

Mapping of  
**Solid Waste  
Management  
Services in Punjab**



**The Urban Unit**  
Planning & Development Board, Punjab





## MESSAGE FROM THE CEO

At the Urban Unit, we believe that data-driven decision-making is the cornerstone of sustainable urban transformation. The “*Mapping of Solid Waste Management Services in Punjab*” report represents a milestone in our commitment to advancing environmental governance and service efficiency.

Solid Waste Management remains a critical challenge in Pakistan’s urban and rural settings. This comprehensive mapping effort, spanning all 147 tehsils, serves as a foundation for better infrastructure planning, equitable resource allocation, and sustainable waste management practices.

Through initiatives like this, the Urban Unit continues to empower government institutions, enhance local governance, and support the transition toward a cleaner, greener, and more resilient Punjab.

We extend our appreciation to our dedicated team, partner organizations, and the Government of Punjab for their continued trust and collaboration. Together, we move forward to create livable, sustainable, and inclusive cities for all.

**Muhammad Omar Masud**  
*Chief Executive Officer*  
**The Urban Unit**

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We acknowledge the dedicated efforts of our technical team, field surveyors, and divisional partners who made this extensive data collection and mapping exercise possible across 147 tehsils of Punjab.

Special thanks are due to the Local Government & Community Development Department (LG&CD), Waste Management Companies (WMCs), and Municipal Committees (MCs) for their cooperation, transparency, and valuable contributions of data.

Finally, we appreciate the commitment of the Urban Unit Management for fostering innovation in evidence-based urban policy, promoting sustainability, and enhancing Punjab’s capacity for data-driven environmental governance.

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## EXECUTIVE SUMMARY

The Mapping of Solid Waste Management (SWM) Services in Punjab marks the first step in the 2024–2025 Operational Development Plan (ODP), laying the foundation for evidence-based decision-making in one of the province’s most pressing public service challenges. With Punjab’s population projected to reach nearly 135 million in 2025, growing at an annual rate of 2.53%, the province is now generating an estimated 50,301 tons of solid waste per day. This waste burden is highly diverse and spread across vastly different geographies—from the bustling urban centers of Lahore, Multan, Faisalabad, Gujranwala, and Rawalpindi to the more underserved rural areas of Dera Ghazi Khan, Bahawalpur, and Sargodha.

The study aims to map out existing SWM infrastructure and services across all tehsils—urban and rural—of Punjab. It takes stock of current operational, financial, and human resources while documenting conditions of landfills, transfer stations, vehicle fleets, and manpower. The GIS-based mapping tools and field surveys were used to identify the location, condition, and coverage of SWM assets, offering clear visibility into what exists and what is missing. The findings highlight that urban-rural disparity has decreased with the provision of resources under the Suthera Punjab Program (SPP), however, larger cities benefit from mechanized fleets and structured waste systems under daily waste collection, while the service provision in many smaller towns and rural areas are still based on twice/ thrice waste collection services based on socio-economic strata of tehsils.

Government of Punjab has ramped up efforts under its flagship “Suthra Punjab” initiative, allocating Rs. 150 billion for FY 2025–26 to upgrade waste services. A notable shift is the transition of SWM responsibilities from district-level bodies to divisional Waste Management Companies (WMCs), including the establishment of new setups in Sahiwal and Sargodha. These companies have now outsourced waste collection and disposal services to private contractors, a move expected to professionalize and scale up collection, transportation, and disposal, except in Lahore and Rawalpindi, where primary collection remains under WMCs purview.

This assets mapping report provides clear direction for improving solid waste management across Punjab. It goes beyond documenting existing conditions and offers practical recommendations such as infrastructure investment, capacity building, digital monitoring, and community engagement to address the urban-rural service gap. Punjab has great potential to transform its waste management challenges into opportunities for environmental protection, economic growth, and improved public health.

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## LIST OF ACRONYMS

ADB	Asian Development Bank
AM	Additional Manager
AVG	Average
BS	Basic Scale
BWMC	Bahawalpur Waste Management Company
CE	Collection Efficiency
CEO	Chief Executive Officer
DGKWMC	Dera Ghazi Khan Waste Management Company
DPO	District Police Officer
EPA	Environmental Protection Agency
E-Waste	Electronic Waste
FWMC	Faisalabad Waste Management Company
GWMC	Gujranwala Waste Management Company
HR	Human Resources
IT/MIS	Information Technology/Manager of Information Systems
L/D	Liters Per Day
LWMC	Lahore Waste Management Company
LG&CD	Local Government and Community Development
MC	Municipal Committee
MRF	Material Recovery Facility
MS	Mechanical Sweeping
MWMC	Multan Waste Management Company
ODP	Operational Development Plan
RPO	Regional Police Officer
RWMC	Rawalpindi Waste Management Company

## LIST OF ACRONYMS

SAMAA	Services and Asset Management Agreement
SSWMC	Sahiwal Solid Waste Management Company
SWM	Solid Waste Management
SWMC	Sialkot Waste Management Company
SWMC	Sargodha Waste Management Company
T/D	Tons Per Day
WCE	Waste Collection Efficiency
WG	Waste Generation
WTE	Waste to Energy

## 1 CHAPTER: PROJECT BRIEF

### 1.1 Project Background

Solid waste management (SWM) remains a significant challenge across urban and rural areas globally, and Pakistan's Punjab province is no exception. As the country's most populous province, Punjab is home to approximately 127.68 million people, with a population growth rate of 2.53% recorded between 2017 and 2023. If this growth trend continues, the population is projected to double by 2050. As of 2025, Punjab's total projected population stands at 134,477,810, based on a population growth rate of 2.53% as recorded in the 2023 census of Pakistan. This growing population, with varying levels of urbanization, generates approximately 50,301 tons of solid waste daily. This figure is derived using waste generation rates of 0.45 kg per capita per day in urban areas and 0.32 kg per capita per day in rural regions. Municipalities across Punjab face persistent issues, including limited financial resources, insufficient management capacity, and outdated/inadequate waste collection and disposal systems. The lack of an efficient solid waste management system not only contributes to environmental degradation but also poses serious health risks and negatively impacts the overall quality of life for residents. The challenges presented in the context of solid waste management (SWM) in Pakistan, particularly in Punjab, have profound implications for the region's climate footprint. Historically, solid waste management in Punjab has been marred by inefficiencies, including insufficient waste collection, lack of segregation, outdated disposal methods, and limited recycling initiatives. The absence of a coherent and centralized waste management strategy has led to poor service delivery, environmental degradation, and public health concerns. Rural areas, in particular, suffer from even more limited waste management services, further exacerbating the issue.

Given these challenges, there is a pressing need for a comprehensive mapping of the SWM services across the province. The mapping initiative seeks to provide a detailed inventory of the existing SWM infrastructure, including waste collection points, waste collection & transportation resources, disposal sites, recycling facilities, and solid waste treatment technologies, which enable decision makers to understand the existing systems, allowing for more informed planning and policy development. It enables the identification of areas for improvement, whether in technology, human resources, or process optimization.

### 1.2 Introduction

Punjab is a diverse region, with varying levels of development and unique competitive advantages across different areas. Each region exhibits distinct lifestyles, dietary habits, crop production patterns, and industrial activities, leading to diverse solid waste streams. These variations necessitate specialized plans for waste collection, transportation, treatment, and disposal tailored to the specific needs of each region.

In the last decade, the Punjab Government has prioritized waste management, establishing waste management companies in 10 major cities to improve services and create cleaner, more

sustainable urban environments. In smaller cities and towns, the responsibility for waste management remained with the respective Town Municipal Administrations (TMAs) and Municipal Corporations (MCs). However, no comprehensive study or planning has been conducted for waste management services in rural areas, leaving rural residents without adequate waste management infrastructure and deprived of the benefits of a clean environment. Recently, these 10 solid waste management companies have started working at the divisional level and are now responsible for the provision of solid waste management services in urban and rural areas across Punjab province and through SAAMA agreement all resources from TMA/MC/CDG are shifted to respective solid waste management company (SWMC) operating at divisional level in respective division of Punjab province. Under the Suthra Punjab Programme, last year, SWMC outsourced its collection and transportation services to local contractors. Under this initiative, new collection and transportation resources, human resources, and financial investment are built into this solid waste management system to improve solid waste management services provision across urban and rural areas of Punjab Province. Local contractors are gradually taking charge of their respective tehsils as per their service commencement dates, according to their contract agreement to fulfil contractual obligations.

The study systematically maps waste management services in 147 tehsils (both urban and rural), assesses the availability of current resources and those that will be deployed by the contractor, and inventories greenhouse gas (GHG) emissions associated with the sector. It also explores the potential for emissions reduction through waste diversion and improved landfill management, including landfill gas (LFG) recovery. Ultimately, this study will provide valuable insights that can inform evidence-based decision-making, helping to document the climate impacts of the solid waste management sector and guide future improvements.

### 1.3 Study Objectives

The primary objective of this study is to prepare detailed inventory of urban and rural solid waste management services which helps to evaluate and quantify the climate footprints associated with GHGs emissions from open dump sites/ burning, landfill site, as well as from transportation of solid waste to primary & secondary waste collection points to disposal sites. The following are the sub-objectives of this study:

- Formulation of SWM Inventory including current operational, financial, and human resources, such as existing HR, fleet, infrastructure, such as transfer station, enclosure, workshops, landfill sites, and per capita expense on waste collection.
- SWM sector-related GHG emissions from existing waste collection, transportation, open disposal, and backlog waste-related fire hazard by using EQT-III calculator shared by Institute for Global Environment Strategy (IGES) Japan under the supervision of Japanese experts.
- Proposal for emissions reduction from waste diversion (for treatment such as composting, recycling, etc.) from land filling and potential for landfill methane.

- Determination of solid waste characteristics for each district of Punjab.
- Provide valuable insights for evidence-based decision-making.

#### 1.4 Study Area

This project is a strategic initiative aimed at comprehensively understanding and addressing the social and environmental impact of GHG emissions from this solid waste in the urban and rural areas tehsils across all 41 districts of Punjab, Pakistan. Focusing on critical sectors such as waste management, the project seeks to create detailed maps and assessments. Leveraging advanced Geographic Information System (GIS) technology, these mapping exercises will not only visualize the distribution and infrastructure of solid waste management services but also identify environmental hotspots such as open dump sites, landfills and open burning points.

By collaborating with stakeholders and conducting data-driven assessments, the study aims to inform evidence-based decision-making, foster sustainable management of solid waste, and contribute to achieving the national GHG reduction target as highlighted in the ADB by 2030<sup>1</sup>.

The mapping exercise illustrates the spatial dynamics of SWM services, offering a clear picture of their reach and impact. Additionally, the identification of environmental hotspots will enable targeted interventions and optimizations. Through this study, the goal is to align with regional and national policy frameworks, promoting informed planning, good governance, and enhanced service delivery. Ultimately, this study aspires to contribute to the creation of a more sustainable and environmentally conscious urban landscape in Punjab, Pakistan.

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<sup>1</sup> <https://www.adb.org/sites/default/files/publication/784421/solid-waste-management-pakistan-road-map.pdf>



Figure 1-1. Map of Study Area Showing Divisional, District & Tehsil Headquarters

### 1.5 Study Scope

The scope of the project is comprehensive and targeted towards analysis of the current solid waste management services provided by the concerned waste management companies (WMCs)/TMA/MCs/UCs from generation till disposal, available infrastructure, and GHG reduction potential to mitigate the environmental impact of key municipal services. The key elements of the project's scope include:

#### 1.5.1 GHG Emission Reduction Potential:

In-depth evaluation of the climate footprints associated with various solid waste management services, like diversion of solid waste from landfill in case of Material Recovery Facilities, composting, and methane flaring activities from landfill/ dump sites.

### **1.5.2 Solid Waste Management (SWM) Focus:**

Special emphasis on SWM infrastructure, including mapping of disposal sites, Temporary Collection Points (TCPs), and open heap points. Evaluation of the efficiency and environmental impact of existing waste collection and disposal systems. Leveraging GIS technology for the systematic mapping of sectoral municipal services. Digital representation of on-ground SWM assets, including solid waste management workshops, dump sites, open burning points, existing land-use and road infrastructure.

### **1.5.3 Condition Assessment:**

Systematic assessment of the current condition of solid waste management assets and infrastructure. Identification of areas requiring improvement to enhance the overall effectiveness of service delivery.

### **1.5.4 Stakeholder Consultation:**

Collaboration with relevant stakeholders, including local government bodies, environmental agencies, and community representatives. Ensuring inclusivity and community engagement for informed decision-making.

In essence, the study's scope is designed to provide a holistic understanding of the climate footprints associated with sectoral solid waste management services in all tehsils of Punjab province. It aims to lay the foundation for evidence-based decision-making, sustainable urban development, and climate resilience.

## **1.6 Study Methodology:**

Following methodology is adopted to conduct this study:

### **1.6.1 Primary and Secondary Data Collection:**

Detailed survey for the mapping of solid waste management infrastructure and existing resources will be carried out in all 147 tehsils of Punjab to make the detail inventory which will be helpful to suggest integrated solid waste management practices in future while for physical analysis of solid waste specific tehsils (41 which is around 30% of the total sample 147) However, chemical waste characterization will be carried out specified tehsils and 11 sample for (summer and winter) season was sent to SGS (EPA certified environmental laboratory) hired through bidding process. As mentioned, the sample size is a good representation of all the tehsils across different districts, ensuring a strategic and representative sample. For a collection of the primary data, a detailed questionnaire is designed (attached as Annexure-1(A)) covering all aspects of solid waste service delivery components and resources. 12 Surveyors were hired and trained properly before sending them into the field for data collection purposes. To gauge the public perception and feedback on the service, a solid waste consumer/public perception questionnaire has also been drafted (attached as Annexure1(C) to

assess the public's feedback and their motivation to improve sectoral services in their respective areas/tehsils.

## 1.6.2 Tehsil Sample Size Determination

To determine the sample size for waste characterization to lock the Tehsils for Punjab, the statistical Sample Size (SS) determination formula has been applied, which is explained as follows in Table 1.1;

Table 1-1. Statistical Formulas for Sampling

For infinite sampling size (SS)	$SS = [Z^2 p (1-p)] / C^2$
For finite sampling size (SS)	$SS / [1 + \{(SS - 1) / Pop\}]$

Where,

- *SS stands for Sample size*
- *Z represents the given Z value or Z-score*
- *p is the percentage of the population*
- *C is the Confidence level*
- *Pop denotes the Population*

The Sample Size (SS) is taken by following the statistical parameters as explained in Table 1.2.

Table 1-2. Determination of Sample Size for Waste Characterization

Parameters	Value	Description	Explanation
$Z^2$	1.28	CL (Confidence Level)	80% confidence level is taken
p = (% of Population)	0.5	Standard Deviation (SD)	50% population is taken
Confidence Interval (CI)/ Margin of error	0.08	Margin of error	8% is taken.
<b><math>SS = [Z^2 p (1-p)] / C^2</math></b>			
Sample Size (SS)	0.41		
	0.0064		
Sample Size (SS-A)	64		
<b><math>SS / [1 + \{(SS - 1) / Pop\}]</math></b>			
SS-A	64	Value taken from Previous Sheet (SS-A)	

Population	147	Number of total Tehsils in Punjab
Sample Size as per calculation	44	No. of samples for Waste Characterization Studies
<b>Desired Sample for this study</b>	41	Therefore, 41 districts headquarters of Punjab were selected to conduct waste characterization studies.

### 1.6.3 Stakeholder Consultations

Stakeholder consultations with a good mix of representatives from Waste Management Companies/ MCs/ TMAs/ Union Councils/International and National funding agencies/NGOs/Ministries, local authorities, community representatives to gather insights, perspectives, and feedback on GHGs emission potential of this sector, existing gaps in service delivery, strategies, policies, and priorities.

### 1.6.4 GIS-based MSW Infrastructure Assessment & Mapping

The process of establishing a GIS-based inventory for Municipal Solid Waste (MSW) assets involves the systematic collection of asset attribute data and the spatial mapping of these assets. The stages of this process are outlined as follows:

- Clearly define and categorize the types of assets within the Municipal Solid Waste infrastructure.
- Create comprehensive survey forms to guide the systematic collection of data during the mapping process.
- Utilize GIS technology for the tagging, digitization, and mapping of Municipal Solid Waste (MSW) infrastructure.

A systematic survey was meticulously planned to encompass and geo-tag all MSW infrastructure across all tehsils in Punjab. Engaging a team of SWM surveyors and environmental professionals will ensure comprehensive coverage for geo-tagging and assessing the condition of MSW infrastructure. Initial training was provided to all surveyors to proficiently execute the survey activities. Surveyors utilized GPS devices to geo-tag all MSW infrastructure, capturing pertinent attribute data.

### 1.7 Waste Characterization Study:

Waste characterization (Physical & Chemical) study was conducted as per the aforementioned sample size under the heading of Primary and Secondary Data collection. Physical waste characterization was conducted (for summer & Winter seasons) at the dump site/transfer station/ vehicle load as per the guidelines of UN-Habitat Waste Wise Cities Tool. Quarter Coning method is used to conduct the physical waste characterisation study for a single site, a minimum 2 days are required to conduct this study; due to huge quantum of this study, three

survey teams were formulated to conduct physical waste characterisation study across 41 district headquarters of Punjab and collected 11 samples for chemical waste characterization from divisional headquarters. Each survey team has three members including one supervisor i.e., Research Associate/Analyst of the Urban Unit's solid waste management sector. This comprehensive approach provides valuable insights to understand the physical and chemical characteristics of the solid waste and update the waste characterization details in small, intermediate, and large cities for the first time in the history of solid waste management, as well as provide basis for planning effective waste management systems and understanding their environmental implications.

### **1.7.1 Data Entry and Quality Assurance**

After collection of comprehensive data, data entry activity was performed along with quality assurance of the data to remove outliers and other faults in data entry to perform error-free data analysis.

### **1.7.2 Rapid Assessment of Existing MSW Infrastructure:**

Swift evaluation of the current Municipal Solid Waste (MSW) infrastructure and systems in all tehsils were conducted. This rapid assessment was aimed for provision of initial insights into the state of existing facilities.

### **1.8 Gap Analysis in Existing SWM Service Delivery:**

Based on information gathered from primary and secondary data detailed gap analysis was performed to have a deep insight in current waste management system of urban and rural areas of the tehsils as well as to illustrate the findings of this study for the improvement of service delivery through this sector upgradation

### **1.9 Assessment of GHG Reduction Potential:**

Climate footprints are associated with different waste management practices throughout its lifecycle (from Generation to disposal). Detailed assessment will be carried out to assess the GHG emission reduction potential through waste diversion from disposal sites, recycling activities, upgradation of vehicles and routes, and open burning. Identify areas where improvements in waste management can lead to climate impact mitigation.

### **1.10 Reporting Mechanism:**

Following are the deliverables:

- Asset Mapping of Solid Waste Management Services in Punjab, Report:
- The Solid Waste Characterisation Report (Physical & Chemical)
- GHG Emission Inventory of Solid Waste Sector, Report

Aforementioned deliverables illustrate the current status of solid waste management services, existing gaps, and details on GHG emissions associated with this sector's services. This report

provides recommendations for optimizing waste management systems based on the findings. Propose strategies for reducing climate footprints associated with solid waste management for the Punjab Province. This approach ensures a thorough investigation into the waste management landscape in Punjab, considering diverse urban & rural contexts. The findings will contribute to evidence-based planning and targeted interventions for sustainable waste management and reduced climate footprints.

### 1.11 Study Outcomes:

Effective Solid Waste Management (SWM) is crucial for maintaining public health, environmental sustainability, and enhancing the quality of life. In Punjab, a province with diverse urban and rural settings, addressing the challenges of SWM is imperative for several reasons:

- **Public Health and Environmental Impact:** Inefficient SWM systems can lead to significant public health hazards, including the spread of diseases and pollution. Proper management of solid waste is essential to prevent these risks and ensure a clean and healthy environment. This study will evaluate current SWM practices, identify gaps and inefficiencies, and propose solutions to mitigate adverse health impacts and environmental degradation.
- **Data-Driven Decision Making:** There is a need for comprehensive and up-to-date data to inform policy and decision-making in SWM. By mapping the existing inventory of SWM services and collecting new data, this study aims to provide a solid evidence base for assessing the effectiveness of current practices, identifying areas for improvement, and developing targeted interventions. This will support evidence-based decision-making and enhance the efficiency of SWM systems.
- **Climate Change Resilience:** With increasing concerns about climate change, it is vital to integrate sustainable practices within SWM systems. The project aims to document the climate footprints associated with SWM and make recommendations to reduce these impacts.
- **Economic and Social Benefits:** Transforming the SWM sector into a competitive and efficient system offers numerous benefits. Improved SWM services contribute to a cleaner environment, which enhances the quality of life for residents. Additionally, effective waste management can create economic opportunities through the development of green industries and job creation in the recycling and waste processing sectors.
- **Regional Development:** Addressing SWM challenges in both urban and rural areas of Punjab will contribute to balanced regional development. The study will provide insights into how SWM practices can be adapted to diverse contexts, ensuring that both urban and rural areas benefit from improved waste management services. This will promote equitable development and resource allocation across the province.

This study is paramount as it will provide valuable insights, drive improvements in SWM practices, and contribute to sustainable development goals. By focusing on both urban and rural areas, the project aims to foster a more resilient and efficient SWM system that benefits public health, the environment, and the economy.

