Proponent / Owner	Critical	Construction / Operations	• Oversee Environmental Policy and EMMP • Serve as primary contact to the regulatory authorities • Commit resources to achieve environmental objectives
2	All Employees	Critical	Construction / Operation	• Attend training and understand their roles in the implementation of EMMP • Understand the Environmental Policy / Objectives and act accordingly • Participate in the review of EMMP • Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy
3	Construction	Critical	Construction	• Understand the environmental policy of



	Supervisor			the project • Operate in accordance with the environmental policy • Ensure reducing solid waste generation • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction phase
4	Maintenance Manager	Critical	Construction / Operation	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure health and safety of the workers during construction / operational phase • Provides health, safety and environmental awareness trainings to the staff
5	Administrative Person Deal with Environment Issues	Critical	Operational	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions

				• Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Prepare and maintain accidents/environmental risk records • Timely coordination with the responsible authority
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6.5 Environmental Management Plan for Industrial Waste Storage Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura

Industrial Waste Storage Warehouse believes in sustainable resource management which is why it has developed a comprehensive Environmental Management and Monitoring Plan for its construction as well as operational phase.

Table 6.3: Environmental Management Plan

Sr. #	Environm ental Element	Mitigation Measures to be taken during	
		Construction Phase	Operational Phase
1	Sewage	There will be no wastewater during construction phase. Wastewater of construction will be reused in construction practices like making construction material or sprinkling on dust etc. There would be no wastewater regarding domestic because workers will use surrounding washrooms like of masjid etc.	There would be wastewater only of domestic nature and of cleaning activities. Domestic wastewater will be managed by constructing septic tank.



2	Civil water supply	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.
3	Solid waste	Solid waste from construction phase will be reused in construction making material. Domestic solid waste will be dump at that point from where sanitary workers will collect it.	During operational phase, solid waste will be only domestic and of medical solid waste. The sanitary workers will collect the waste according to their guidelines and will dispose of according to them.
5	Noise	In order to avoid the nuisance of noise the project maintenance manager shall ensure the all vehicles, equipment, machineries used during construction phase are in good working condition. The working hours of the project construction activities shall be limited to day time only i.e. 08 in the morning till 05 in the evening.	There will be no noise issue at the project site because said project is about storage only there will be no manufacturing or any other Industrial activity at the project site.
6	Gaseous emissions and particulate matters / dust generation	The electricity generator to run various construction machineries and equipment will produce gaseous emissions and particulate matters. Therefore, the generators will only during shutdown of power supply from WAPDA grid. Construction	During operational phase, no activity is envisaged to take place which may generate dust of particulate matter of any significance. Under the control of the management all care will be taken to keep the activities environmentally sound and sustainable.



		materials e.g. sand and clay will be transported to the construction site under cover to avoid any fugitive dust.	
7	Traffic related problems	Traffic management will be done to avoid traffic stampede/congestion. Parking on the main roads and/or blocking public accessibility will be discouraged.	Enough space for car parking will be provided to avoid random vehicle parking on roads.
8	Floor sweepings	Floor sweepings will be disposed into the municipal bins allocated along the proposed project site.	Floor sweepings will be collected in bags and disposed of with solid waste which will be ultimately collected by sanitary workers of this area.
9	Trash burning	No trash burning will be allowed in or outside the buildings.	Trash burning will be discouraged within the premises of the project.
10	Dust	The construction materials with potential to create dust issues will be kept under cover. Sprinkling of water will be conducted to avoid dust generation.	The proposed project is planned in such a way to minimize generation of dust. Green belts will be watered to avoid the issues of desertification and soil erosion.
11	Environment quality enhancement measures		Environment quality enhancement measures like flower pots, green belts, planting of trees will be provided around and in the industrial hazardous Waste Storage warehouse. Vegetation on the green belts and decoration lights will be installed to improve the aesthetic quality of the industrial



			Waste Storage warehouse. The proponent also intends to plant trees within the area to give the area a natural look.
12	Staff for environmental management plan	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Special staff will be recruited to implement this Environmental Management Plan on regular basis. Administration will be responsible for establishment of successful implementation of EMMP.

6.6 Environmental Monitoring Plan

Environmental monitoring will be undertaken in accordance with the requirements of the environmental authority (EPA, Punjab) to ensure compliance to the Punjab Environmental Quality Standards (PEQS) as and when required. Proponent has decided to spend 0.1 million PKR annually for sake of Environmental Budget.