## 2 CHAPTER: RAWALPINDI DIVISION

### 2.1 Divisional Profile:

Rawalpindi Division is located in the Punjab province of Pakistan, known for its strategic importance, diverse economy, and rich cultural heritage. It encompasses six districts: Rawalpindi, Attock, Jhelum, Chakwal, Talagang, and Muree. This division is a vibrant blend of urban centres and scenic rural landscapes. Economically, the division thrives on a mix of industries, including defence production, manufacturing, cement, and mineral extraction. Agricultural activities focus on cultivating wheat, barley, and oilseeds, along with fruit orchards in the Pothohar Plateau. Tourism potential is immense, with attractions like Murree, Katas Raj Temples, and the scenic Salt Range drawing visitors. Rawalpindi Division plays a crucial role in the region's development by balancing urbanization, agriculture, and industrial growth while preserving its cultural and historical identity. Therefore, the nature of waste generated from this division is versatile and shows a good blend of organic and inorganic fractions.

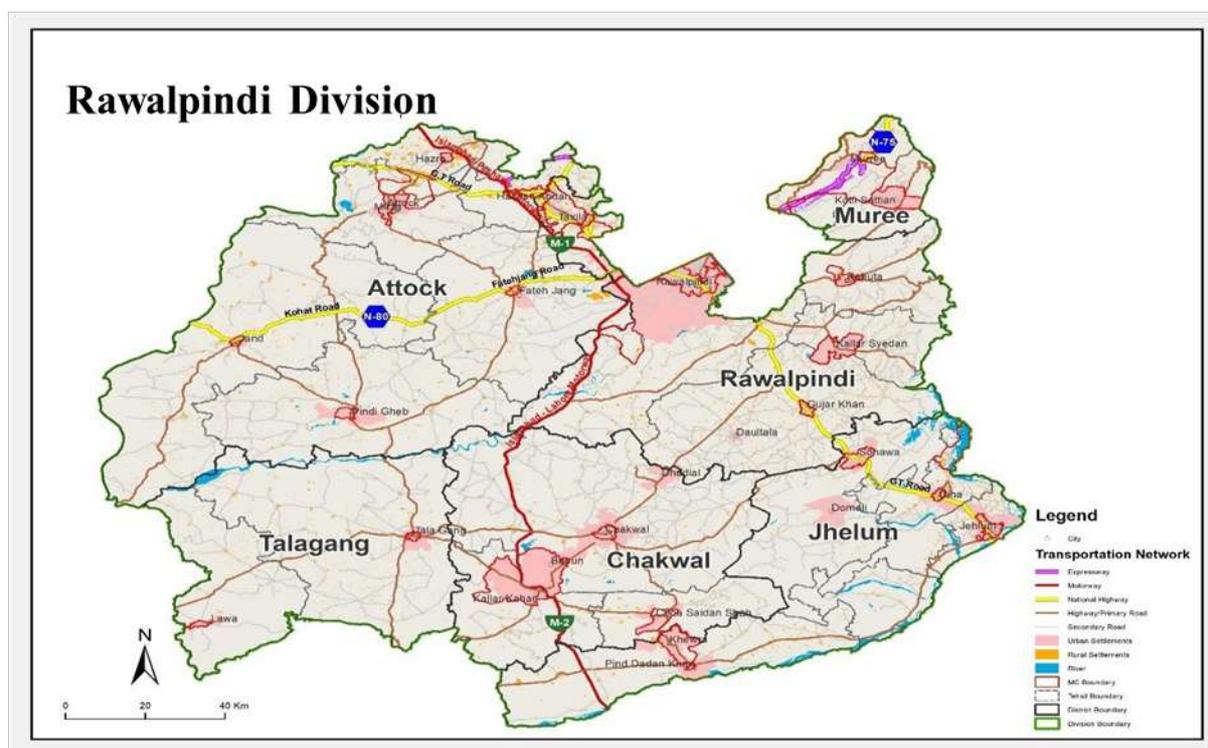


Figure 2-1. SWMC Operational Jurisdiction map of Rawalpindi Division

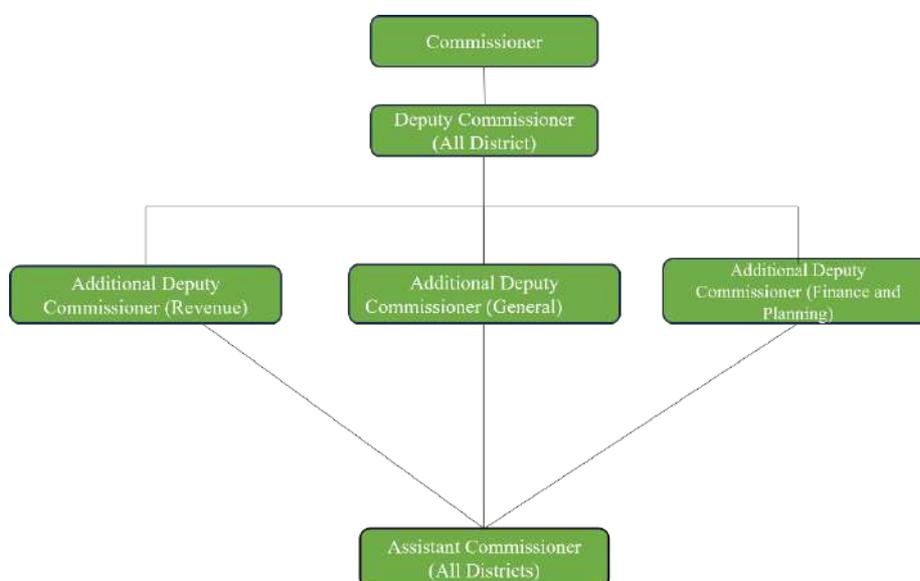
**Table 2-1. Districts of Rawalpindi Division.**

DISTRICTS IN RAWALPINDI DIVISION	
1	Rawalpindi
2	Jhelum
3	Attock
4	Talagang
5	Chakwal
6	Murree

### 2.1.1 Administrative Setup

Rawalpindi Division operates under the administrative framework established by the Government of Punjab, Pakistan. The division is headed by a commissioner, who serves as the chief administrative officer responsible for overseeing governance, development projects, and public service delivery across the division. The Commissioner coordinates with Deputy Commissioners in the six districts: Rawalpindi, Attock, Jhelum, Chakwal, Talagang and Murree, ensuring the effective implementation of government policies and maintaining law and order.

Key administrative functions, including health, education, municipal services, and infrastructure development, are managed by specialized departments and agencies under the supervision of the divisional and district administration. Local government institutions play a significant role in grassroots service delivery and community development, facilitating citizen engagement in governance. This multi-tiered administrative structure ensures a coordinated approach to governance, fostering development, addressing public concerns, and promoting socio-economic progress throughout the Rawalpindi Division.



**Figure 2-2. Administrative setup of Rawalpindi Division.**

## 2.1.2 Population Statistics

According to the 2023 census, Rawalpindi Division has a population growth rate of 2.21%. The division comprises a diverse mix of urban and rural populations across its six districts, each exhibiting distinct demographic trends. Rawalpindi District, the largest in the division, has a projected population of 6.27 million in 2025, with over 4.76 million urban residents and a growth rate of 2.10%, reflecting its heavy urbanization. Attock District, with a growth rate of 2.37%, is largely rural, housing approximately 1.6 million rural residents out of a projected total of 2.28 million. Similarly, Chakwal District, with the highest district growth rate of 2.51%, has a projected population of 1.21 million, predominantly rural. Jhelum District reflects a more balanced demographic, with nearly equal rural and urban populations totalling 1.47 million, and a growth rate of 2.08%. Murree, known for its scenic landscapes, remains predominantly rural, with a 2025 population projection of 462,410. Talagang, the newest district in the division, is also rural-dominated, with a projected population of 629,893, including only a small urban segment. The varying growth rates and urban-rural distributions across these districts underscore the division's dynamic socio-economic landscape.

Table 2-2. Population statistics of Rawalpindi.<sup>2</sup>

Sr. No	DISTRICT	RURAL POPULATION 2025	URBAN POPULATION 2025	TOTAL
1	Rawalpindi	1938120	4799005	6274715
2	Attock	1601167	677261	2278427
3	Chakwal	810062	397320	1207382
4	Jhelum	836407	629881	1466289
5	Murree	424812	37597	462410
6	Talagang	521920	107972	629892

<sup>2</sup> Primary Data Sources LG& CDD

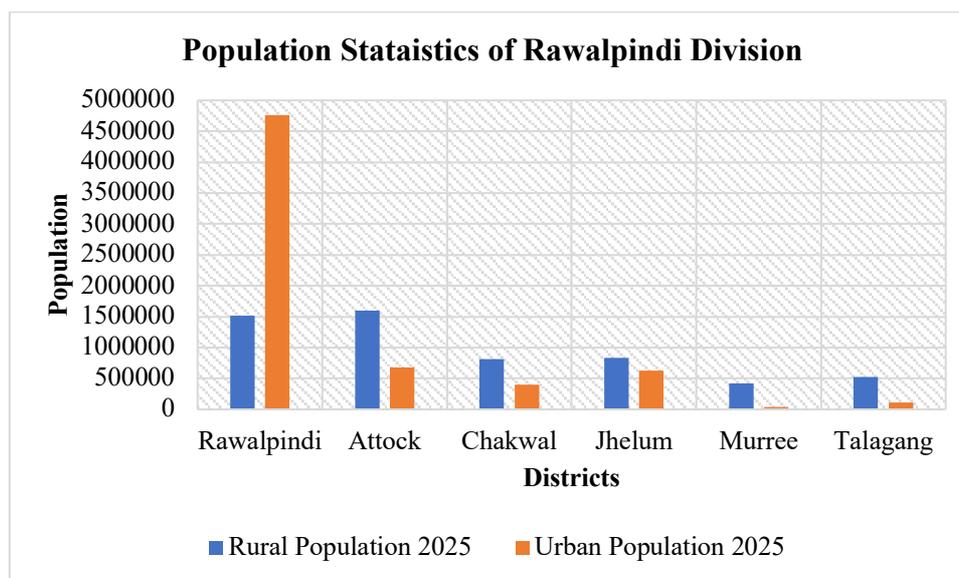


Figure 2-3. Graph of population statistics of Rawalpindi

### 2.1.3 Demography of Rawalpindi

**Rawalpindi**, the largest, spans 4,54,700 hectares with 931,813 households and 37,094 economic entities. **Attock** covers 6,85,7000 hectares with 353,973 households, while **Chakwal and Jhelum** have 187,476 and 229,064 households, respectively. **Murree**, the smallest district, spans 73,800 Hectares, and **Talagang** covers 2,93,200 hectares. The division showcases a balance of urban growth and rural livelihoods, highlighting its economic and cultural importance.

Table 2-3. Demography of Rawalpindi.<sup>3</sup>

Sr. No.	DISTRICT	AREA HECTARES	NO. OF HOUSEHOLDS	NO. OF ECONOMIC ENTITIES HIGH RISE	NO. OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
1	Rawalpindi	4,54,700	931,813	462	87,161	37,094
2	Attock	6,85,700	353,973	36	44,251	44,287
3	Chakwal	3,59,300	187,476	36	25,897	16,537
4	Jhelum	3,58,700	229,064	38	35,626	22,025
5	Murree	73,800	66,187	90	6,666	6,756
6	Talagang	2,93,200	101,362	11	19,626	15,494

<sup>3</sup> [Primary Data source Rawalpindi Waste Management Company](#)

## 2.1.4 Land use area of Rawalpindi Division

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report, is shown in the tabulated form.

Table 2-4. Land use area of Rawalpindi in Hectares<sup>4</sup>.

DISTRICT	REPORTED AREA <sup>5</sup>	CULTIVATED AREA	UN-CULTIVATED AREA	CROPPED AREA
RAWALPINDI	5,28,500	23300	29300	22800
ATTOCK	6,85,700	31900	37400	22900
CHAKWAL	6,52,500	31800	3500	24800
JHELUM	3,58,700	12500	23400	9800
MURREE	-	-	-	-
TALAGANG	-	-	-	-

## 2.1.5 Climatic Conditions of Rawalpindi Division

From 2024 to early 2025, the Rawalpindi Division experienced significant climatic variability, beginning with a 48% increase in monsoon rainfall during July–August 2024, followed by a sharp 42% decline in rainfall from September 2024 to January 2025, leading to mild drought conditions across districts like Rawalpindi, Attock, and Chakwal. This shift, coupled with higher-than-average temperatures, such as a 2°C rise in November 2024, impacted agriculture and water availability, prompting a drought advisory from the Pakistan Meteorological Department.

Table 2-5. Climatic Conditions of Rawalpindi Division<sup>6,7</sup>

DISTRICT	CLIMATE TYPE	KEY OBSERVATIONS
RAWALPINDI	Humid Subtropical (Cwa)	Hot summers with temperatures reaching up to 48.3 °C in June; cool winters with temperatures occasionally dropping to -3.9 °C.
ATTOCK	Semi-Arid	Hot summers with temperatures often exceeding 40 °C; mild winters with temperatures ranging between 5 °C and 15 °C.
CHAKWAL	Semi-Arid	Hot summers with temperatures often rising above 40 °C; cool winters with temperatures falling below 5 °C.
JHELUM	Humid Subtropical	Hot summers with temperatures exceeding 40 °C; mild winters with temperatures around 4 °C.
MURREE	Subtropical Highland	Mild summers with temperatures between 15 °C and 25 °C; cold winters with temperatures often dropping below freezing, accompanied by significant snowfall.
TALAGANG	Semi-Arid	Hot summers with temperatures exceeding 40 °C; cool winters with temperatures around 5 °C.

<sup>4</sup> <https://surl.li/foxysu>

<sup>5</sup> [https://rawalpindidivision.punjab.gov.pk/division\\_profile](https://rawalpindidivision.punjab.gov.pk/division_profile)

<sup>6</sup> <https://www.timeanddate.com/weather/%401166990/climate>

<sup>7</sup> [https://rawalpindidivision.punjab.gov.pk/division\\_climate](https://rawalpindidivision.punjab.gov.pk/division_climate)

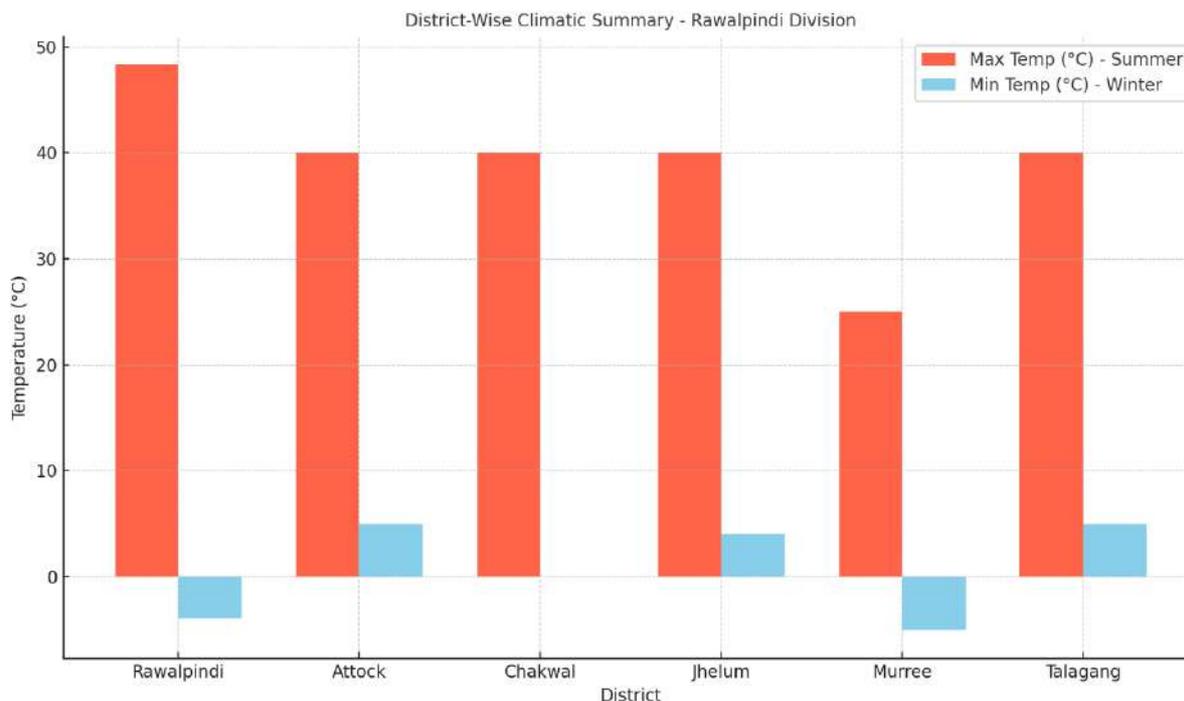


Figure 2-4. Graphical Representation of Rawalpindi Division Climate-District Wise

## 2.2 Asset Mapping of Solid Waste Management Services

### 2.2.1 SWM Administrative setup

The Rawalpindi Waste Management Company (RWMC) operates under the supervision of the local government and community development department (LG&CDD), Government of the Punjab. RWMC was established in 2013 under section 42 of the Companies Act and is responsible for the management of the city’s waste. Last year, all solid waste management companies got the status of operating at the divisional level and were responsible for managing the solid waste of urban and rural areas of the districts under respective divisions. The company's administrative structure includes a Board of Directors responsible for policy formulation and budget oversight, and a Chief Executive Officer (CEO) who manages overall operations. The operations wing handles waste collection, transportation, and disposal, while the administration and human resources departments manage workforce logistics. The public relations/communication team focus on educating citizens about the management of solid waste and to sensitize them about no littering, segregation at source as well as other management practices. Under the Suthra Punjab Program initiative RWMC outsourced waste collection, Transportation, and disposal services to local contractors. It is assumed that with this approach level of solid waste services will be improved across urban and rural areas, focusing on maintaining cleanliness and promoting environmental sustainability.

ORGANIZATIONAL STRUCTURE OF RAWALPINDI WASTE MANAGEMENT COMPANY (CURRENT)

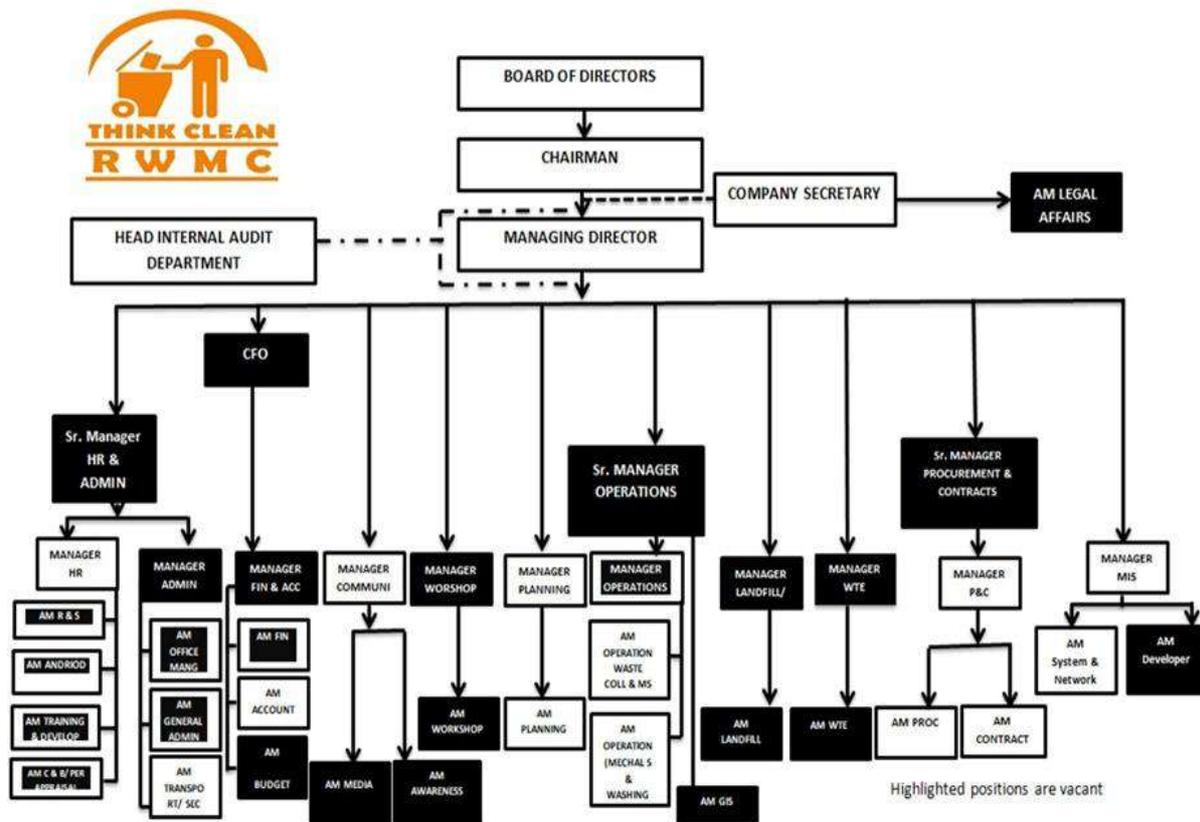


Figure 2-5. Administrative setup of Rawalpindi Waste Management Company.<sup>8</sup>

### 2.2.2 Population and Waste Generation

The Rawalpindi Division generates 4,801 tons of waste daily, with Rawalpindi as its most populous district, which comprises a diverse mix of urban and rural populations, both of which contribute to substantial solid waste generation. According to the 2023 census projections, this growing population, coupled with industrialization and changing lifestyles, has led to a significant increase in municipal, industrial, and agricultural waste across the division. Urban areas, driven by higher population densities and commercial activities, generate waste at an estimated rate of 0.45 kg per capita per day, whereas rural areas contribute at a slightly lower rate of 0.32 kg per capita per day primary data source is Rawalpindi waste management company. Despite producing less waste, rural regions often lack adequate disposal infrastructure, intensifying environmental concerns. This rising waste burden underscores the urgent need for an effective and integrated waste management system, including recycling and sustainable practices. Addressing these challenges demands coordinated efforts from local governments, private waste management entities, and active community participation.

<sup>8</sup> <https://www.rwmc.org.pk/RWMC-files/About-Us?utm>

**Table 2-6. Tabular Representation of Population and Waste Generation of all Tehsils of Rawalpindi Representation Division**

SR. NO	DISTRICT	TEHSILS		POPULATION 2025	WG T/D
1	RAWALPINDI	Rawalpindi City	Urban	3929384	1768
			Rural	268198	86
		Gujar Khan	Urban	137343	62
			Rural	682283	218
		Kallar Syedan	Urban	63366	29
			Rural	188593	60
		Kahuta	Urban	81028	36
			Rural	163242	52
		Taxila	Urban	550287	248
			Rural	210992	68
		Attock	Urban	321908	145
			Rural	227357	73
		Fateh Jung	Urban	86978	39
			Rural	305498	98
Hasan Abdal	Urban	71772	32		
	Rural	195507	63		
2	ATTOCK	Hazro	Urban	65760	30
			Rural	337635	108
Jand	Urban	59240	27		
	Rural	283639	91		
Pindi Gheb	Urban	71602	32		
	Rural	251531	80		
Dina	Urban	116560	52		
	Rural	176245	56		
3	JHELUM	Jhelum	Urban	368610	166
			Rural	178773	57
Pind Dadan Khan	Urban	64866	29		
	Rural	319822	102		
Sohawa	Urban	79845	36		
	Rural	161568	52		
Chakwal	Urban	295130	133		
	Rural	526680	169		
4	CHAKWAL	Choa Saidan Shah	Urban	50171	23
			Rural	128928	41
Kallar Kahar	Urban	52020	23		
	Rural	154453	49		

SR. NO	DISTRICT	TEHSILS	POPULATION 2025	WG T/D
5	TALAGANG	Urban	22637	10
		Rural	132208	42
		Urban	85335	38
		Rural	389712	125
6	MURREE	Urban	13662	6
		Rural	327915	105
		Urban	23935	11
		Rural	96897	31
	<b>TOTAL</b>		<b>12,319,115</b>	<b>4,801</b>

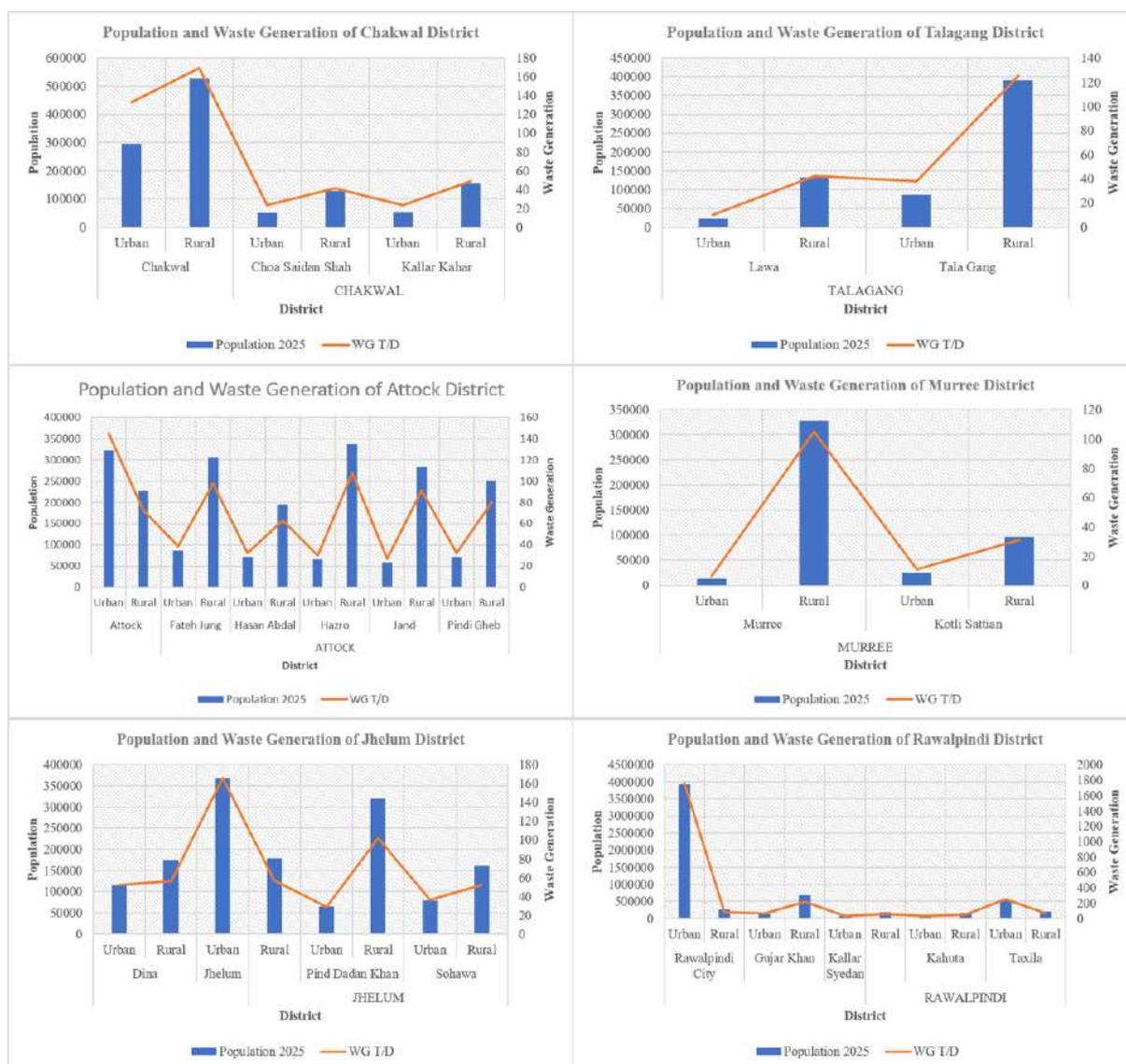


Figure 2-6. Graphical representation of population and Waste Generation of Rawalpindi Division.

### 2.2.3 Waste Composition

Onsite, waste characterization is performed as a part of this project. Among 41 districts of Punjab, a physical waste characterization study is performed in tehsils of divisional headquarters by using the quarter coning method, and 13 samples from district where waste management companies are working (i.e., Gujranwala, Multan, Lahore, DG Khan, Bahawalpur, Sialkot, Faisalabad, Rawalpindi, Sahiwal, Sargodha) were taken for chemical waste analysis (Summer and Winter) of solid waste and were sent to SGS (EPA-certified Laboratory). It will help to depict the seasonal variations in waste generation. A separate report will be published, but here, the results are highlighted. The physical composition shows that major portion of biodegradable waste varies between 48.11 to 54.12%, diapers between 11.21 to 14.71% followed up by plastics which lies between 11.22 to 14.23% other components are mentioned in the table 2-7.

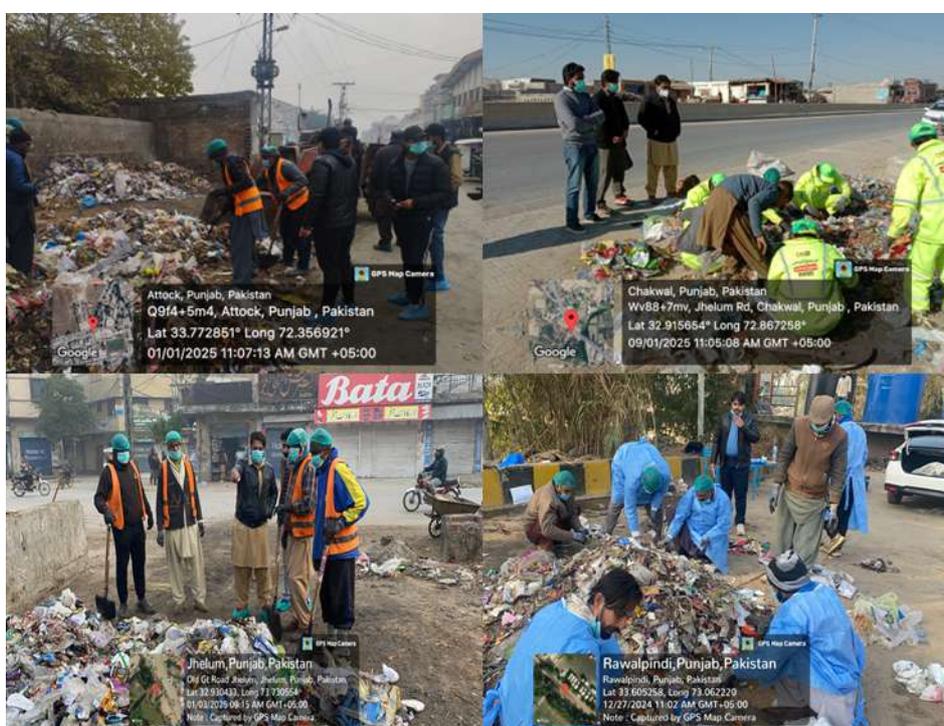


Figure 2-7. Pictorial representation of Waste Characterisation.

Table 2-7. Tabular representation of waste characterisation study.

PHYSICAL WASTE COMPOSITION	DISTRICT WISE COMPOSITION IN %				
	Rawalpindi	Attock	Chakwal	Talagang	Jhelum
COMBUSTIBLES	4.52	3.58	3.98	4.49	3.64
DIAPER	11.31	14.71	13.45	13.35	11.21
ELEC.-ELECTRONIC W.	0.2	0.30	0.04	0.38	0.56
GLASS	1.55	3.21	2.60	1.23	0.61
HAZARDOUS W	0.29	0.00	2.03	0.00	0.06
BIODEGRADABLE W.	52.35	49.88	48.11	50.13	54.12

<b>METALS</b>	0.38	0.50	0.34	0.19	0.06
<b>NON-COMBUSTIBLES</b>	4.37	2.07	1.65	1.93	2.12
<b>PAPER-CARDBOARD</b>	2.17	2.35	3.35	5.37	3.92
<b>PET</b>	1.37	0.88	0.42	0.83	0.80
<b>NYLON</b>	0.74	0.31	0.13	0.43	0.19
<b>PLASTICS</b>	11.22	12.30	11.46	14.23	12.89
<b>TETRAPAK</b>	2.3	2.53	1.67	0.93	0.99
<b>TEXTILE</b>	7.25	6.95	10.49	6.34	8.50
<b>TOTAL</b>	100.00	100.00	100.00	100.00	100.00

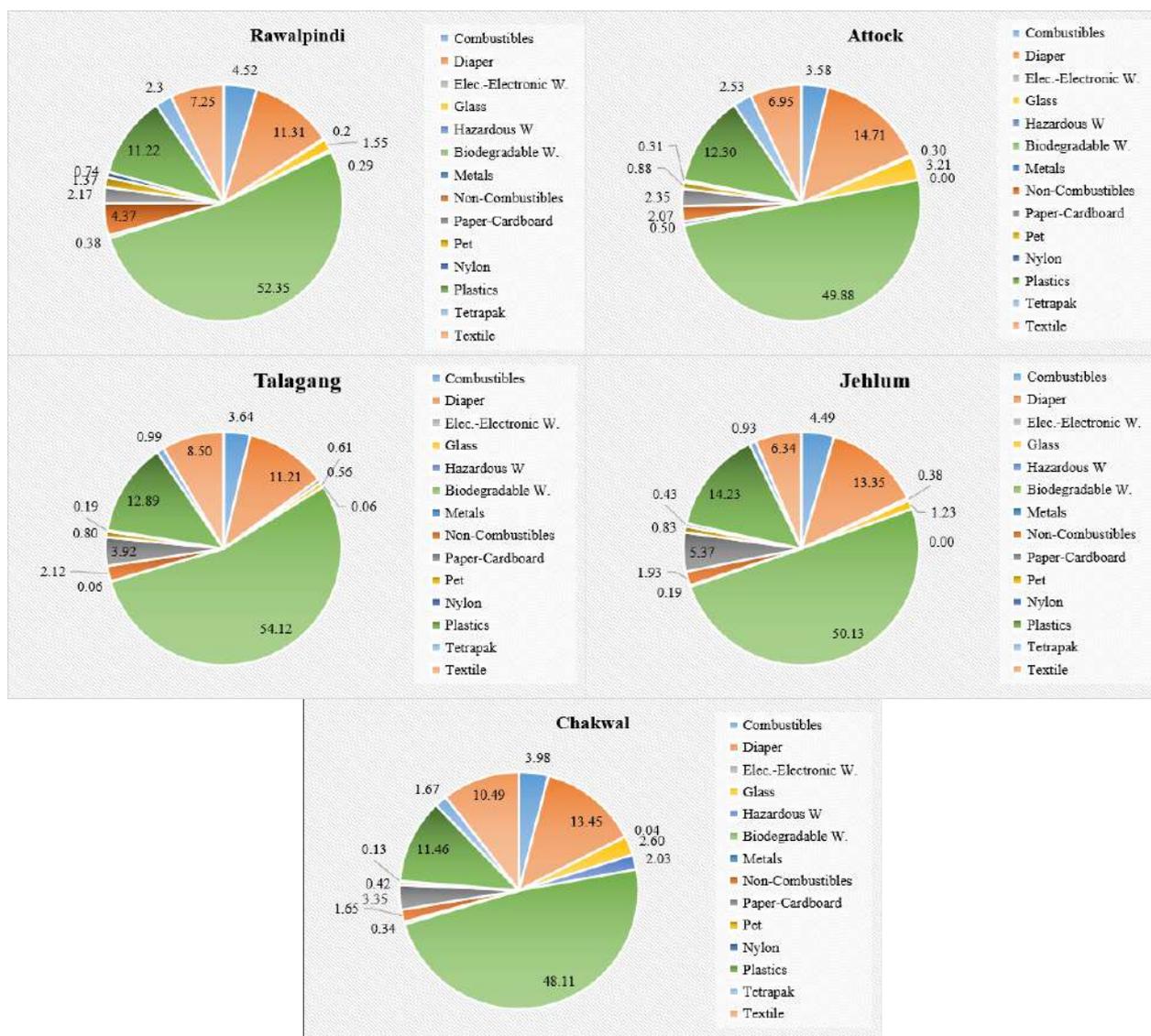


Figure 2-8. Graphical representation of Waste Characterisation study.

## 2.2.4 Primary and Secondary Waste Collection

In the districts of Rawalpindi Division, waste collection faces numerous challenges due to varying levels of urbanization, infrastructure, and public awareness. **Rawalpindi**, being a densely populated urban centre and commercial hub, has door-to-door waste collection services managed by the Rawalpindi Waste Management Company (RWMC). Waste is transported from community bins to transfer stations and eventually to dump sites. However, the high volume of commercial and construction waste presents significant challenges, including illegal dumping and the improper disposal of hazardous materials. **Attock** and **Jhelum** have moderate infrastructure for waste collection and transportation. However, the large rural landscapes and scattered settlements in these districts hinder efficient waste collection and transportation. illegal and uncontrolled waste dumping remains a common issue, especially in areas far from urban centres.

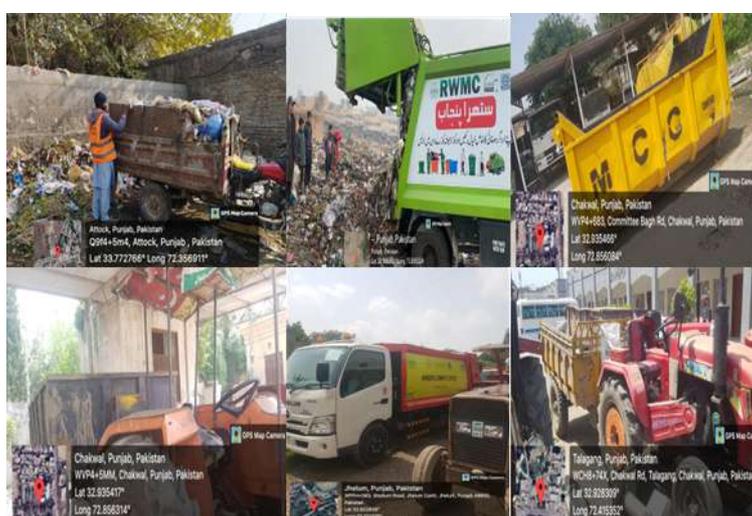


Figure 2-9. Fleet Used for Primary & Secondary Waste Collection

**Chakwal** and **Talagang** face challenges due to rugged terrain and limited road networks. Waste collection services are relatively underdeveloped, with most operations handled by local councils and in transition process of outsourcing SWM services. The process is often slowed by inadequate equipment and poorly optimized routes, leading to delays in waste transportation and disposal. **Murree**, a major tourist destination, experiences a significant surge in waste generation during peak tourist seasons. The hilly terrain and difficult access points make waste collection and transportation more complex. Seasonal waste mismanagement and littering often impact the environmental health of this beautiful area. Waste piles are often seen scattered across rugged, remote mountain landscapes, where access is limited and disposal efforts are minimal, allowing debris to accumulate over time.

Despite these challenges, efforts are underway to improve public awareness, strengthen waste management infrastructure, and promote sustainable waste disposal practices across the

division. Collaboration with private contractors, use of modern equipment, and public education campaigns are integral parts of these initiatives. the division.

Table 2-8. Waste Management Assets of Primary and Secondary Collection (Current Machinery – Available with MC/TMAs/WMC).

DISTRICTS	TEHSIL	LOADER RICKSHAWS	COMPACTOR (7M3)	DUMPERS (5M3)	TRACTOR LOADER	DUMPERS (10M3)	MECHANICA	TRACTOR TROLLEY(2M <sup>3</sup> )	CHAIN ARM ROLL (2.5M <sup>3</sup> )	MINI TIPPER
							L SWEEPER(MS )			
RAWALPINDI	Gujar Khan	8	1	0	1	2	1	1	2	0
	Kallar Syedan	5	1	0	0	1	0	1	1	0
	Kahuta	4	1	0	0	1	0	0	1	0
	Taxila	7	1	0	1	1	0	1	2	0
	Attock	0	0	0	2	2	0	1	2	0
	Hazro	0	0	0	0	1	0	0	2	0
ATTOCK	Hassan Abdal	0	0	2	3	0	0	0	0	0
	Fateh Jang	0	0	0	1	0	0	2	0	0
	Pindi Gheb	0	0	0	1	0	0	3	0	0
	Jand	0	0	0	0	0	1	1	0	1
CHAKWAL	Chakwal	0	0	4	1	0	0	3	0	0
	Sohawa	0	0	0	1	0	0	1	0	0
JHELUM	Dina	0	0	1	1	0	0	0	0	0
	Jhelum	5	4	0	3	0	1	5	0	0
MURREE	Murree	7	3	0	0	0	0	1	0	0
	Kotli Sattian	0	0	0	0	0	0	0	0	0

Table 2-9. Waste Management Assets of Primary and Secondary collection (additional machinery to be inserted in a system under Suthra Punjab Program)

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7 M <sup>3</sup> )	DUMPERS 5M <sup>3</sup>	TRACTOR LOADER	DUMPERS 10M <sup>3</sup>	FRONT END LOADER	MECHANICAL SWEEPER (MS)	DRAIN CLEANER	TRACTOR TROLLEY	CHAIN ARM ROLL	DUMPERS 20M <sup>3</sup>	TRACTOR WATER BOWSER	EXCAVATOR	GULLY SUCKER
RAWALPINDI	Gujar Khan	103	2	10	7	0	0	0	1	11	0	1	4	1	1
	Kallar Syedan	28	0	4	3	0	0	1	1	2	0	1	1	1	1
	Kahuta	29	1	4	3	0	0	1	1	3	0	1	2	1	1
	Taxila	33	0	5	2	0	1	1	1	3	0	1	2	1	1
	Attock	52	5	3	3	1	1	1	2	3	2	1	3	2	1
	Hazro	55	1	6	3	1	1	1	1	4	1	1	2	1	1
ATTOCK	Hassan Abdal	30	1	2	2	1	1	1	1	4	1	1	2	1	1
	Fateh Jang	51	2	6	3	1	1	1	1	4	1	1	2	1	1
	Pindi Gheb	39	1	5	3	1	1	1	1	2	1	1	2	1	1
	Jand	51	1	5	4	1	1	0	1	4	1	1	2	0	1
CHAKWAL	Chakwal	110	3	7	6	1	1	2	2	8	1	1	4	2	1
JHELUM	Sohawa	34	1	4	2	1	1	1	1	3	1	1	1	1	1
	Dina	33	2	3	2	1	1	1	1	4	1	1	2	1	1
	Jhelum	52	0	5	3	1	1	1	2	1	1	1	3	2	1

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7 M <sup>3</sup> )	DUMPERS 5M <sup>3</sup>	TRACTOR LOADER	DUMPERS 10M <sup>3</sup>	FRONT END LOADER	MECHANICAL SWEEPER (MS)	DRAIN CLEANER	TRACTOR TROLLEY	CHAIN ARM ROLL	DUMPERS 20M <sup>3</sup>	TRACTOR WATER BOWZER	EXCAVATOR	GULLY SUCKER
MURREE	Murree	12	1	4	2	1	1	2	2	2	2	1	5	2	1
	Kotli Sattian	22	1	4	2	1	1	1	1	2	1	1	1	1	1

Table 2-10. Current and Additional HR for Rawalpindi Division

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
RAWALPINDI	Gujar Khan	100	485
	Kallar Syedan	50	154
	Kahuta	27	234
	Taxila	48	195
	Attock	150	407
	Hazro	34	258
ATTOCK	Hassan Abdal	37	181
	Fateh Jang	25	291
	Pindi Gheb	24	209
	Jand	23	273
CHAKWAL	Chakwal	85	562
	Sohawa	23	164
JHELUM	Dina	10	236
	Jhelum	119	390
	Murree	35	497
MURREE	Kotli Sattian	0	141



Table 2-11. Dumpsite information

DISTRICTS	NO. OF DUMPSITES	AVG. DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
RAWALPINDI	01	-	-	-	-
ATTOCK	01	-	22320	1974	2045
CHAKWAL	01	55	600	10-12 Y	N/A
JHELUM	01	100+ Tons	1200+ Tons	+20 years	10+ years
MURREE					
TALAGANG	01	10-12 Tons	120-130	50-60	Up to 2025

### 2.2.6 Existing Infrastructure

Field visits and consultative sessions with WMC and the Municipal Corporation were organised to assess the solid waste management (SWM) infrastructure across the Rawalpindi Division. The solid waste management infrastructure in the Rawalpindi Division demonstrates a systematic approach to addressing both urban and rural waste disposal needs. The maps highlight the distribution of key facilities such as TMA and MC offices, vehicle parking areas, and designated dumping sites across all districts. A well-connected transportation network—comprising highways, metalled, and unmetalled roads—supports access to these waste management zones. Urban settlements, shown in pink, indicate the primary sources of waste generation.