Environmental monitoring will include parameters that will be mentioned in the Environmental Approval accorded by the Environmental Protection Agency, Punjab for its construction phase.

BREAKUP OF ENVIRONMENTAL BUDGET

Sr. #	Items	Cost
1	Tree Plantation	50,000/-
2	PPEs	20,000/-
3	1 st Aid Box	20,000/-
4	Safety Signs	10,000
Total		100,000/-
		Per annum

6.7 Institutional Arrangement

Administration under the supervision of the maintenance manager will report directly to the proponent. The administration will consist of skilled personnel with expertise in health, environment and safety issues. Roles and responsibilities for the implementation of EMMP are further explained earlier under the head Roles and Responsibilities.

6.7.1 Reporting

The proponent aims to provide timely, relevant and appropriately presented information to the concerned government authorities, local community surrounding the proposed project site on the environmental, health and safety performance of the project. The commitment would be met by record keeping and presenting it to the concerned authorities as and when required.

6.7.2 Staff Training

Staff training is important parameter that needs to be fulfilled adequately in order to ensure the successful implementation of environmental objectives. Keeping this fact under consideration, industrial Waste Storage warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura will ensure that the employees, contractors and workers receive appropriate environmental awareness training. This will be obtained through a variety of methods including training sessions, formal/informal meetings and discussion and formal presentations. Environmental awareness training would take place at various stages of the persons concerned with the proposed project. This would occur at the induction of any new employee/contractor/workers and will be made a regular on-site feature. Records of training content and attendance will be maintained.

Industrial Waste Storage warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura would require the persons involved during construction as well operational phase to be aware of following responsibilities and equipment, maintenance detail:

1. Their roles and responsibilities (including environmental incident reporting)

2. The environmental impacts (potential and actual) of their activities during construction and operation
3. Natural hazards such as earth quake and floods etc.
4. The potential consequence of poor environmental performance
5. Site emergency plans and their execution procedures

Table 6.4: Persons involved during constructional and operational phase to be aware of following responsibilities and equipment, maintenance detail:

#	Description	Responsibility	Who will be involved	Outcomes
1	Air Quality	Administration	All employees	• Better understanding of the health impacts associated with air pollution • Develop a monitoring and reporting system for air pollution • Third party involvement especially EPA approved labs will be decided under potentially harmful circumstances
2	SWM	Administration	Staff	• The staff will be trained to follow the principles of recycle, reuse, reduce and will be taught to follow solid waste segregation at source • Improved understating regarding health impacts associated with unplanned waste management • A monitoring and reporting system that would enable the supervisor to keep control of all unnecessary scattering



3	Wastewater	Administration	Employees but specific attention to the staff	• Improved understanding of the conservation techniques • Quality assurance through lab analysis if need be found • Overflow control in the drains through continuous cleaning
4	Noise	Administration	All employee	• Monitoring and reporting system for noise related issues if detected • Appropriate measures would be identified and implemented • Guidance to the employee on adopting good practices for noise and any other practice that otherwise could lead to environmental nuisance.
5	Firefighting	Administration	All employee	• Improved understanding of keeping a tab on all potential threats that could lead to fire hazards • Understanding on how to use the firefighting equipment • Understanding regarding emergency exits and use of fire point
6	Landscaping	Administration	Staff	• Improved efforts for maintaining the green belts and tree plantations
7	Accidental Spills	Administration	All staff	• Improved understanding regarding how to react during minor and major spills according to the measures identified

6.8 Environmental Audits and Reviews

Industrial Waste Storage warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura will ensure conducting environmental audits to assess compliance with the conditions set under the environmental legislation and those mentioned by the EPA, Punjab during grant of Environmental Approvals. The objective of the environmental audit and review is to monitor and report both compliance and non-compliance with the statutes, EMMP and the conditions set under Environmental Approval. This would be done for both the construction as well as operational phase of the proposed project under the supervision of the administration.

6.9 Public Consultation

Social survey was held with the surroundings from the project area. They are pro project. They were of the view that the project will bring new income opportunities for the surrounding community ultimately helping in the reduction of poverty in the area to a greater extent. A sample of the questionnaire used for public consultation is attached along as **Annexure**.