Figure 2-11. Existing Infrastructure of RWMC

Districts like Rawalpindi, Jhelum, and Murree exhibit more concentrated infrastructure with multiple operational points and strong connectivity, whereas Talagang and Chakwal feature fewer but clearly defined facilities. Collectively, the division reflects a well-organized system designed to align with population hubs and existing road access.

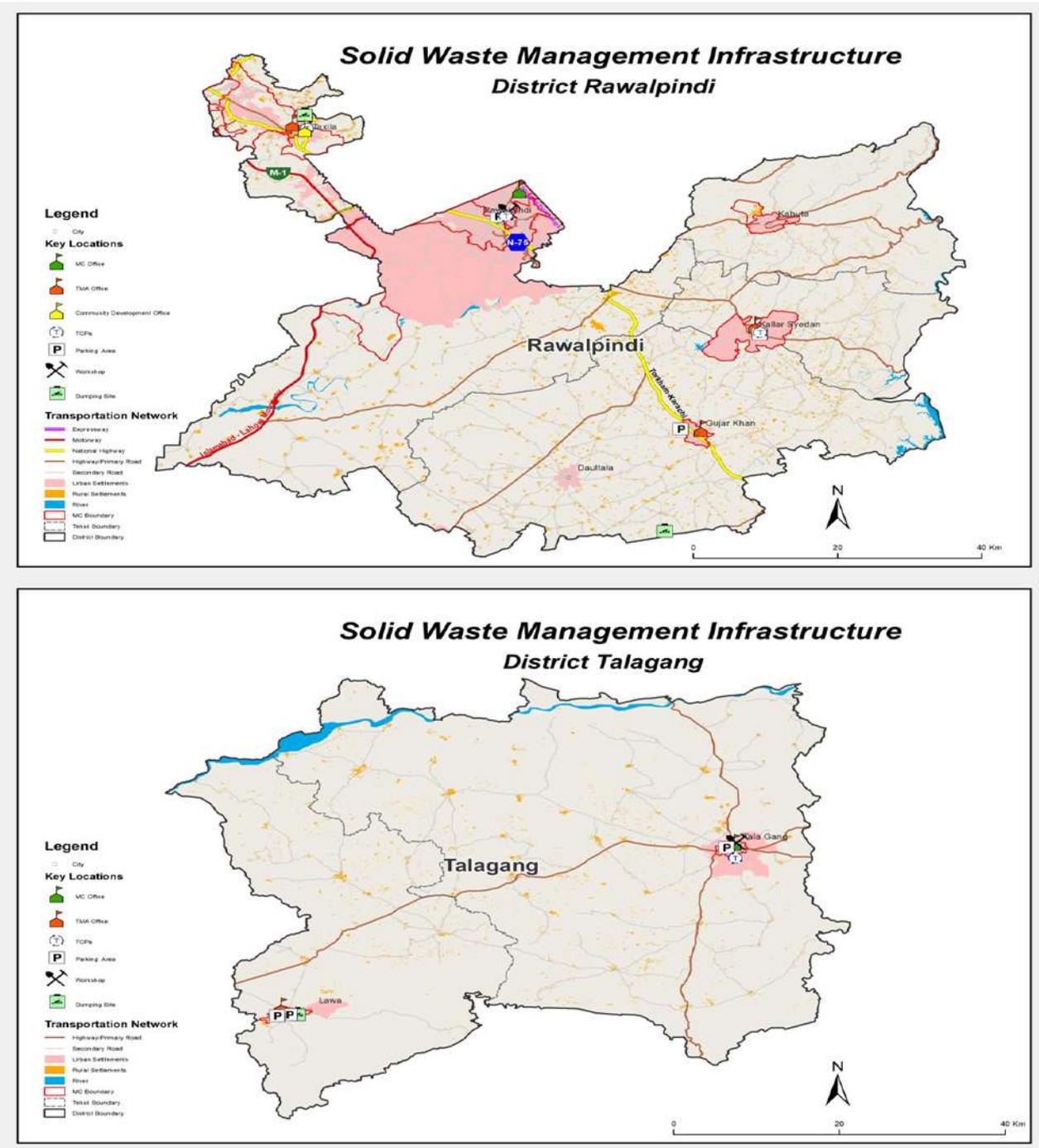


Figure 2-12. Rawalpindi & Talagang District SWM Infrastructure Map

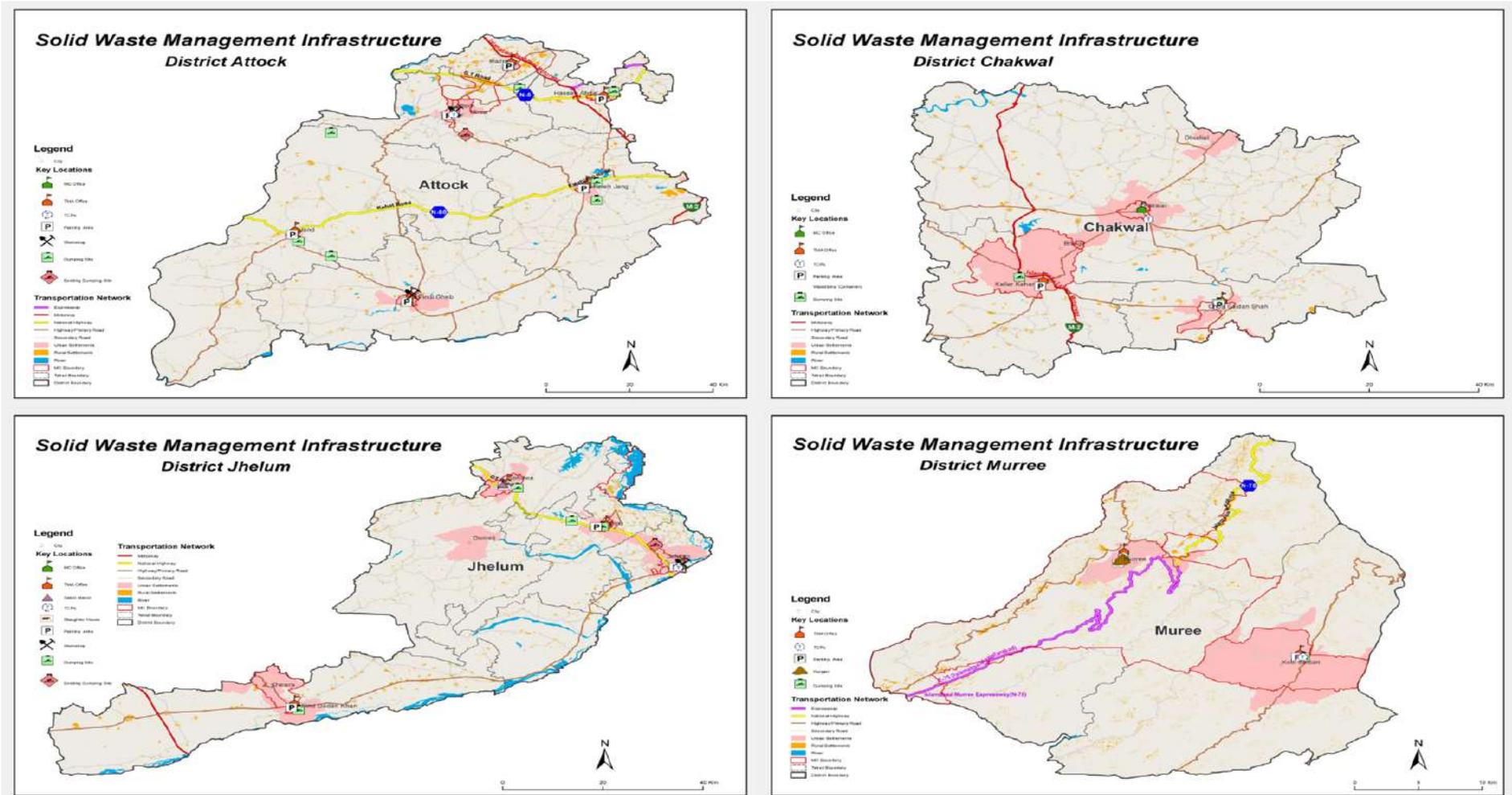


Figure 2-13. District Wise SWM Infrastructure of SWM Infrastructure of Rawalpindi Division

## 2.2.7 Waste Collection Efficiency

The waste management system in Rawalpindi Division operates differently between urban and rural areas due to variations in infrastructure, resource allocation, and population density. Urban centres like Rawalpindi City benefit from relatively better services, while rural areas of districts face challenges due to limited infrastructure and resources. Tabulated below are the collection efficiency calculated at the district level, representing level of collection services in overall district including urban and rural areas of all tehsils within the respective district.

**Table 2-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program**

DISTRICT	COLLECTION EFFICIENCIES					
	Rawalpindi	Attock	Jhelum	Chakwal	Murree	Talagang
TOTAL WASTE COLLECTION (T/D)	1016	122	133	104	75	55
TOTAL WASTE GENERATION (T/D)	2627	817	551	438	153	216
COLLECTION EFFICIENCY (%) BEFORE OUTSOURCING	38	15	19	30	51	30
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>9</sup>					

## 2.2.8 Scavenging Activities

In Rawalpindi Division, the informal waste sector—comprising scavengers, itinerant buyers, and small-scale recyclers—plays a pivotal yet unregulated role in municipal solid waste management. These individuals often collect recyclable materials directly from households, streets, and dumpsites, thereby reducing the volume of waste requiring formal disposal. Despite their contributions, they operate without formal recognition, facing occupational hazards, social stigma, and economic exploitation. Their activities, while alleviating some burden on municipal services, can also lead to inefficiencies and environmental concerns due to the lack of standardized practices. Integrating these informal workers into the formal waste management framework through policy reforms, provision of protective gear, and access to training can enhance overall system efficiency and improve their livelihoods<sup>10</sup>.

<sup>9</sup> Current waste collection efficiency is obtained during discussion with WMC.

<sup>10</sup> <https://www.mdpi.com/2071-1050/13/21/11717/Article-1-Assessing%20the%20Formal%20and%20Informal%20Waste%20Recycling%20Business%20Processes%20through%20a%20Stakeholders%20Lens%20in%20Pakistan,-by>



Figure 2.13. Scavenging activities in Rawalpindi division.

### 2.2.9 Fuel Allocation to SWM Fleet

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management system. It directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle on a Daily Basis.

Table 2-13. Fuel Allocation data of RWMC

SR.NO	DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY-BAU	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY-BAU	DIESEL CONSUMPTION LITRE PER DAY(DUMPSITE)-BAU
1	Rawalpindi	Rawalpindi City	452	1,260	210
		Gujar Khan	26	253	90
		Kallar Syedan	16	153	30
		Kahuta	13	63	30
		Taxila	22	203	60
		<b>Total</b>	<b>529</b>	<b>1,933</b>	<b>420</b>
2	Attock	Attock	-	290	90
		Hazro	-	210	30
		Hassan Abdal	-	120	120
		Fateh Jang	-	210	30
		Pindi Gheb	-	300	30
		Jand	4	110	-
		<b>Total</b>	<b>4</b>	<b>1,240</b>	<b>300</b>
3	Chakwal	Chakwal	-	360	90
		Choa Saidan Shah	-	270	-
		Kallar Kahar and Bhoun	-	90	-
		<b>Total</b>	<b>-</b>	<b>720</b>	<b>90</b>
4	Jhelum	Sohawa	-	120	30
		Dina	-	45	45
		Jhelum	16	640	90

SR.NO	DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY- BAU	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY- BAU	DIESEL CONSUMPTION LITRE PER DAY(DUMPSITE)- BAU
		Pind Dadan Khan and Khewra	8	105	15
		<b>Total</b>	<b>24</b>	<b>910</b>	<b>180</b>
5	Murree	Murree	22	130	-
		Kotli Sattian	3	180	-
		<b>Total</b>	<b>26</b>	<b>310</b>	<b>-</b>
6	Talagang	Talagang	-	390	30
		Lawa	9	90	-
		<b>Total</b>	<b>9</b>	<b>480</b>	<b>30</b>

### 2.2.10 Budget Allocation

The budget allocation for Solid Waste Management (SWM) in the Rawalpindi Division for FY 2024–25 underscores the government's commitment to maintaining and improving waste management services. A total of PKR 11.2 billion has been earmarked under the non-development budget, while PKR 759 million is allocated for development purposes. Of the non-development funds, approximately PKR 7.93 billion is directed toward annual operational and maintenance costs, and around PKR 3.27 billion is reserved for staff salaries, including management and office personnel. Although these figures reflect substantial investment in sustaining SWM functions, the absence of a detailed breakdown of how development and non-development funds will be utilized limits transparency and accountability. For more effective planning and monitoring, it is crucial to define spending priorities within these allocations.

Table 2-14. Divisional Budget Allocation for SWM<sup>11</sup>

FINANCIAL DETAILS FOR THE FY 2024-25	
DEVELOPMENT BUDGET	759,345,570
NON-DEVELOPMENT BUDGET	11,202,247,591
OPERATIONAL & MAINTENANCE COSTS/ YEAR	7,929,827,744
SALARIES OF STAFF IN SWM (MGT.+OFFICE)	3,272,419,847

<sup>11</sup> Primary Data Collection From RWMC

### 2.2.11 Fruit Mandi and Slaughter House

The fruit and vegetable mandi in Rawalpindi city generates approximately 1.2 tons of organic waste per day, with a collection efficiency of 90%. This waste primarily consists of perishable organic matter such as fruit peels, spoiled produce, and vegetable trimmings. The amount of waste produced is directly influenced by the market's size and the number of active stalls, although in this case, the volume is moderate, indicating a relatively smaller market operation.

The slaughterhouse in Rawalpindi city produces around 2.12 tons of waste per day, with a collection efficiency of 100%, indicating a fully managed and contained operation. Approximately 55 animals are slaughtered daily, comprising 15 large animals (such as cows or buffaloes) and 40 small animals (such as goats or sheep). The generated waste includes blood, bones, offal, and other by-products, which are collected and transported through designated waste handling protocols to avoid environmental and health hazards.

**Table 2-15. Fruit & Vegetable, and Slaughter House Details of Rawalpindi Division**

FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Total No	1	Total No.	1
Daily Waste Gen (T/D)	1.2	Daily Waste Gen (T/D)	2.12
Collection Efficiency%	90	Collection Efficiency %	100%
		No. of Animals Slaughtered per day	55
		Quantity of Large & Small animals	15+40

### 2.2.12 Special Events Resource Induction

Special events like Eid al-Adha pose unique challenges for waste management, especially in urban areas. The slaughtering of animals during Eid ul-Adha generates large amounts of organic waste, including animal remains, blood, and offal. This waste can cause serious health, environmental, and aesthetic issues without proper handling. Efficient waste management requires advanced planning, additional resources, and enhanced coordination among municipal authorities, private contractors, and communities.

### 3 CHAPTER: MULTAN DIVISION

#### 3.1 Divisional Profile:

Multan Division is located in the Punjab province of Pakistan, known for its historical significance, agricultural prosperity, and emerging urban development. It encompasses four districts: **Multan, Lodhran, Vehari, and Khanewal**. The division presents a vibrant blend of bustling urban centres and fertile rural landscapes. Economically, the region thrives on agriculture, with major crops including wheat, cotton, sugarcane, and mangoes, earning Multan the title of the "City of Mangoes." The division is also home to an emerging industrial base, particularly in textile and agro-based industries.

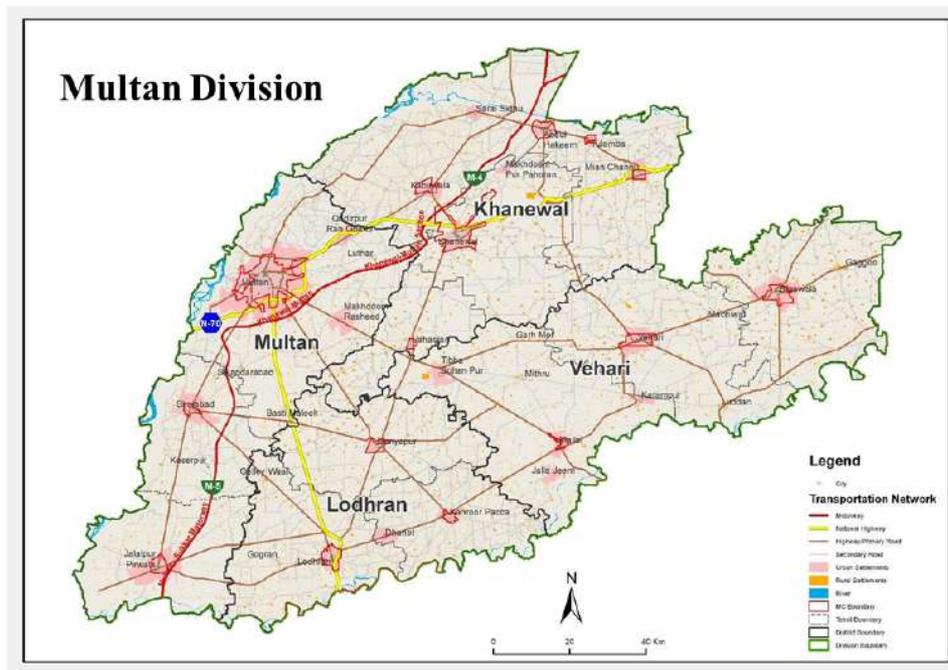


Figure 3-1. SWM Operational Jurisdiction of Multan Division

Tourism potential is substantial, with attractions like the historic shrines of Multan, including those of Shah Rukn-e-Alam and Bahauddin Zakariya, and the lush mango orchards of Khanewal drawing visitors. Efforts to balance agricultural development, industrial expansion, and the preservation of the region's cultural and historical identity make Multan Division a key contributor to the province's economy.

Table 3-1. Districts of Multan Division.

DISTRICTS IN MULTAN DIVISION	
1	Multan
2	Lodhran
3	Vehari
4	Khanewal

### 3.1.1 Administrative Setup

The administrative setup of Multan Division under the Local Government & Community Development (LG&CD) Department follows a hierarchical structure similar to the one shown in the chart. At the top is the Secretary LG&CD, supported by Special Secretaries for Administration and Development. Below them are Additional Secretaries who oversee various functional wings such as Administration, Local Government, Development, Establishment, and Legal. Each Additional Secretary supervises Deputy Secretaries responsible for specific areas like coordination, tax and estate, regulations, legal affairs, finance and budget, development projects, implementation, and establishment matters. These Deputy Secretaries are assisted by Section Officers (SOs), Assistant Directors (ADs), and technical staff like MIS managers, system administrators, and legal officers. In Multan Division, this structure is mirrored at the divisional and district levels, where local government officers implement policies and coordinate with tehsils and union councils under the supervision of divisional LG&CD officials.

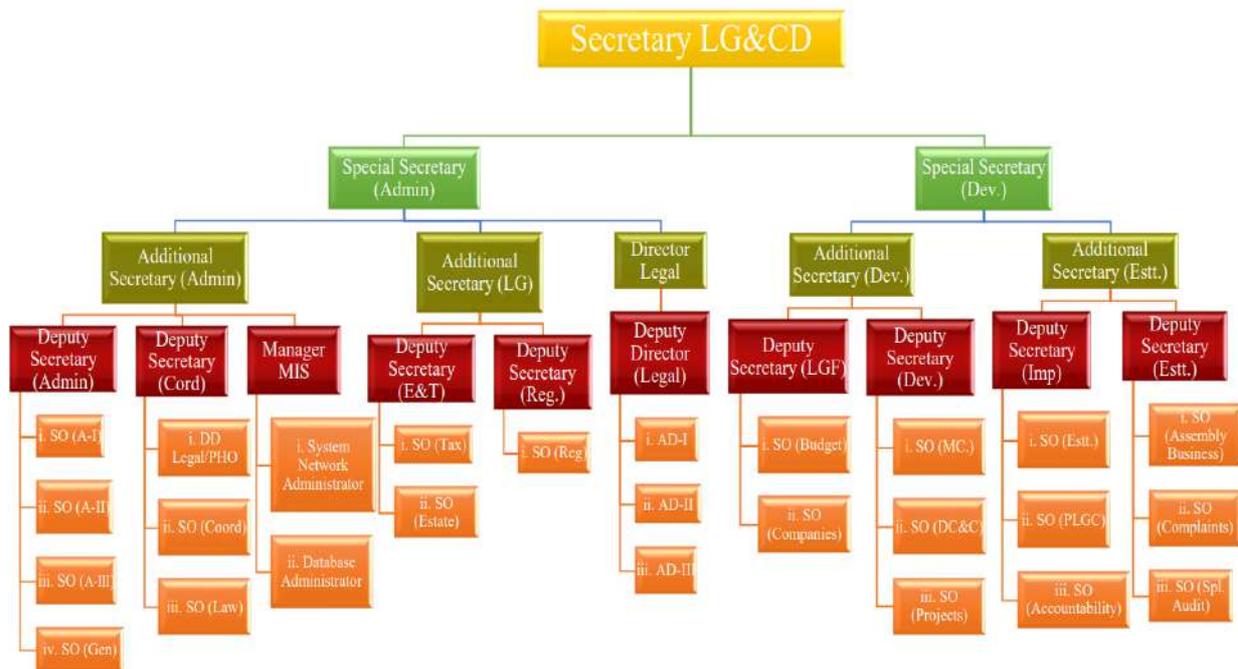


Figure 3-2. Administrative setup of Multan Division<sup>12</sup>.

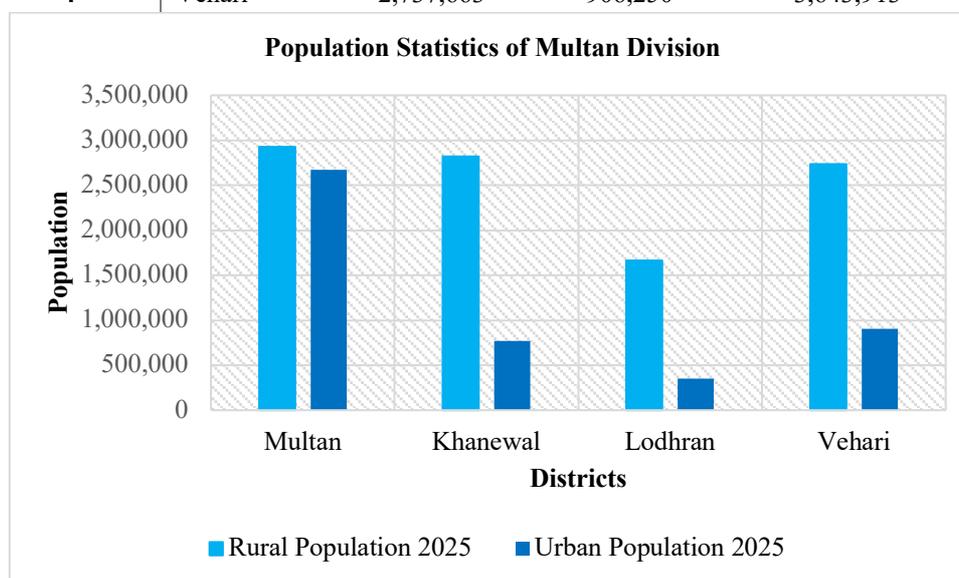
<sup>12</sup> <https://lgcd.punjab.gov.pk/multan-division>

### 3.1.2 Population Statistics

The population of Multan Division and its districts for the year 2025 is projected using the 2023 census data and respective annual growth rates. Multan Division, with an average growth rate of 2.33%, comprises four districts. Multan District, the most populous, holds 5 million residents, split between 2.9 million in rural and 2.6 million in urban areas, growing at 2.06%. Khanewal District, growing at 2.39%, has 3.5 million people, mostly rural (2.8 million). Vehari District, with a higher growth rate of 2.83%, has 3.6 million people—2.65 million rural and 906,250 urban. Lodhran District, primarily rural, shows a population of 2.01 million with a growth rate of 2.13%, although the stated rural population of 2.7 million appears to be a data inconsistency. These growth rates guide future planning and resource allocation for the division.

**Table 3-2. Population statistics of Multan Division.<sup>13</sup>**

SR. NO	DISTRICT	RURAL POPULATION 2025	URBAN POPULATION 2025	TOTAL
1	Multan	2,928,711	2,674,769	5,603,481
2	Khanewal	2,821,336	767,921	3,589,257
3	Lodhran	1,664,571	347,755	2,012,326
4	Vehari	2,737,663	906,250	3,643,913



**Figure 3-3. Graph of population statistics of Multan.**

<sup>13</sup> Primary Data Source Local Government of Punjab

### 3.1.3 Demography of Multan

**Multan**, spans 37,200 hectares with 886,374 households and 117,866 economic entities, including 109 high-rise structures. **Khanewal** covers 4,34,900 hectares with 526,196 households and 98,361 economic entities. **Lodhran**, with an area of 2,77,800 hectares, has 323,866 households and 28,134 economic entities. **Vehari**, the largest by area at 4,36,400 hectares, has 543,036 households and 65,144 economic entities. The division reflects a dynamic blend of urban development and rural livelihoods, driving economic and cultural progress.

Table 3-3. Demography of Multan Division.<sup>14</sup>

Sr. No	District	Area Hectares	No. of Households	No. of Economic Entities High Rise	No. of Economic Entities Normal Structure	Total Economic Entities
1	Multan	37200	886,374	109	158,805	117,866
2	Khanewal	434,900	526,196	16	169,340	98,361
3	Lodhran	277,800	323,866	2	69,124	28,134
4	Vehari	436,400	543,036	14	94,944	65,144

### 3.1.4 Land use area

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report is shown in the tabulated form.

Table 3-4. Land use area of Multan in Hectares<sup>15</sup>.

District	Reported Area	Cultivated Area	Un-Cultivated Area	Cropped Area
MULTAN	37,200	27500	9700	2,3000
KHANEWAL	434,900	31000	124900	27000
LODHRAN	277,800	20000	77800	18500
VEHARI	436,400	33000	106400	29000

### 3.1.5 Climatic Conditions of Multan Division

The Multan Division, comprising Multan, Khanewal, Lodhran, and Vehari districts, experiences a predominantly hot and arid climate, with variations across districts influencing local agriculture and lifestyle.

**Multan** has a desert climate (Köppen BWh), characterized by extremely hot summers and mild winters. The average annual temperature is approximately 25.6 °C (78.1 °F), with June being the hottest month, averaging 35.5 °C (95.9 °F), and January the coldest at 13.2 °C (55.8 °F).

<sup>14</sup> Data Provided by LG&CDD

<sup>15</sup> <https://surl.li/fdxysu>

Annual rainfall is low, around 175 mm (6.9 in), with July being the wettest month (50 mm) and October the driest (2 mm)<sup>16</sup>.

**Khanewal** experiences a subtropical desert climate, with an average annual temperature of 31.79 °C (89.22 °F), which is 10.9% higher than Pakistan’s average. The district receives about 226 mm (9 in) of rainfall annually, predominantly during July and August. Summers are prolonged and extremely hot, with average highs reaching 42.1 °C (107.8 °F), and the hottest day typically occurs around June 26th. Winters are cooler, with average lows of 5.6 °C (42.1 °F)<sup>17</sup>.

**Lodhran** has a semi-arid climate with sweltering, humid summers and short, cool winters. Temperatures range from 44 °F (6.7 °C) to 106 °F (41.1 °C) annually, rarely dropping below 39 °F (3.9 °C) or exceeding 113 °F (45 °C). The average annual rainfall is approximately 205.3 mm (8.1 in), with the majority occurring during the monsoon season from July to September<sup>18</sup>.

**Vehari** experiences a hot and dry climate, with all four major seasons. Summers, extending from April to October, are particularly intense, with temperatures ranging between 28 °C (82.4 °F) and 45 °C (113 °F). Winters are cooler, with temperatures fluctuating between 5 °C (41 °F) and 21 °C (69.8 °F). The monsoon season, from June to September, brings the majority of the annual rainfall<sup>19</sup>.

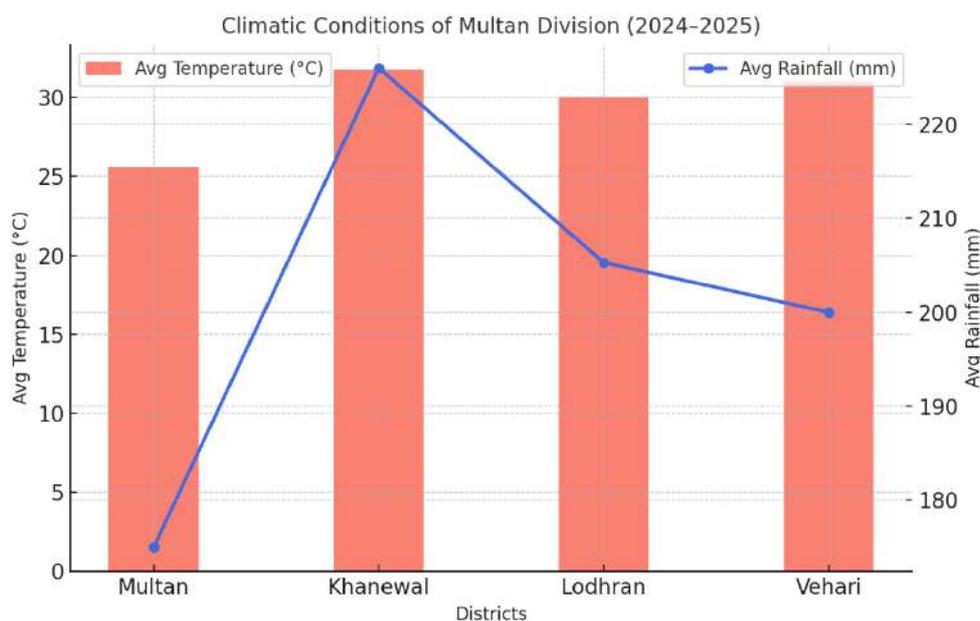


Figure 3-4. Graphical Representation of Climate for Multan Division- District Wise

<sup>16</sup> <https://multan.punjab.gov.pk/climate>

<sup>17</sup> <https://khanewal.punjab.gov.pk/climate>

<sup>18</sup> <https://lodhran.punjab.gov.pk/climate>

<sup>19</sup> <https://vehari.punjab.gov.pk/climate>

Overall, the Multan Division's climate is characterized by high temperatures and low precipitation, with significant seasonal variations that impact agricultural practices and daily life.

## **3.2 Asset Mapping of Solid Waste Management Services**

### **3.2.1 SWM Administrative setup**

The Multan Waste Management Company (MWMC) operates at the divisional level and is responsible for providing solid waste management services to the residents of the urban and rural areas. Under the SAAMA agreement, all human and physical as well as operational resources are shifted to the company from the local government, i.e., TMA/Municipalities. The company's administrative structure includes a Board of Directors responsible for policy development and financial oversight, while a Chief Executive Officer (CEO) manages overall operations.

MWMC outsourced the waste collection and transportation services to local contractors under Suthra Punjab Program initiative. In most of the tehsils under Multan Division contractor has taken up the charge and injected agreed resources as per contract to improve waste collection and transportation services. MWMC's operational team is on the monitoring side of the local contracts to evaluate their performance and services for the provision of efficient waste collection at door step across urban and rural areas. The administration and HR departments manage workforce logistics, while public awareness campaigns educate citizens on waste segregation through their communication department.

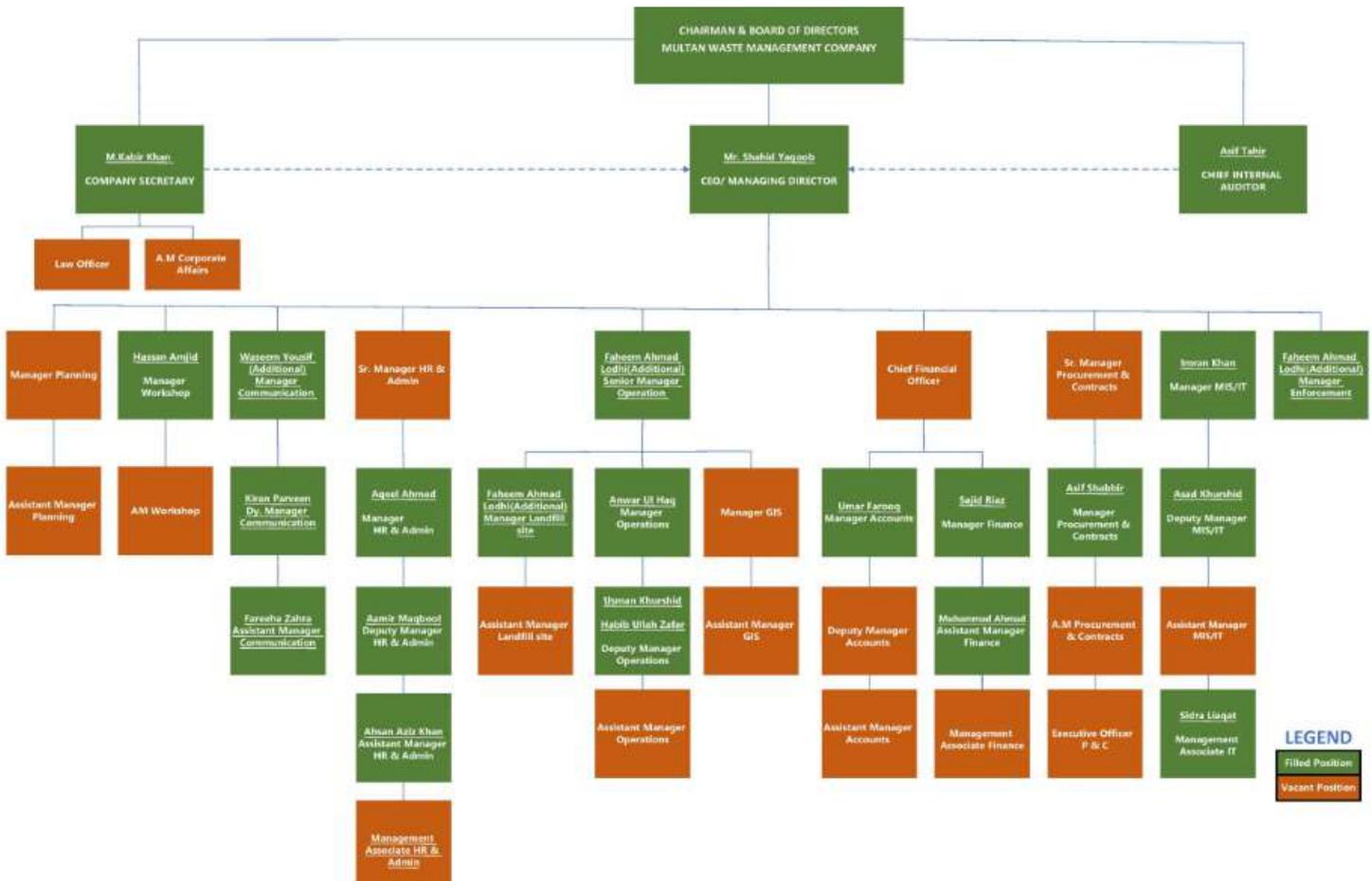


Figure 3-5. Administrative Setup of MWMC<sup>1</sup>

### 3.2.2 Population and Waste Generation

The Multan Division, owing to its large and growing population, generates considerable waste from both urban and rural areas, which generates 5,088 tons of waste daily. Multan city, being the most populous and industrially active district, produces the highest volume of waste, driven by dense residential zones, commercial hubs, and industrial units. In contrast, rural districts such as Khanewal, Lodhran, and Vehari generate comparatively lower amounts of waste; however, they encounter persistent challenges related to inadequate infrastructure for waste collection, transportation, and disposal. Waste generation in the region is closely linked to population growth, industrial development, and changing consumption patterns, resulting in increasing quantities of municipal, agricultural, and industrial waste. For estimation purposes, rural waste generation is considered at 0.32 kilograms per capita per day, while urban waste is estimated at 0.45 kilograms per capita per day primary data source is Multan WMC.. These figures are projected using the 2023 census as the base year. Effective waste management, including improved recycling and pollution control, demands a collaborative approach

involving local governments, private contractors, the Multan Waste Management Company, and active community participation.

**Table 3-5. Tabular Representation of Population and Waste Generation of all Tehsils of Multan Division**

Sr. No	District	Tehsils		POPULATION 2025	WG T/D 2025		
1	MULTAN	Multan City	Urban	2298488	1034		
			Rural	371134	119		
		Multan Saddar	Urban	90828	41		
			Rural	1495860	479		
		Shujabad	Urban	186827	84		
			Rural	531956	170		
		Jalalpur Pirwala	Urban	98626	44		
			Rural	529761	170		
		Khanewal	Urban	325551	146		
			Rural	710044	227		
		2	KHANEWAL	Kabirwala	Urban	191946	86
					Rural	1046526	335
Jahanian	Urban			52773	24		
	Rural			346995	111		
Mian Channu	Urban			197651	89		
	Rural			717771	230		
Dunya Pur	Urban			55885	25		
	Rural			543508	174		
3	LODHRAN			Kahrur Pakka	Urban	137125	62
					Rural	427617	137
		Lodhran	Urban	154745	70		
			Rural	693446	222		
4	VEHARI	Mailsi	Urban	248992	112		
			Rural	939518	301		
		Vehari	Urban	237753	107		
			Rural	936404	300		
		Burewala	Urban	419505	189		
			Rural	861741	276		
<b>TOTAL</b>				<b>14,848,976</b>	<b>5088</b>		

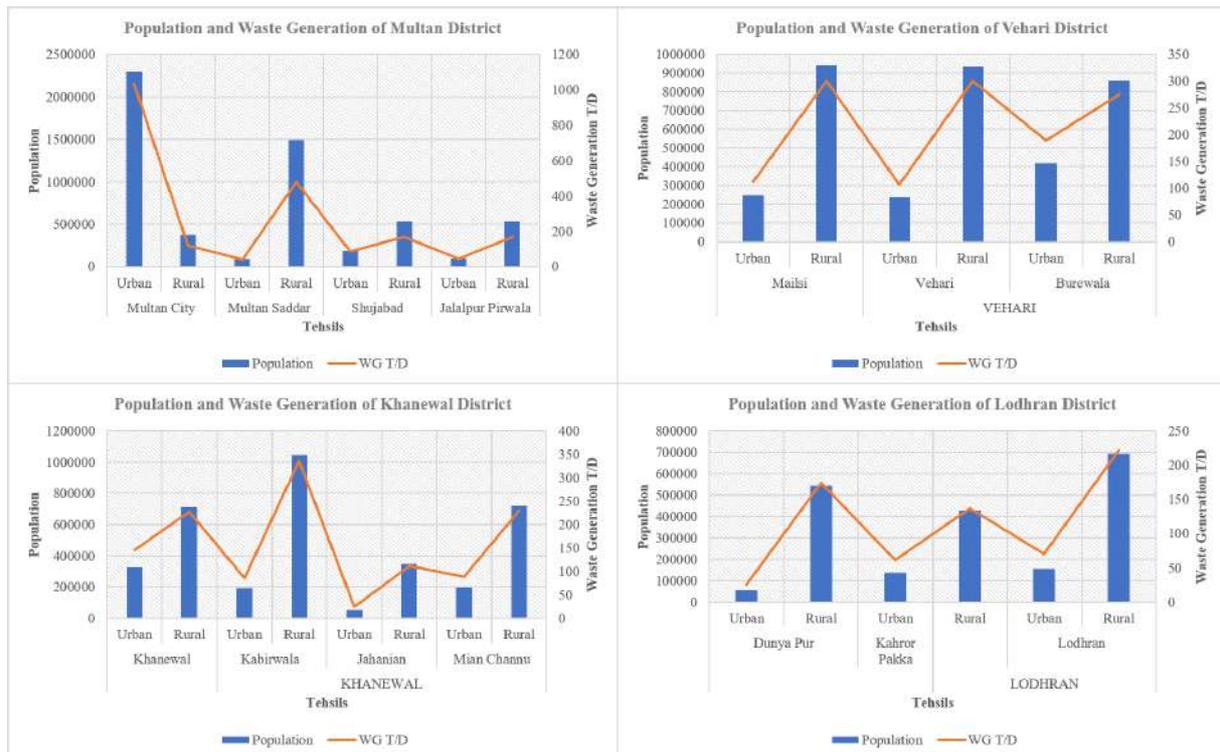


Figure 3-6. Graphical representation of population and Waste Generation of Tehsil- District Wise- Multan Division.