Emphasis was placed on community awareness and perception about the proposed project. This was an important component of the entire study as social assessments are complementary part of environmental assessment. By and large, the people of the proposed project area are well aware of the project and can well anticipate the activities that would entail once the project enters its construction and operational phase. All of the respondents who participated in the public consultation process welcomed the proposed project considering it beneficial both economically and socially. According to their point of views, the proposed project would be really beneficial by providing medical facilities. People foresee this project as a positive precursor that would give rise to employment opportunities and small vendor's activities during construction phase. No opposition from the public was confronted for the project.

6.10 Compensation in Money Terms

The said project is situated in almost open/agricultural area where already commercial activities are running. There will be no cutting of flora and no harm to fauna by this



proposed project. There is no any structure or residence which will be damaged by proposed project so there will be no need for money compensation. Proposed project is environment friendly.

6.11 Replacement, Relocation and Rehabilitation

Proposed project will be done on the open plot where there is neither any population nor any structure. So there will be no need for replacement, relocation and rehabilitation of said project. This will come in operational here and will work here in environment friendly manners.

CHAPTER VII

STAKEHOLDERS CONSULTATION

General

Consultation with the stakeholders is a tool for managing two-way communication between the project sponsor and the affected public. Its goal is to improve decision-making and build understanding by actively involving individuals, groups and organizations, which have a stake in the project. This involvement increases project's long-term viability and enhances its benefits to locally affected people and other stakeholders.

In order to evaluate the socioeconomic and environmental impacts, field surveys are extremely essential. In addition to the surveys at the preliminary stage, consultation with the community and their active participation plays a vital role in successful implementation of the project. To identify the different types of stakeholders and ascertain their perceptions about the project were measured. A social impact assessment survey was conducted. Informal group discussions were also held as an additional tool for obtaining feedback from the stakeholders that are being discussed in the following pages.

Objectives of Consultation

Public consultation plays a vital role in studying the effects of the project on the stakeholders and in the successful implementation and execution of the project. Public involvement is a compulsory feature of environmental assessment, which leads to better and more acceptable decision-making. The objective of the consultation with stakeholders is to help verify the environmental and social issues that have been presumed to arise and to identify those which are not known or are unique to the operation of the project.

The important general objectives of the consultation process are:

- Information dissemination, education, and liaison
- Identification of problems and needs
- Collaborative problem solving
- Reaction, comment and feedback on the Project;

- Documenting mitigation measures proposed by the stakeholders

Proponent

The project is “COVALENT METAL CONCERNS (SMC) PVT Limited” located at Bismillah Industrial Estate, Al-Jannat Road 82 Ft, Shair Shah Road, Near Jhaiwala Pull, Barkat Town Nahar, Shahdara, District Sheikhpura and the proponent is Mr. Zohaib Qadir Nasrullah S/o Nasrullah Khan.

The Responsible Authority

The management of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura is the responsible for the impacts of their project.

Table 5.1: Responsibility of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura administration

Sr. #	Positions	Stage	Environmental Responsibilities
1	Proponent / Owner	Operations/stitching	• Oversee Environmental Policy • Serve as primary contact to the regulatory authorities
2	All Employees	Operation/stitching	• Attend training and understand their roles Understand the Environmental Policy / Objectives and act accordingly • Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy
3	Operational Supervisor	Operational /stitching	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing solid waste generation

			• Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction phase
4	Maintenance Manager	Operation /stitching	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during operational phase • Provides health, safety and environmental awareness trainings to the staff
5	Administrative Person Deal with Environment Issues	Operational/stitching	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of workers during operational phase • Receive health, safety and environmental awareness trainings • Timely coordination with the responsible

			authority
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Methodology for consultation

The EIA Team carried out public consultations at various locations within and around the project site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices etc. near the project area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring villagers, drivers etc.
- Appraising the targeted stakeholders initially for the purpose of consultation and working out a schedule for holding regular consultation meetings
- Distribution of questionnaires to obtain opinions and concerns
- Meetings with the stakeholders through the participation of environmental consultants and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Affected and wider community

The stakeholders contacted during the survey belonged to different categories of people as shown in the Table 5.2.