### 3.2.3 Waste Composition

As part of this project, onsite waste characterization was conducted across Punjab. A physical waste characterization study was carried out in the tehsils of divisional headquarters using the quarter coning method. Additionally, 13 samples were collected from tehsils where waste management companies are operational—including Gujranwala, Multan, Lahore, DG Khan, Bahawalpur, Sialkot, Faisalabad, Rawalpindi, Sahiwal, and Sargodha—for chemical analysis of solid waste during both summer and winter seasons. These samples were sent to SGS, an EPA-certified laboratory. In the Multan division, the physical composition revealed that biodegradable waste constituted the largest portion, ranging from 49.11% to 52.03%. Diapers accounted for 13.55% to 18.10%, followed by plastics, which ranged between 7.37% and 15.58%. Other waste components and their respective percentage compositions are detailed in Table 3-6.

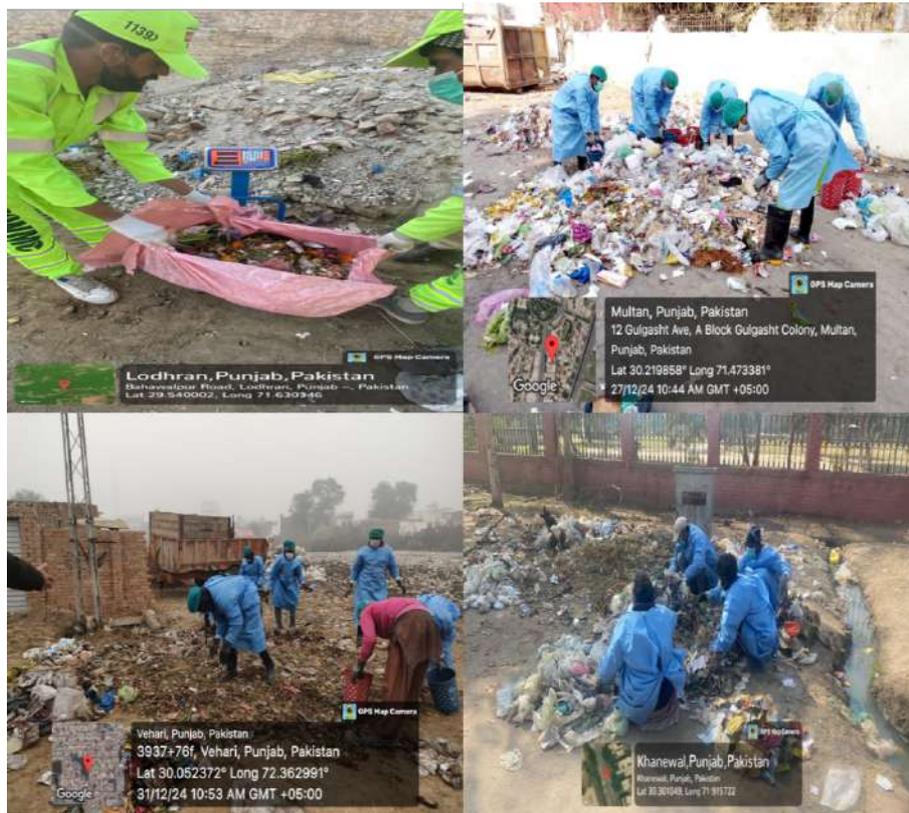


Figure 3-7. Waste Characterisation Study of Multan Division.

Table 3-6. Tabular representation of Waste Characterisation of Multan Division.

PHYSICAL WASTE COMPOSITION	DISTRICT WISE COMPOSITION IN %			
	Multan	Vehari	Khanewal	Lodhnan
COMBUSTIBLES	5.27	5.92	3.46	3.89
DIAPER	18.10	13.55	14.51	14.10
ELEC.-ELECTRONIC W.	0.17	0.02	0.31	0.19
GLASS	0.77	0.77	2.52	2.25
HAZARDOUS W	0.31	0.09	0.00	0.43
BIODEGRADABLE W.	52.03	51.05	49.11	51.83
METALS	0.19	0.01	0.62	0.12
NON-COMBUSTIBLES	3.28	6.48	2.98	2.49
PAPER-CARDBOARD	1.23	0.46	2.09	2.17
PET	0.39	0.02	0.10	0.29
NYLON	0.76	0.15	0.40	0.21
PLASTICS	7.37	15.58	13.53	14.33
TETRAPAK	1.31	0.06	1.47	1.63
TEXTILE	8.83	5.83	8.75	6.13
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

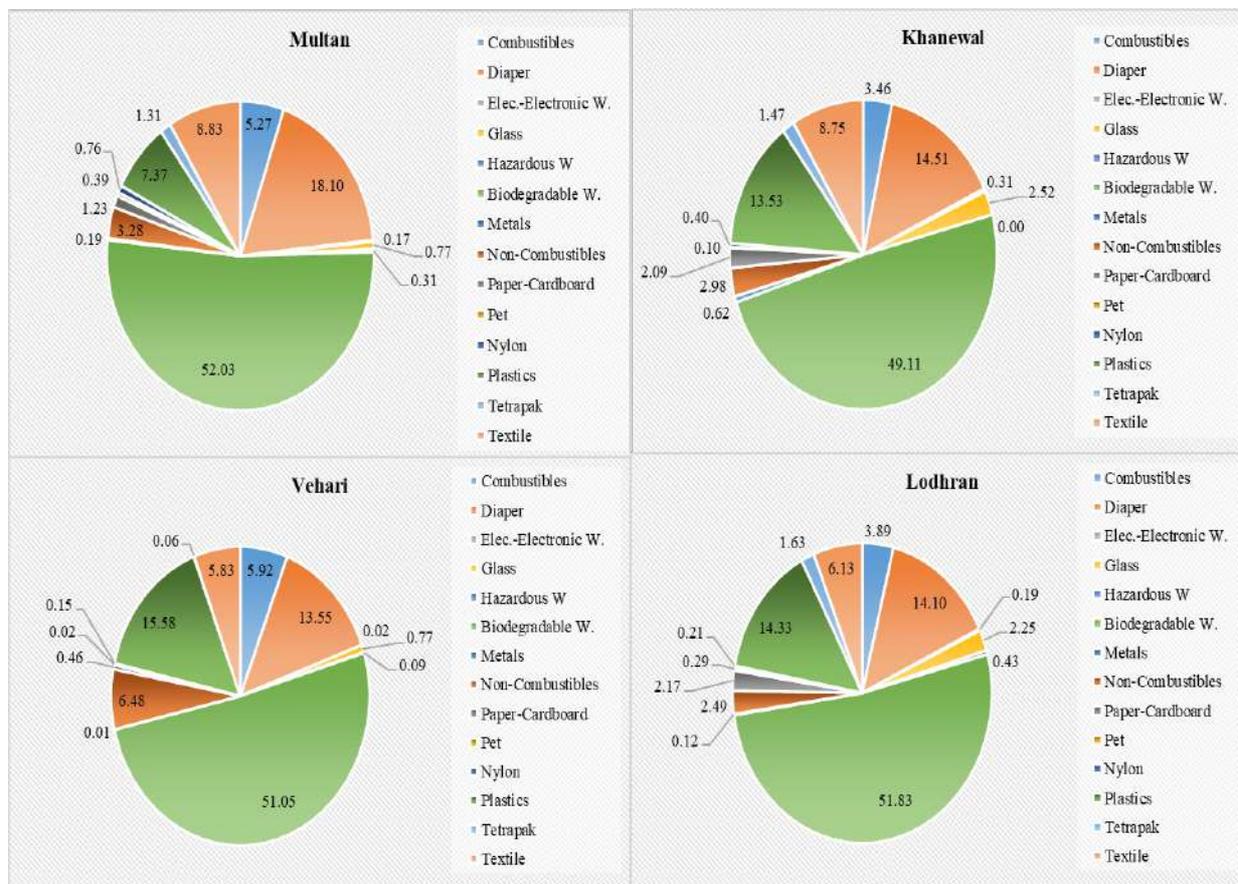


Figure 3-8. Graphical Representation of Waste Characterisation of Multan Division.

### 3.2.4 Primary and Secondary Waste Collection

The waste collection system in Multan Division operates through a two-tier process involving primary and secondary collection. In the primary collection stage, waste is gathered from residential, and commercial areas by sanitation workers using hand carts, wheelbarrows, or small vehicles. This waste is then taken to local collection points or temporary storage areas. In the secondary collection stage, larger vehicles such as trucks or compactors transport the accumulated waste from these collection points to designated disposal sites, such as the one located near Shah Rukne Alaam and Habiba Sail in Multan. The entire process is overseen by municipal authorities and organizations like the Multan Waste Management Company (MWMC), ensuring that waste is systematically removed from the city and managed under public health and environmental standards.

Table 3-7. Waste Management Assets of Primary and Secondary Collection (Current Machinery available with Local Government/WMC).

Districts	Tehsil	Loader Rickshaws	Compactor (7 m3)	Tractor Loader	Dumpers (10m <sup>3</sup> )	Front End Loader	Vacuum Sweeper (VS)	Mechanical Sweeper (MS)	Tractor Trolley(2m <sup>3</sup> )	Chain Arm Roll (2.5 m <sup>3</sup> )
MULTAN	Multan City	189	20	12	10	12	1	9	43	31
	Multan Saddar	2	0	1	0	0	0	0	4	0
	Shujabad	2	0	1	0	0	0	1	2	0
	Jalalpur Pirwala	4	0	1	0	0	0	0	2	0
	Khanewal	6	4	3	0	0	0	1	8	0
KHANEWAL	Kabirwala	5	0	1	0	0	0	0	2	0
	Jahanian	0	0	1	0	0	0	0	1	0
	Mian Channu	47	0	4	0	0	0	0	6	0
LODHRAN	Lodhran	14	4	5	0	0	0	1	10	2
	Dunya Pur	0	0	1	2	0	0	0	3	0
	Karor Pakka	10	0	1	0	0	0	0	3	1
VEHARI	Mailsi	0	0	0	2	1	0	1	0	0
	Burewala	18	4	5	0	0	0	1	10	2
	Vehari	10	3	3	2	0	0	1	5	1

**Table 3-8. Waste Management Assets of Primary and Secondary Collection (Additional Machinery will be Deployed by Local Contractor)**

Districts	Tehsil	Loader Rickshaws	Dumpers (5m <sup>3</sup> )	Tractor Loader	Dumpers (10m <sup>3</sup> )	Front End Loader	Mechanical Sweeper(MS)	Drain Cleaner	Tractor Trolley(2m <sup>3</sup> )	Chain Arm Roll (2.5 m <sup>3</sup> )
<b>MULTAN</b>	Multan City	13	0	0	6	0	0	1	0	0
	Multan Saddar	280	6	11	7	5	9	1	13	2
	Shujabad	98	3	4	7	4	2	1	13	2
	Jalalpur Pirwala	84	3	3	7	4	3	1	10	2
	Kabirwala	179	3	7	7	4	6	1	22	2
<b>KHANEWAL</b>	Jahanian	80	3	3	7	4	3	1	11	2
	Mian Channu	105	3	3	7	4	5	1	15	2
	Khanewal	134	3	3	7	4	4	1	10	0
<b>LODHRAN</b>	Dunya Pur	88	0	3	5	3	3	1	9	2
	Karor Pakka	74	0	3	7	3	3	1	9	0
	Lodhran	70	0	0	7	3	2	0	2	1
<b>VEHARI</b>	Vehari	138	3	3	5	4	4	1	13	0
	Mailsi	160	3	7	5	3	4	1	21	2
	Burewala	142	3	2	7	4	4	1	11	0

Table 3-9. Current and Additional HR for Multan Division.

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
MULTAN	Multan City	1911	554
	Multan Saddar	118	1781
	Shujabad	81	670
	Jalalpur Pirwala	58	553
	Kabirwala	28	1247
KHANEWAL	Jahanian	36	606
	Mian Channu	186	885
	Khanewal	166	930
LODHRAN	Dunya Pur	48	542
	Karor Pakka	127	518
	Lodhran	157	517
VEHARI	Vehari	251	860
	Mailsi	97	1027
	Burewala	230	1004

### 3.2.5 Waste Transfer and Disposal

Waste transfer and disposal in Multan Division face significant challenges due to infrastructure limitations, logistics, and varying levels of urbanization across its districts. **Multan**, has a structured waste transfer system managed by the Multan Waste Management Company (MWMC). Waste is collected from designated points and transported to landfill sites, but inefficient segregation leads to mixed waste disposal, complicating recycling efforts. Overburdened landfill sites and illegal dumping of construction and hazardous waste further strain waste management operations.

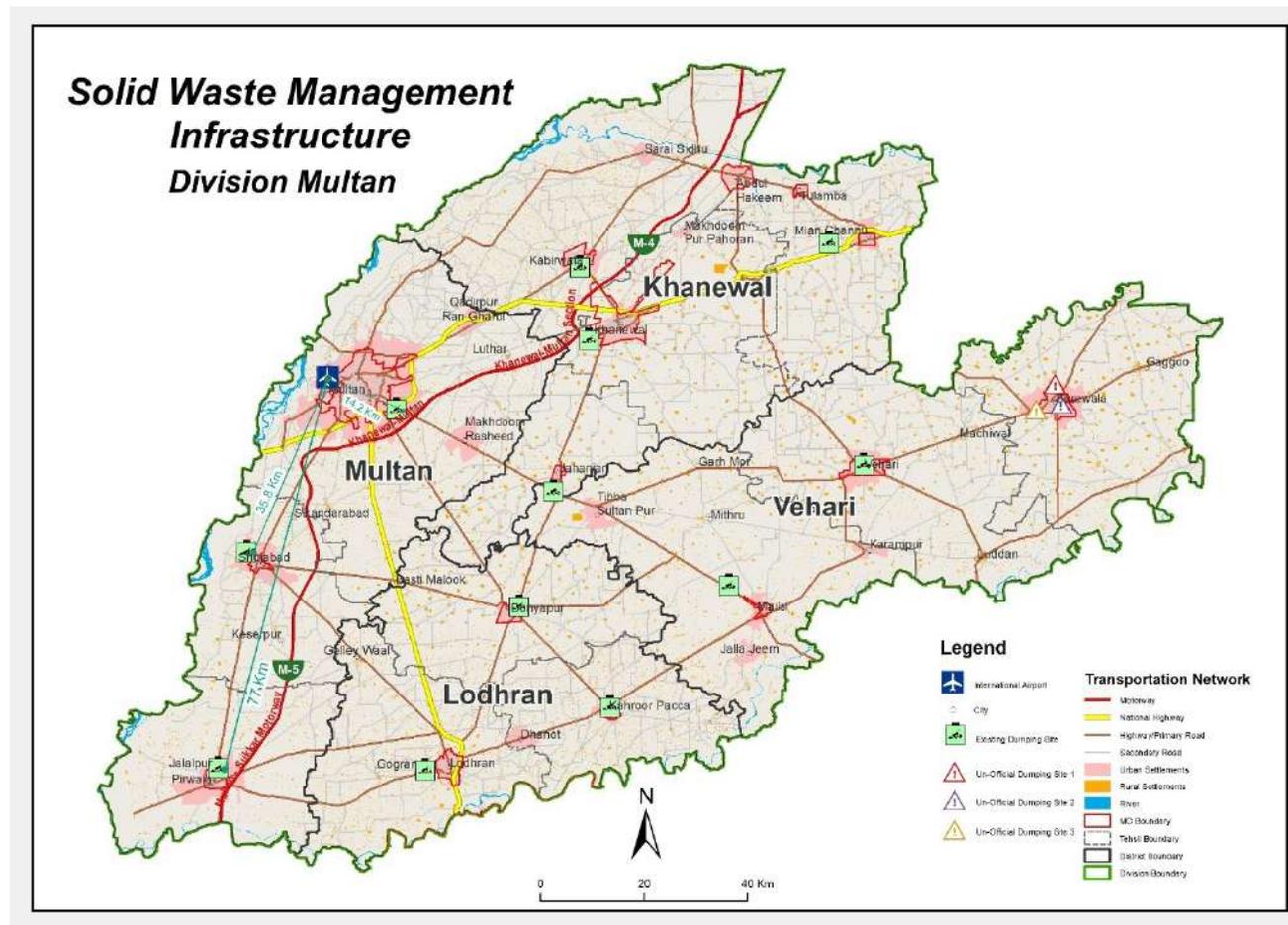


Figure 3-9. Dumpsite Location and Proximity to Key Infrastructure.

Khanewal and Vehari struggle with waste transfer due to their large rural landscapes and limited road networks. Delays in transportation and a lack of advanced waste processing facilities hinder efficient disposal. Lodhran, with an underdeveloped infrastructure, faces additional challenges in transporting waste from scattered settlements to disposal sites. The absence of modern recycling and treatment facilities results in inefficient waste management. Efforts are being made to address these issues by enhancing waste processing infrastructure, improving vehicle fleets, and promoting waste segregation. Sustainable disposal practices and better logistical planning are crucial for effective waste management across the division.

Table 3-10. Dumpsite Information.

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)
MULTAN	03	900 T/d	328500	10
KHANEWAL	04	N/A	N/A	5
LODHRAN	03	N/A	N/A	5
VEHARI	02	N/A	N/A	5

### 3.2.6 Existing Infrastructure

Field visits and consultative sessions with WMC and Municipal corporation were organised to assess the solid waste management (SWM) infrastructure across Multan Division—comprising the districts of Multan, Khanewal, Lodhran, and Vehari—which displays a network of facilities and transportation routes tailored for efficient waste handling. In **Multan**, the infrastructure is relatively well-developed with multiple Transfer Stations (TS), Material Recovery Facilities (MRFs), a parking yard, and an existing dumping site supported by a network of major roads and highways.

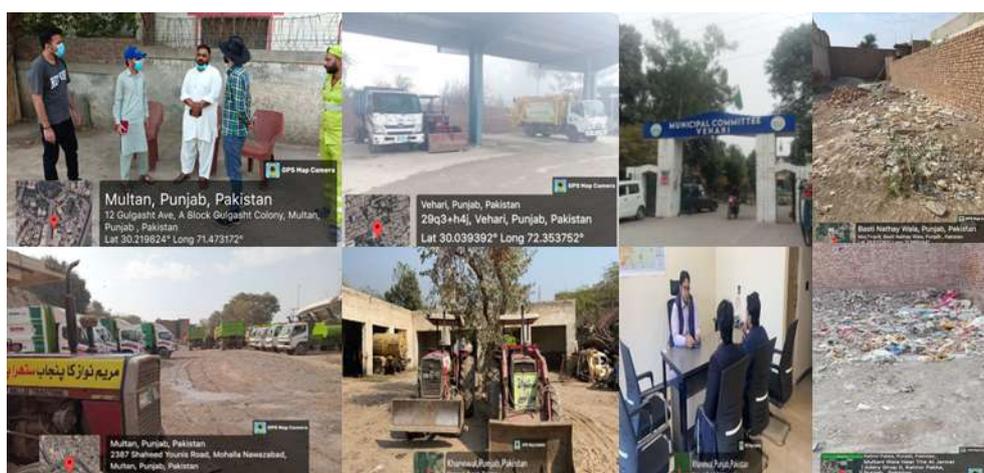


Figure 3-10. Existing Infrastructure of MWMC

**Khanewal** has fewer facilities, including a TS and MRF, and a parking yard, indicating moderate development. **Lodhran** and **Vehari** show minimal SWM infrastructure, with each district having only a single Transfer Station and lacking key facilities like MRFs or dedicated dumping sites. All districts are interconnected by national and secondary highways, facilitating inter-district waste transport, though the disparity in infrastructure suggests a need for expansion and upgrade in Lodhran and Vehari for balanced regional waste management.