Table 5.2: Categories of Stakeholders Interviewed in the Project Area

Sr. No.	Stakeholder Category
1	Neighbor workers
2	Project workers
3	Potential Distributors

Issues Discussed

Following issues were discussed during the stakeholder consultation:

- Overall activities of the project operational phase
- Possible mitigation measures
- Benefits or implications of the project specifically for the local people

Findings of the Overall Discussion

- After making complete feasibility the site is being used for stitching activities.
- Project increases revenue generation for the Government
- It create employment opportunities
- Local people should be given preference for employment in the project

Majority of people favored the project in a sense that the project overcomes the increasing needs of garments in market.

Socioeconomic Trends around the “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura. Socioeconomic status (SES) is an economic and sociological combined total measure of a person's work and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation.

This chapter includes the information that how the present study has been conducted and what are the results of this socioeconomic survey in the surrounding areas of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura.

Study Population

The target population was comprised of nearby factory area's workers around the project site of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura,

Study Size

Therefore, approximately a total of 20 households of different socio-economic conditions were surveyed and their heads of households were our main respondents.

Study Instrument

Data collection tool was questionnaire; it was a 19- items based semi structured questionnaire.

Sampling Procedure for Questionnaire

Procedure

Before filling the questionnaire respondents were fully assured that their data will not be disclosed. They were told about the purpose of study. They were also told if they have any problem to understand the questions in questionnaire can ask.

Sr. #	Variables	Frequency	Percent (%)
1	Name & Address	-	-
2	Date	-	-
3	Address & CNIC	-	-
4	Age	89 (above 30 years)	89%
5	Education	93 (under matric)	92.8
6	Occupation	96 (Private jobs)	95.9
7	Marital Status	99 (married)	99
8	If married then no. of children	87 (> 4)	86.7
9	Total Family members	90 (< 5)	90
10	Religion	97 (Islam)	96.8
11	No. of earning members in family	88 (< 3)	88
12	Total income	97 (> 25 PKR)	96.3
13	Source of income	99 (Private jobs)	99
14	Experience of Diseases	67 (no disease)	67
15	If Yes, then nature of disease	37	

Statistics Measures

After preparing the questionnaire, field surveys were conducted. The data selected from questionnaire was analyzed by using SPSS version 16. The data collected with the help of questionnaire was analyzed in SPSS to get the descriptions of current study. A part of questionnaire has been adopted from SF-36, a standard question to evaluate physic-social-health status.

Study Areas

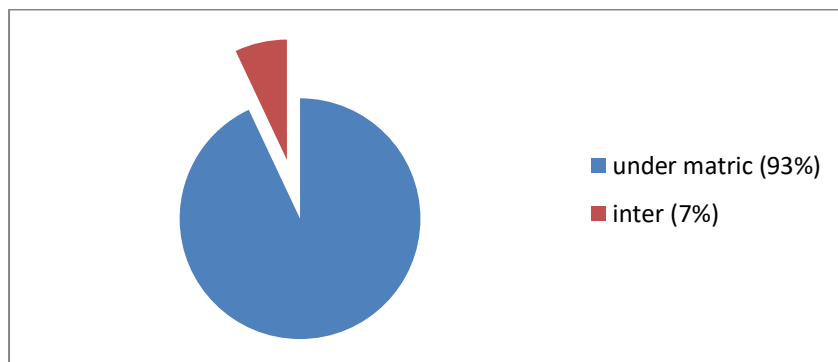
Somehow at surrounding and nearer factory area was visited for socio-economic aspects. Details of these sites are discussed below. These areas were surveyed by team of Ecosphiron (Pvt.) Limited as per requirement of socioeconomic survey for Environmental Impact Assessment (EIA) of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura,

Description of Tables:

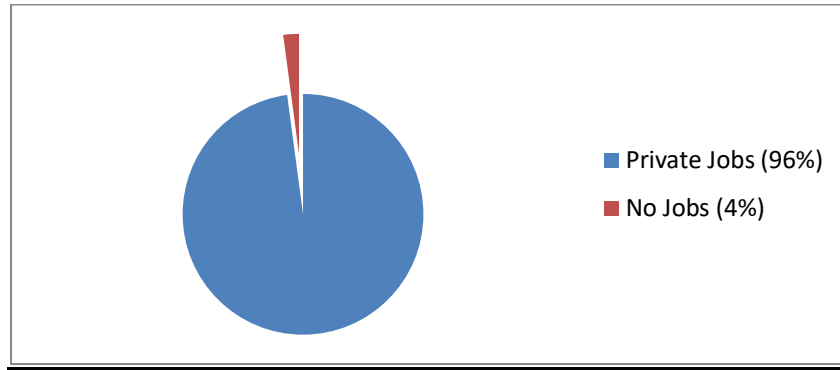
In the following table, only frequency and percentage has been measured (by SPSS) of those parameters which are probably present in maximum quantity.

**Site: “COVALENT METAL CONCERNS (SMC) PVT Limited”,
District Sheikhpura.**

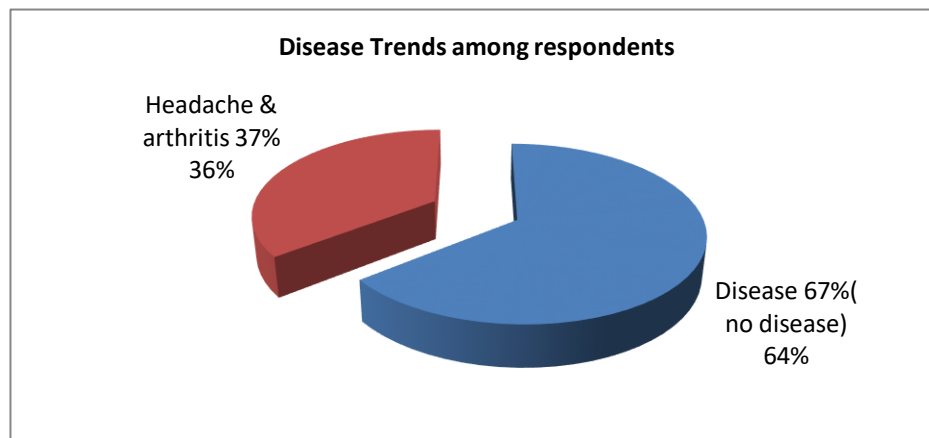
Table: Socioeconomic Questionnaire



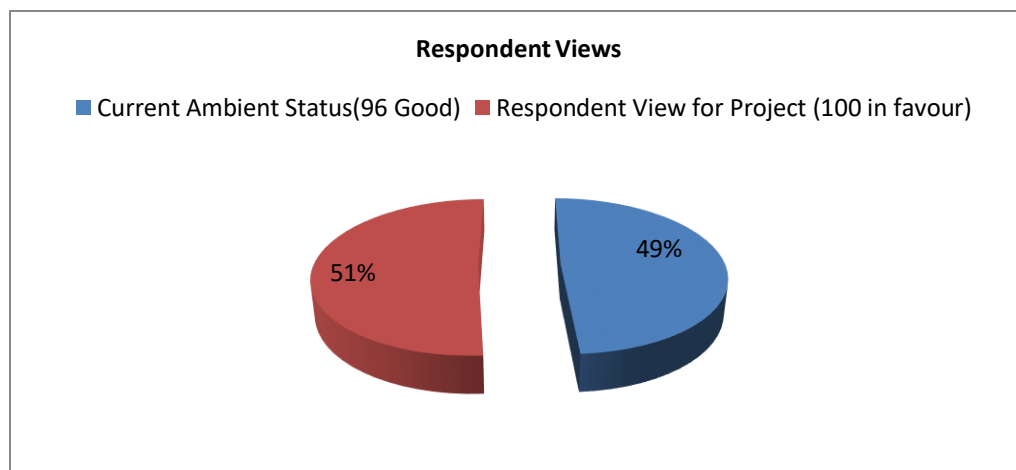
Graphical Presentation of Education around the Project Site



Trends of jobs around the project site



Health Status of Respondents



Respondent View about Project

Stakeholder Concerns and Recommendations

The finding of the community consultation has been addressed in various sections of EIA. Mitigation plan has been incorporated into EMP. The summary of consultation with various stakeholders is given below:

Project Approval

The community consultations demonstrated that goodwill towards the project proponent indeed exists. Approval for project activities by communities was evident. The consultations were considered a good gesture and were appreciated; especially by men and women. The poverty level is such that communities are looking forward to any project proponent to improve their financial well-being to a great extent. Benefit from the project should be distributed judiciously and equitably among the primary stakeholders in the project area, and the proponent will continue to ensure that this principle is followed in this project and community development program.