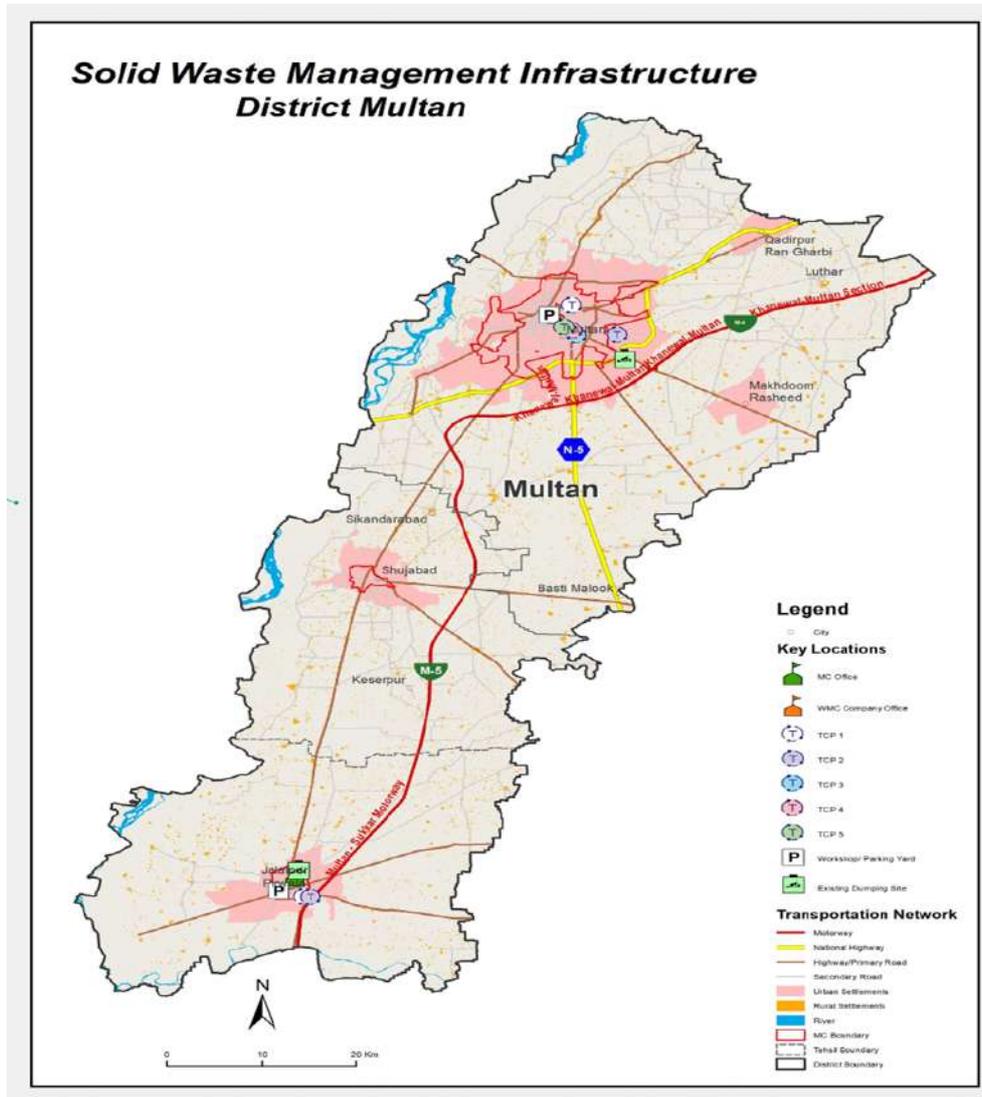


Figure 3-11. SWM infrastructure of Multan District



### 3.2.7 Waste Collection Efficiency

The waste collection efficiency across Multan Division—covering the districts of Multan, Khanewal, Lodhran, and Vehari—reveals significant disparities and overall low performance in urban waste management. Multan district, despite having the most developed solid waste infrastructure, collects only 1581 tons/day out of a generation of 2141 tons/day, achieving a collection efficiency of 38%, the highest among the four. Khanewal district collects 252 tons/day out of 1248 tons/day, resulting in a 26% efficiency, while Vehari district collects 342 tons/day from 1284 tons/day, achieving 33% efficiency. Lodhran district performs the worst, collecting just 254 tons/day of 689 tons/day, with a mere 18% efficiency. These low percentages reflect inadequate infrastructure, operational limitations, or management issues, particularly in Khanewal and Lodhran, and indicate a pressing need for investment in equipment, manpower, and system optimization to improve urban waste collection across the division.

Table 3-11. District-Wise Waste Collection Efficiencies before Inception of Contractors Under Suthra Punjab Program

COLLECTION EFFICIENCIES				
DISTRICT	Multan	Khanewal	Lodhran	Vehari
TOTAL WASTE COLLECTION (T/D)	1581	252	254	342
TOTAL WASTE GENERATION (T/D)	2141	1248	689	1284
COLLECTION EFFICIENCY (%) BEFORE OUTSOURCING	38	26	18	33
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>20</sup>			

### 3.2.8 Scavenging Activities

Like in other areas of the Punjab province, the informal sector is actively involved in scavenging activities and has a huge informal market, which contributes to the GDP of the country. There is a need to integrate the informal sector into the formal setup of waste management to move towards a circular economy. Scavengers usually do scavenge activities at the waste collection containers/transfer stations of the municipality and take out recyclables that have high market value, like paper, carton, plastics, and metals. This economic instability forces marginalized communities to engage in scavenging as a means of survival. People associated with this profession usually adhere most to health diseases and injuries while working. To address these issues, there is a need for an improved waste management system. and alternative livelihood opportunities for vulnerable populations. Strengthening recycling

<sup>20</sup> Current waste collection efficiency is obtained during discussion with WMC.

initiatives, supporting social welfare programs, and enhancing economic opportunities can help reduce dependence on scavenging and promote integrated, sustainable waste management practices.



Figure 3-13. Scavenging Activities.

### 3.2.9 Fuel Allocation

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of the waste management system. It directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle.

Table 3-12. Fuel Allocation of MWMC

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)
MULTAN	Multan City	605	4,650	560
	Shujabad	6	170	30
	Jalalpur Pirwala	6	210	30
	<b>TOTAL</b>	<b>618</b>	<b>5,030</b>	<b>620</b>
KHANEWAL	Khanewal	19	910	90
	Kabirwala	16	210	30
	Jahanian	-	120	30
	Mian Channu	150	660	120
	<b>TOTAL</b>	<b>166</b>	<b>990</b>	<b>180</b>
LODHRAN	Lodhran	45	1,190	150
	Dunya Pur	-	340	70
	Karor Pakka	32	320	30
	<b>TOTAL</b>	<b>77</b>	<b>1,850</b>	<b>250</b>
VEHARI	Mailsi	-	-	-
	Burewala	-	-	-
	Vehari	32	680	130

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)
<b>TOTAL</b>		<b>32</b>	<b>680</b>	<b>130</b>

### 3.2.10 Budget Allocation to SWM Fleet

Budget allocation to the Solid Waste Management (SWM) fleet in Multan Division is a fundamental aspect of ensuring efficient waste collection and transportation services. It supports the acquisition and maintenance of vehicles, facilitates smooth daily operations, and enables timely responses to waste management needs across the region. This funding is crucial for sustaining fleet infrastructure, managing operational staff, and improving service delivery. However, specific details regarding the development and non-developmental budget allocation have not been provided by the Multan Waste Management Company, limiting a comprehensive analysis of how financial resources are distributed across various components of the SWM fleet.

**Table 3-13. Budget Allocation of MWMC**

Annual Budget of MWMC (2024-2025)	13,059.56 million PKR
Development Budget	164.63 million PKR
Non-Development Budget	12,894.94 million PKR

### 3.2.11 Fruit Mandi and Slaughter House

In Multan city, waste generated from both the fruit and vegetable mandi and the slaughterhouse is handled under the supervision of the Multan Waste Management Company (MWMC). There is one major fruit and vegetable market generating approximately 20 tons of organic waste daily. This waste is collected and managed by MWMC as part of its routine operations. Similarly, the city's single slaughterhouse, which processes around 30 large animals and 200 small animals daily, produces approximately 50 tons of waste each day. Intestinal waste is collected separately by slaughterhouse workers daily. The remaining slaughterhouse waste is directly transported to the designated disposal point by the waste management team without intermediate storage or processing. This direct approach ensures the timely and safe handling of potentially hazardous organic waste, maintaining hygiene and minimizing health risks in the surrounding areas.

**Table 3-14. Fruit & Vegetable Mandi and Slaughter House Details of Multan Division**

FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Total No	1	Total No.	1

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Daily Waste Gen (T)	20 tons/Day	Daily Waste Gen (T)	50 tons/Day
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Figure 3-14. Fruit & Vegetable Mandi and Slaughter House in Multan Division

### 3.2.12 Special Events Resource Induction

During special events like Eid ul-Adha, the Multan Waste Management Company (MWMC) undertakes special waste management arrangements to handle the large volume of organic waste generated from animal slaughter. Although specific operational details are not provided by the company, it is understood that MWMC enhances its activities through planning, deployment of additional staff and vehicles, and extended working hours. Temporary collection points are likely set up, and public awareness campaigns may be conducted to encourage proper waste disposal. These efforts aim to ensure the timely collection and disposal of waste, prevent health hazards, and maintain cleanliness across the city during the festival.

## 4 CHAPTER: GUJRANWALA DIVISION

### 4.1 Divisional Profile:

Gujranwala Division, located in Punjab, Pakistan, is an important industrial and agricultural region comprising Gujranwala, Gujrat, Mandi Bahauddin, and Hafizabad districts. It is known for producing high-quality sports goods, surgical instruments, textiles, and ceramics, with fertile lands supporting major crops like wheat, rice, and sugarcane. The division has a strong transport network that boosts trade and connectivity. Despite its economic strengths, Gujranwala faces challenges such as urbanization, environmental degradation, and waste management issues. Efforts are ongoing to improve infrastructure and promote sustainable development in the region.

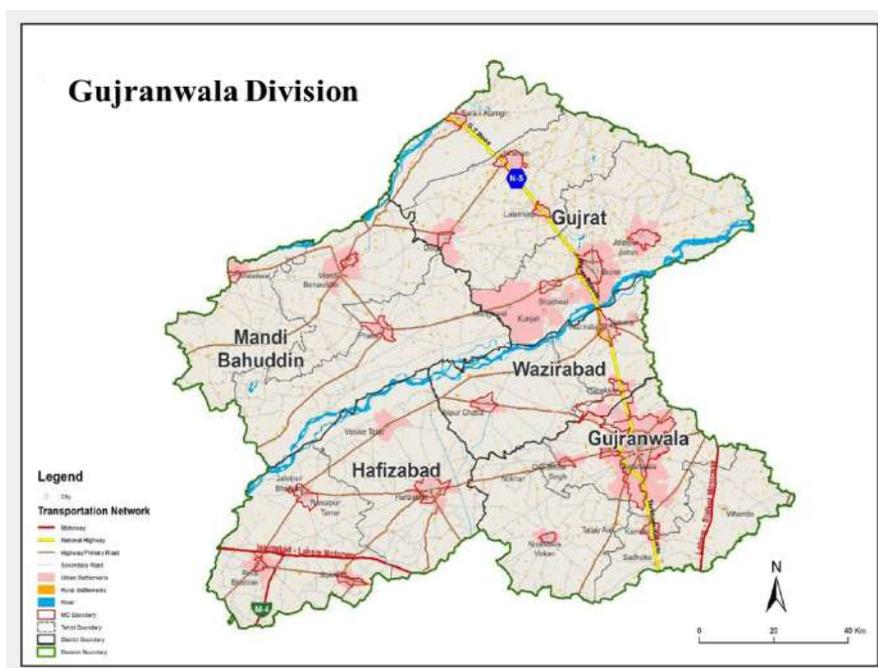


Figure 4-1. SWM Operational Jurisdiction of Gujranwala Division.

Table 4-1. Districts in Gujranwala Division

DISTRICTS IN GUJRANWALA DIVISION	
1	Gujranwala <sup>21</sup>
2	Gujrat
3	Mandi Bahauddin
4	Hafizabad

<sup>21</sup> Before new district notification December 2024, Wazirabad district was one of the tehsils under Gujranwala district therefore in this report it is not considered as a separate district.

### 4.1.1 Administrative Setup

The administrative setup of Gujranwala Division is headed by the Commissioner, under whom the Deputy Commissioners (DCs) manage each district. Supporting the DC are three Additional Deputy Commissioners (Revenue, General, and Finance & Planning), each responsible for specific administrative functions. The Additional Deputy Commissioner (General) typically oversees local governance and development initiatives, including those of the Local Government and Community Development (LG&CD) department. At the tehsil level, Assistant Commissioners (ACs) ensure on-ground implementation of policies and coordination with municipal bodies. This hierarchical structure allows the LG&CD to operate through a streamlined chain of command, facilitating efficient delivery of services like solid waste management, infrastructure development, and community engagement across the division.

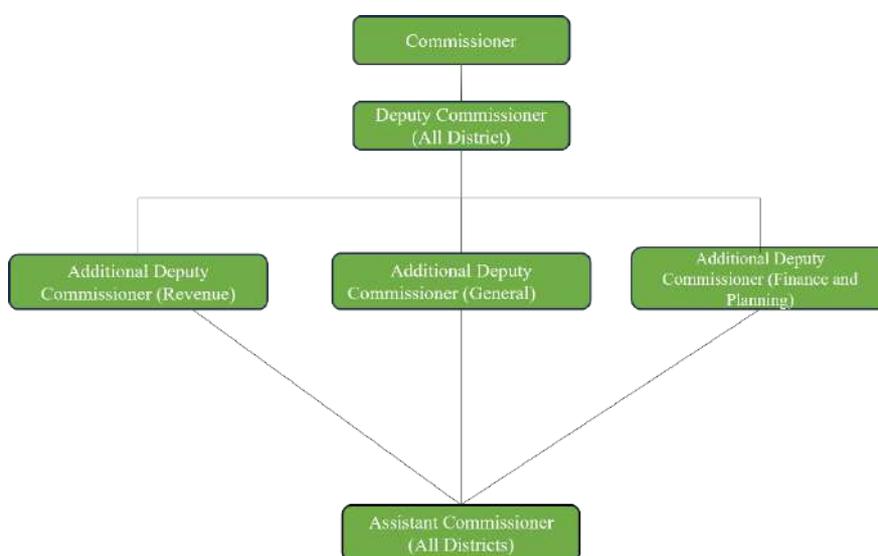


Figure 4-2. Administrative setup of Gujranwala Division.

### 4.1.2 Population Statistics

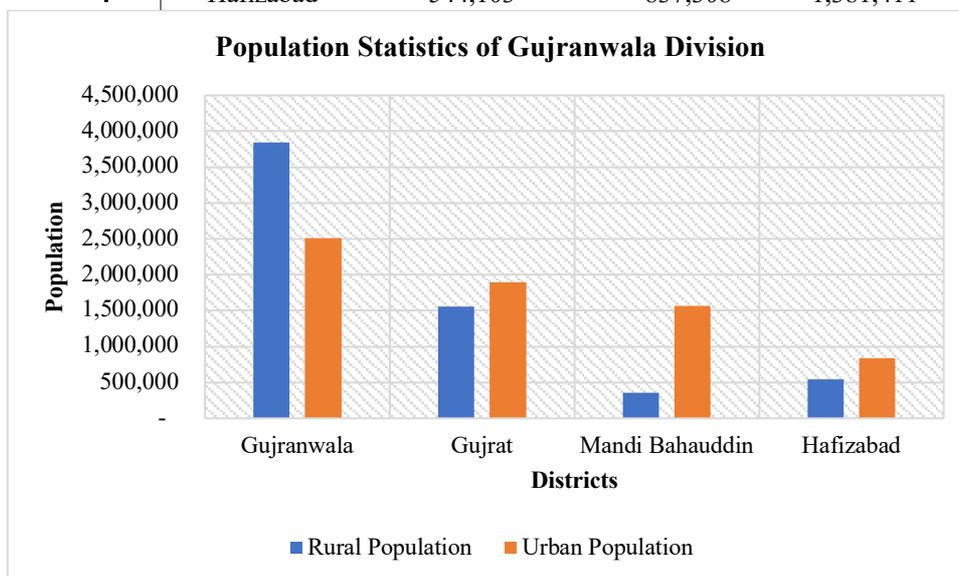
The Gujranwala Division, which includes the districts of Gujranwala, Gujrat, Mandi Bahauddin, and Hafizabad, reflects a mix of urban and rural population dynamics in terms of jurisdiction of Gujranwala Solid Waste Management Company. Based on projections using the 2023 census as the base year, the overall population growth rate for the division is 2.68%. Gujranwala District, with the highest growth rate of 2.94%, is predominantly urban and has a population of 6.35<sup>22</sup> million. Gujrat District follows with a growth rate of 2.63% and a mostly rural district having population of 3.44 million. Mandi Bahauddin and Hafizabad districts, both are rural in nature, have growth rates of 2.33% and 2.23% respectively, with populations of 1.92 million and 1.38 million, respectively. These figures indicate above shows rapid

<sup>22</sup> Primary Data Source by Local Government & Community Development Department, Government of Punjab

urbanization in Gujranwala city, while the other districts exhibit slower, rural-driven growth, underscoring the need for balanced development strategies across the division.

**Table 4-2. Population statistics of Gujranwala Division**

SR. NO	DISTRICT	RURAL POPULATION- 2025	URBAN POPULATION- 2025	TOTAL
1	Gujranwala	3,840,075	2,507,513	6,347,589
2	Gujrat	1,553,285	1,891,377	3,444,662
3	Mandi Bahauddin	353,323	1,563,347	1,916,670
4	Hafizabad	544,103	837,308	1,381,411



**Figure 4-3. Graph of Population Statistics of the Gujranwala Division.**

### 4.1.3 Demography of Gujranwala

Gujranwala is the largest, with a population of 6.35 million, mostly urban. Gujarat has 3.44 million<sup>23</sup> people, mainly rural, while Mandi Bahauddin has 1.92 million, also rural-dominated. Hafizabad, the smallest, has 1.38 million people, with a significant rural majority. This shows a mix of urban and rural populations across the division.

<sup>23</sup>Primary Data Source LG&CDD, Government of Punjab

**Table 4-3. Demography of Gujranwala Division.<sup>24</sup>**

Sr. No	District	Area Hectares	No. of Households	No. of Economic Entities High Rise	No. of Economic Entities Normal Structure	Total Economic Entities
1	Gujranwala	362200	849177	144	170614	170758
2	Gujrat	319200	489337	42	71233	71275
3	Mandi Bahauddin	267300	285989	34	61382	61416
4	Hafizabad	236700	197206	1	52969	52970

#### 4.1.4 Land use area of Gujranwala

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report is shown in the tabulated form.

**Table 4-4. Land use Area of Gujranwala in Hectares**

District	Reported Area	Cultivated Area	Un-Cultivated Area	Cropped Area
Gujranwala	362200	30700	600	57700
Hafizabad	236700	20200	3400	3800
Gujrat	319200	24500	7400	4000
Mandi Bahauddin	267300	23400	3300	42600

#### 4.1.5 Climatic Conditions of Gujranwala Division

The climate of Gujranwala Division is characterized by hot, dry summers and moderately cold winters, with significant variation across its districts. Summers, lasting from April to September, can see peak temperatures reaching 44–48°C<sup>25</sup>, particularly in June, while winters from November to March bring temperatures as low as 2–5°C. The monsoon season, occurring from July to September, provides the majority of annual rainfall, especially in the eastern parts, with an average of 2660 mm across the division, though district averages vary, from over 100 mm near the Kashmir border to around 67 mm<sup>26</sup> in Gujrat, and 388 mm in other areas. Gujranwala experiences a semi-arid climate, while areas like Mandi Bahauddin and Hafizabad receive moderate rainfall, supporting fertile alluvial soils ideal for agriculture. Despite hot spells, proximity to the mountains and diverse topography contribute to climatic moderation in some districts.

<sup>24</sup> [Primary collect data from the Gujranwala Waste Management Company & https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table\\_1\\_punjab\\_districts.pdf](https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table_1_punjab_districts.pdf)

<sup>25</sup> [https://gujranwaladivision.punjab.gov.pk/division\\_climate](https://gujranwaladivision.punjab.gov.pk/division_climate)

<sup>26</sup> <https://gujrat.punjab.gov.pk/climate>

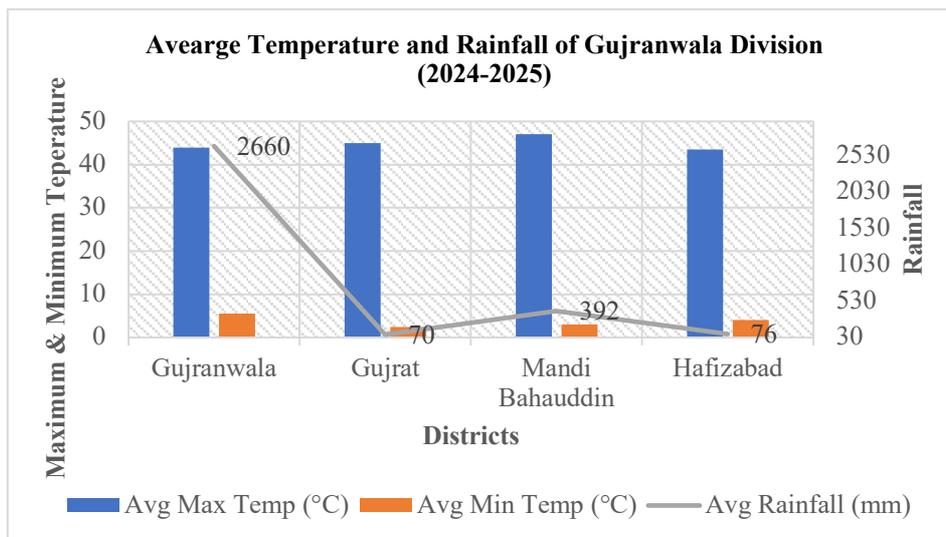


Figure 4-4. Graphical representation of the climatic conditions in Gujranwala Division's districts.

Table 4-5. Tabular representation of the climatic conditions in Gujranwala Division's districts (2024-2025)<sup>27</sup>

DISTRICT	Avg Max Temp (°C)	Avg Min Temp (°C)	Avg Rainfall (mm)
GUJRANWALA	44	5.5	2660
GUJRAT	45	2.5	70.25
MANDI BHAUDDIN	47	3	391.5
HAFIZABAD	43.5	4	75.9

## 4.2 Asset Mapping of Solid Waste Management Services

### 4.2.1 SWM Administrative Setup

The Gujranwala Waste Management Company (GWMC) operates at the divisional level and is responsible for delivering solid waste management services across both urban and rural areas. Under the SAAMA agreement, all human, physical, and operational resources were transferred from local governments (TMAs/Municipalities) to GWMC. The administrative structure is led by a Board of Directors, which oversees policy development and financial

<sup>27</sup> <https://gujrat.punjab.gov.pk/climate>, [https://gujranwaladivision.punjab.gov.pk/division\\_climate](https://gujranwaladivision.punjab.gov.pk/division_climate), <https://hafizabad.punjab.gov.pk/climate>, & <https://mandibahauddin.punjab.gov.pk/climate#:~:text=This%20district%20has%20a%20moderate,%2C%20dry%2C%20and%20mostly%20clear>.

governance, while the Chief Executive Officer (CEO) manages day-to-day operations with support from the Executive and Company Secretaries.