Local Employment

Communities in the project area emphasized that local inhabitants should be given priority when employing people for related works and activities according to their skills.

Other departments and agencies

Other departments and agencies such nearby schools and other educational institutes were also surveyed during whole consultation process. The suggestions and mitigation measures has been incorporated in the Environmental Management Plan.

Environmental practitioners and experts

Environmental experts were also considered as integral part of this consultation process of “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura. The suggestions and mitigation measures has been incorporated in the Environmental Management Plan. The project is benefited for the local community and it will enhance the employment.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

Title of proposed project is industrial Waste Storage warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura which will start construction immediately after getting environmental approval. The construction work will only take place during day time. The project falls under Schedule-II (List of projects requiring an EIA). The project requires an Environmental Impact Assessment (EIA). In order to ensure compliance with the lawful provision of section 12 of PEPA 1997 (Amended 2012) read with IEE/EIA Regulations 2000, the Environmental Impact Assessment (EIA) has been prepared and is being filed to the Environmental Protection Agency, Lahore for issuance of environmental approval.

Accordingly, this EIA Report describes social, environmental, physical and other relevant aspects of the project during pre-construction, construction and post construction stage and at its regular occupancy. The report also specifies necessary measures to be adopted for mitigation of environmental impact on the environment. It also provides information as desired under the format used for the preparation of this EIA Report.

However, the environmental aspects and impacts associated with construction and operational phase have been considered. All infrastructure e.g., sewerage, water supply, electric supply, gas etc. already exist in the proposed project area. The proposed project will be an environmental friendly site after its completion. Septic tank will be provided in the site premises for the treatment of domestic wastewater. Total solid waste generated from the project will comprise mainly of paper, food waste and domestic solid waste like etc. The project will have its own administration set up for environmental monitoring and maintenance of site both during construction and operation stage. In order to handle fire hazards, fire hydrants and sprinklers will be provided at many locations within the premises.

The baseline study has been conducted reviewing the available literature. The overall impact of the proposed project can be considered positive. However, it may pose some minor and moderate negative social which will be temporary and environmental impacts which will require proper mitigation measures.

Handling and disposal of construction waste, increase in noise level, air quality, traffic disruption and disturbance to people, workers safety, sanitation and solid waste disposal and effects on social life are vital factors during the construction stage that will require necessary mitigation measures which have been proposed in the report of this report. Responsibility for each of the mitigation has also been given in the report.

Construction of the proposed building will be a labor intensive process and will create employment opportunities for the local people. At the operational stage, traffic management, wastewater and solid waste generation, and emergency response are the significant impacts that need to be managed. Mitigation measures and their responsibility for each of the mitigation have been given in the report. Emergency Response Plan will be developed and adequate measures to reduce, reuse and recycle paper waste will be adopted. The proposed mitigation measures will be strictly implemented to save the environment.

For the effective implementation and management of the proposed mitigation measures, an outline Environmental Management and Monitoring Plan (EMMP) has been developed.

The aim of constructing such Industrial Waste Storage Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura is to create an environment friendly design which should be kind to nature, healthy and sympathetic to the life style of its occupants.

- Energy Efficiency
- Water Conservation
- Use of Local Building Materials
- Materials will be used that permit the building membrane to 'breathe'.

7.1 Conclusion

In view of the above it has been concluded that said project which is an industrial warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura is environmentally friendly with sustainable design and has no adverse effects on environment. It is therefore requested to issue the environmental approval

under section 12 of PEPA 1997 (Amended 2012) for the construction and operation of the said project.

7.2 RECOMMENDATIONS

The Environmental Impact Assessment (EIA) study and survey results are finally evaluated to recommend the following:

- The present EIA Report of Industrial Warehouse, “COVALENT METAL CONCERNS (SMC) PVT Limited”, District Sheikhpura meets the administrative and legal framework of the EPA Punjab.
- Implementation of EMP must be given top priority.
- During construction phase Create environmental awareness amongst the workers by training.
- Provide guidance to workers on use of PPEs and also make it compulsory for them to use PPEs during construction.
- Installation of fire extinguishers in the premises.
- Use of equipment with low operating noise levels within PEQS limits and regular monitoring of machines used during construction phase.