Key departments operate under senior professionals. The Chief Financial Officer supervises Finance, Accounts, Budgeting, MIS, and GIS/MIS. Human resources, legal affairs, administration, and communications fall under the Senior Manager HR & Admin. The Senior Manager Operations oversees waste collection, landfill management, and vehicle maintenance through operational teams. Strategic functions like procurement and planning are handled by the Senior Manager P&C. Compliance and risk monitoring are managed by the Internal Audit unit, while the Marketing department leads public engagement and awareness initiatives.

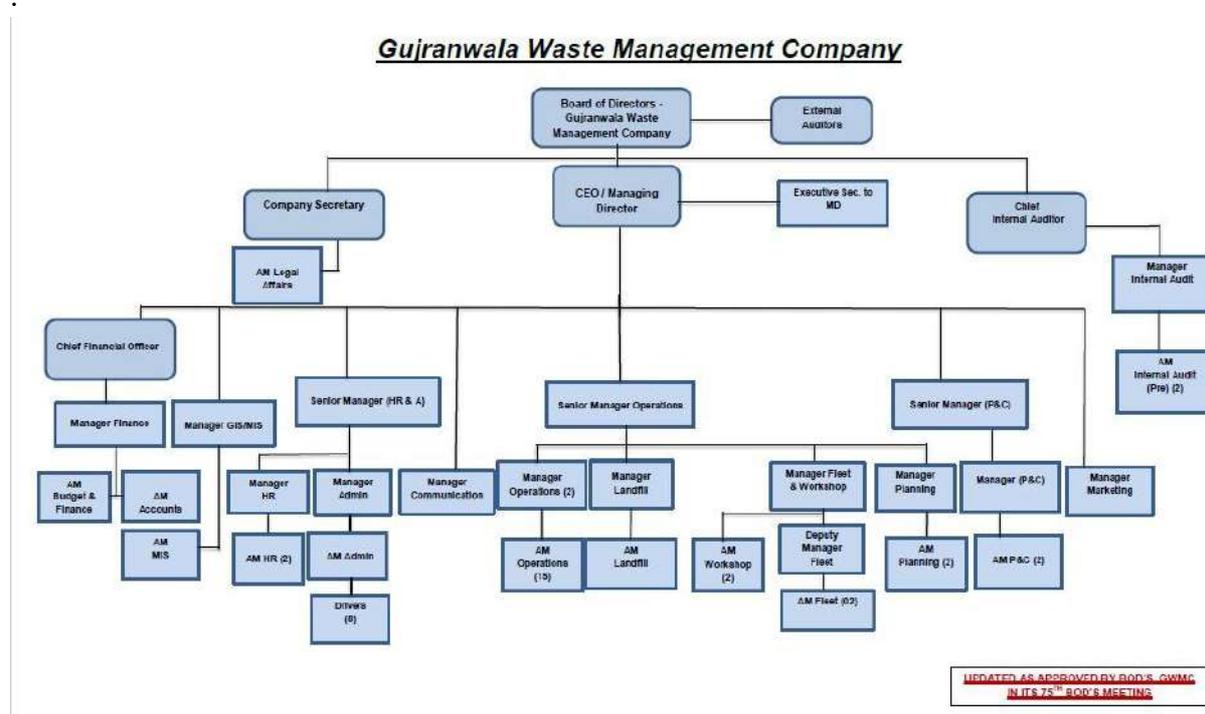


Figure 4-5. Administrative setup of Gujranwala Waste Management Company. <sup>28</sup>

#### 4.2.2 Population and Waste Generation

The Gujranwala Division generates approximately 4,575 tons of solid waste daily, driven by its mix of urban and rural populations and increasing industrial and commercial activity. With an estimated waste generation rate of 0.45 kg/capita/day in urban areas and 0.32 kg/capita/day in rural areas, data shared by the Gujranwala WMC, the division faces mounting challenges in managing municipal, industrial, and agricultural waste. The high volume of waste underscores the importance of an efficient and integrated solid waste management system to prevent

<sup>28</sup> <https://gwmc.com.pk/organogram>

environmental degradation, promote recycling, and support sustainable development. Collaborative efforts between local administrations, waste management companies, and communities are essential to address these growing demands effectively.

**Table 4-6. Tabular Representation of Population and Waste Generation of all Tehsils of Gujranwala Division**

SR. NO	DISTRICT	TEHSILS	POPULATION 2025	WG T/D 2025	
1	GUJRANWALA	Gujranwala City	Urban	2,696,734	1214
			Rural	-	-
		Kamoki	Urban	308,065	139
			Rural	411,103	132
		Nowshera Virkan	Urban	63,529	29
			Rural	617,131	197
		Wazirabad	Urban	395,597	178
			Rural	659,346	211
		Gujrat	Urban	1,116,643	502
			Rural	771,936	247
2	GUJRAT	Kharian	Urban	354,907	160
			Rural	883,372	283
		Sarai Alamghir	Urban	81,735	37
			Rural	236,069	76
		Mandi Bahauddin	Urban	237,642	107
			Rural	562,280	180
3	MANDI BAHAUDDIN	Phalia	Urban	61,408	28
			Rural	605,040	194
		Malakwal	Urban	54,273	24



Figure 4-6. Graphical representation of population and Waste Generation of Gujranwala Division.

### 4.2.3 Waste Composition

On-site, waste characterization is performed as a part of this project. A separate report will be published, but here, the results are highlighted for physical characterization analysis done physically. The physical composition shows that the major portion of biodegradable waste varies from 50.34 to 65.435, diaper 11.01 to 19.00%, and Plastic 7.44 to 14.22%, other components along with their percentage are depicted in Tables 4-7 below;

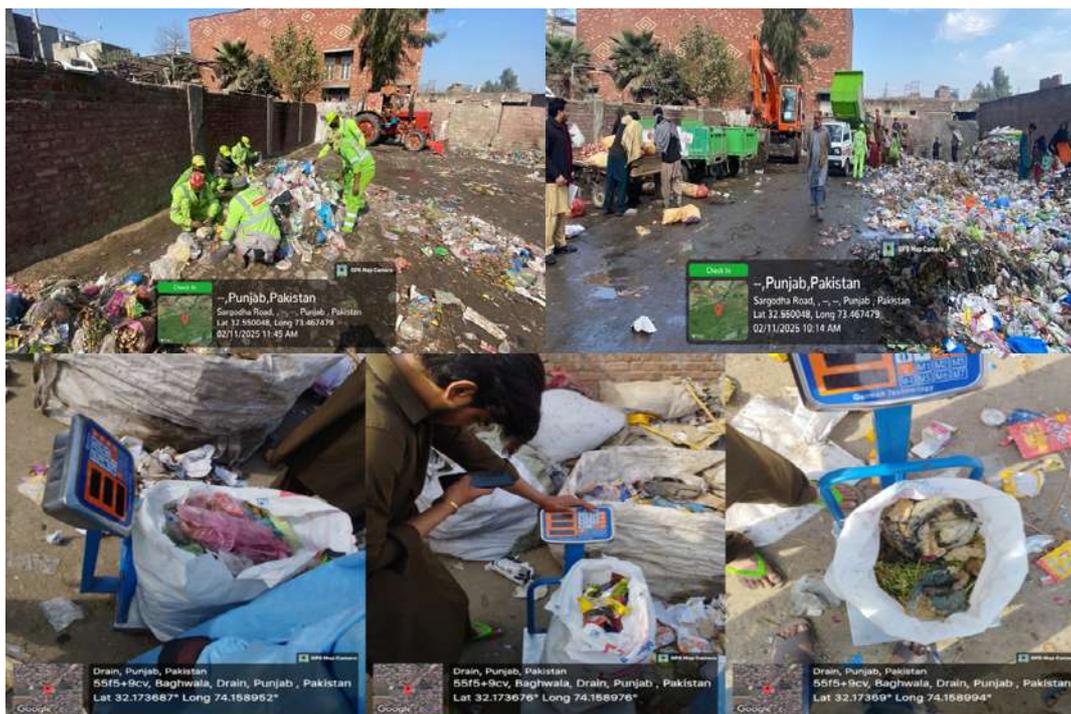


Figure 4-7. Pictorial Representation of Waste Characterization.

Table 4-7. Waste Characterization of Gujranwala Division.

SR. NO	PHYSICAL WASTE COMPOSITION	DISTRICT WISE WASTE COMPOSITION IN %				
		Gujranwala	Mandi Bahaudin	Gujrat	Hafizabad	Wazirabad
1	Combustibles	3.39	4.34	1.69	0.27	0.53
2	Diaper	11.01	13.56	15.98	19.00	17.36
3	Elec.- Electronic W.	0.05	0.16	0.49	0.02	0.04
4	Glass	1.53	2.33	0.48	0.43	0.40
5	Hazardous W	0.00	0.30	0.50	0.06	0.15
6	Biodegradable W.	50.34	50.92	54.04	65.43	62.51
7	Metals	0.31	0.14	0.31	0.05	0.07
8	Non-Combustibles	3.96	3.04	2.24	1.08	2.63
9	Paper-Cardboard	2.74	2.18	1.43	1.34	1.06
10	Pet	2.42	0.08	1.71	0.02	0.08
11	Nylon	0.70	0.23	1.42	0.18	0.10
12	Plastics	12.29	14.22	11.66	7.44	10.75
13	Tetrapak	2.91	2.12	0.70	0.03	0.16
14	Textile	8.26	6.01	7.35	4.64	4.14
	<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100</b>

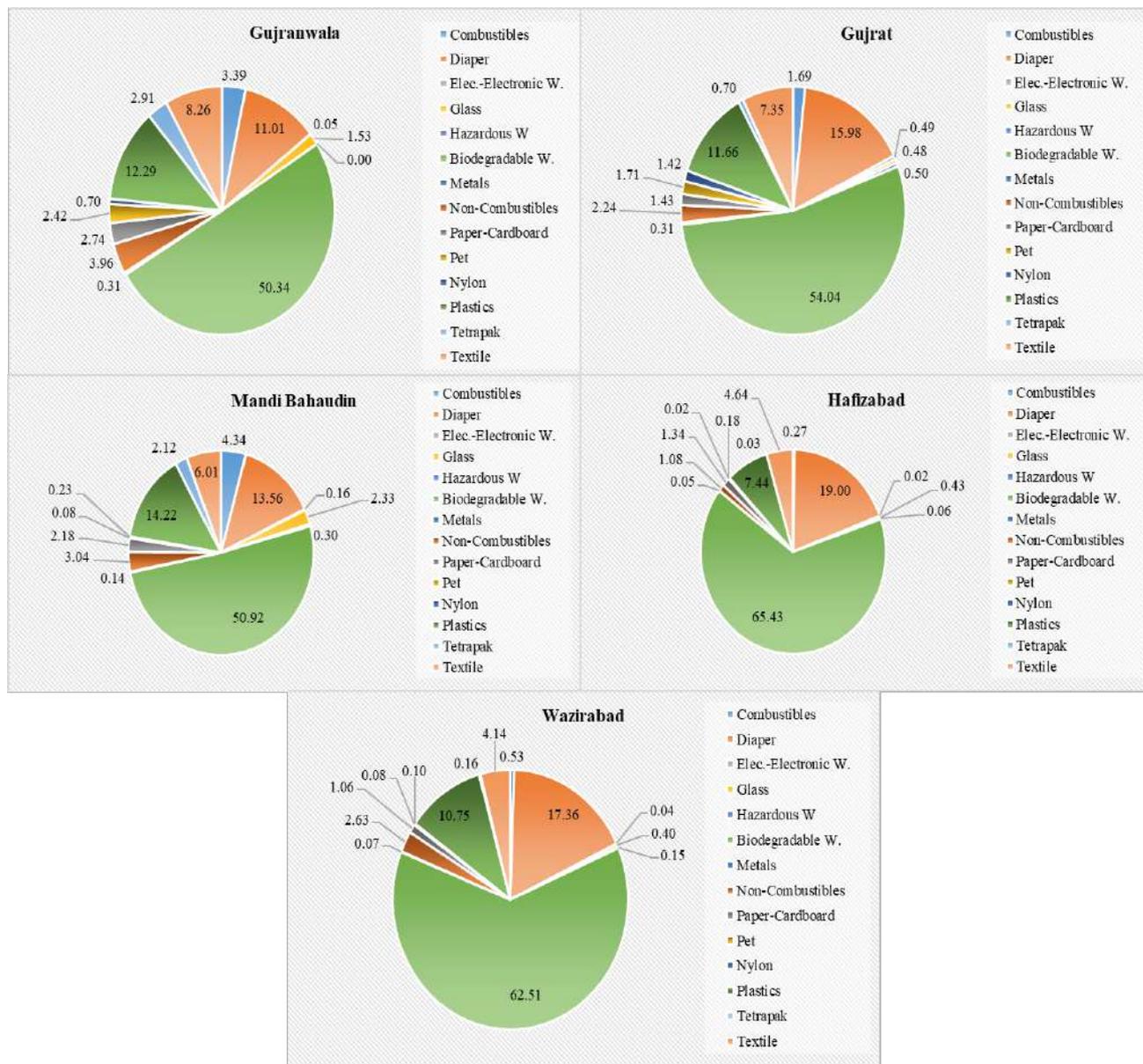


Figure 4-8. Graphical Representation of Waste Characterization.

#### 4.2.4 Primary and Secondary Waste Collection

The waste collection system in Gujranwala Division follows a two-tier model involving primary and secondary collection, managed by local municipal bodies and supported by resources from the Government of Punjab. In the **primary collection** phase, sanitation staff use hand carts, wheelbarrows, and small vehicles to gather waste from households, markets, and commercial areas, moving it to local collection or temporary storage points. In the **secondary collection** phase, heavier machinery like trucks, loaders, and compactors transport waste to designated transfer stations or disposal sites. While Gujranwala and Gujrat have more organized systems due to better urban infrastructure, rural areas like Mandi Bahaudin and

Hafizabad face operational constraints, including limited equipment and difficult terrain. To bridge these gaps, the Government of Punjab has provided various resources, but further investments in machinery and human resources remain essential for efficient waste management.

**Table 4-8. Waste Management Assets of Primary and Secondary Collection (Current Machinery – Available with MC/TMAs/WMC).**

SR. No	DISTRICT	TEHSILS	LOADER RICKSHAWS	COMPACT OR (7 M3)	TRACTOR LOADER	MECHANICAL SWEEPER (MS)	TRACTOR TROLLEY	CHAIN ARM ROLL
1	GUJRANWALA	Gujranwala City	5	0	16	8	51	38
		Gujranwala Saddar	0	0	0	0	2	0
		Kamoki	4	0	3	0	3	6
		Nowshera Virkan	0	0	0	0	2	0
		Wazirabad	12	0	4	2	10	5
2	GUJRAT	Gujrat	43	1	3	0	10	13
		Kharian	3	0	4	0	9	3
		Sarai Alamghir	0	0	2	0	2	2
3	MANDI BAHAUDDIN	Mandi Bahauddin	11	2	5	1	5	2
		Phalia	8	0	0	1	4	0
		Malakwal	2	0	1	0	1	2
4	HAFIZABAD	Hafizabad	31	0	3	0	8	0
		Pindi Bhattian	17	0	2	0	6	0

**Table 4-9. Waste Management Assets of Primary and Secondary Collection (Additional Machinery to be Inserted in a System Under Suthra Punjab Program).**

SR. No	DISTRICT	TEHSILS	LOADER RICKSHAWS	TRACTOR LOADER	DUMPERS (10 M <sup>3</sup> )	FRONT END LOADER	MECHANICAL SWEEPER(MS)	TRACTOR TROLLEY	CHAIN ARM ROLL
1	GUJRANWALA	Gujranwala City	219	1	10	1	4	10	13
		Kamoki	43	2	6	3	2	17	3
		Nowshera Virkan	33	4	3	2	2	19	4
		Wazirabad	51	2	8	4	2	16	6
		Gujrat	73	7	11	4	8	35	6
2	GUJRAT	Kharian	62	2	9	4	3	23	9
		Sarai Alamghir	17	1	3	2	2	9	0
		Mandi Bahauddin	42	1	7	3	5	19	7
3	MANDI BAHAUDDIN	Phalia	28	4	5	3	2	17	5
		Malakwal	19	3	3	2	1	16	1
4	HAFIZABAD	Hafizabad	28	2	6	3	4	13	10
		Pindi Bhattian	29	3	5	3	2	12	6

**Table 4-10. Current and Additional HR for Gujranwala Division**

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
GUJRANWALA	Gujranwala City	1,353	1,713
	Gujranwala Saddar	52	572
	Kamoki	110	559
	Nowshera Virkan	41	429
	Wazirabad	187	746
GUJRAT	Gujrat	582	994
	Kharian	189	813
	Sarai Alamghir	49	236
MANDI BAHAUDDIN	Mandi Bahauddin	166	588
	Phalia	74	496
	Malakwal	38	347
HAFIZABAD	Hafizabad	67	676
	Pindi Bhattian	127	402

#### 4.2.5 Waste Transfer and Disposal

The solid waste disposal and transfer system in Gujranwala Division appears to be well-structured, covering the districts of Gujranwala, Gujrat, Mandi Bahauddin, and Hafizabad. According to the attached map, each district features designated dumpsites (with Gujranwala hosting 4, Gujrat 2, Mandi Bahauddin 3, and Hafizabad 2), strategically located to serve both urban and rural settlements. The daily waste disposal capacity is highest in Gujranwala (1,379 tons), followed by Gujrat (970 tons), reflecting their larger populations and industrial activities.

The transportation network includes motorways (M-4 and Islamabad-Lahore Motorway), national highways (notably N-5 running through Gujrat), and secondary roads, ensuring effective connectivity between waste generation points, transfer stations (TCP1 and TCP2), contractor offices, and dumpsites. A notable observation is the proximity of the Gujranwala dumpsites and operational SWM infrastructure to the local airfield. This closeness could pose potential operational and environmental risks, including bird hazards near the flight path and odor-related disturbances.

Despite the organized infrastructure, not all dumpsites have clearly defined operational or closure timelines, suggesting a need for comprehensive long-term planning. Establishing and enforcing clear closure schedules, along with environmental risk assessments near sensitive zones such as airfields, is essential for sustainable SWM operations in the division.

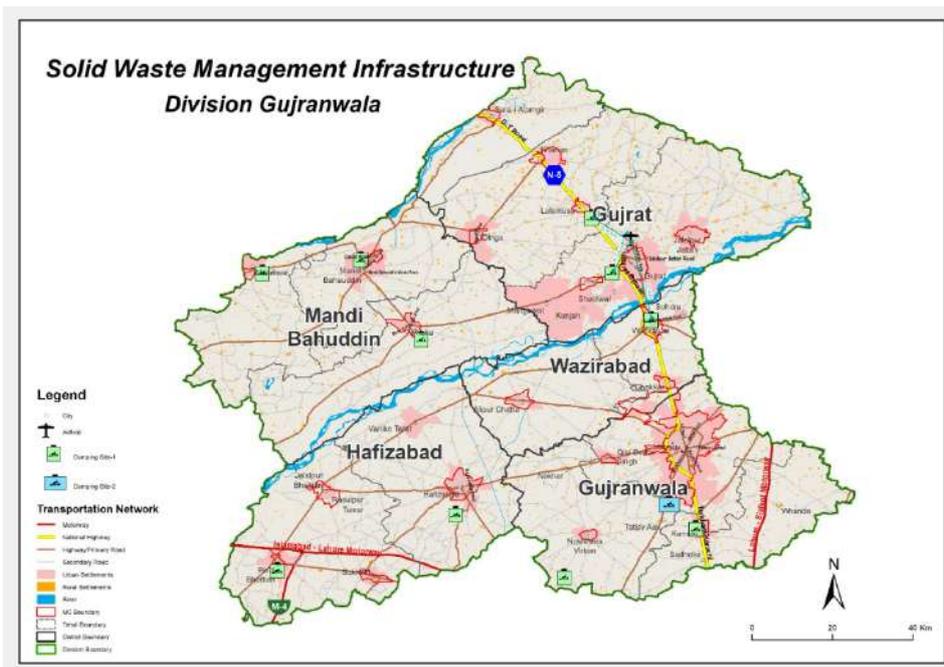


Figure 4-9. Dumpsite location and proximity to the Airport.

Table 4-11. Dumpsite information of Gujranwala Division.

DISTRICTS	NO. OF DUMPSITES	AVG WASTE DISPOSAL (TONS)	DAIL ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)
GUJRANWALA	4	1379	503335	2022
GUJRAT	2	970	354050	2024
MANDI BAHAUDIN	3	369	134685	Not Declared
HAFIZABAD	2	155	56575	2024

#### 4.2.6 Existing Infrastructure

Field visits and consultative sessions with WMC and Municipal corporation were organised to assess the solid waste management (SWM) across the Gujranwala Division. The SWM infrastructure is strategically designed to address both urban and rural waste handling needs across its four districts: Gujranwala, Gujrat, Mandi Bahauddin, and Hafizabad. Each district is equipped with essential facilities, including MC offices, contractor offices, workshops, parking yards for waste collection vehicles, and designated dumpsites. Gujranwala District, being the most urbanized and industrially active, hosts the most comprehensive setup, including four dumpsites, two transfer collection points (TCPs), and multiple support facilities. Its infrastructure is clustered around major transportation routes and urban settlements, with a notable proximity to the airfield, which necessitates strict operational controls to avoid hazards like bird strikes. Similarly, Gujrat District features two dumpsites and robust road connectivity

via National Highway N-5, allowing for efficient waste transfer and service coverage across its urban and peri-urban areas.

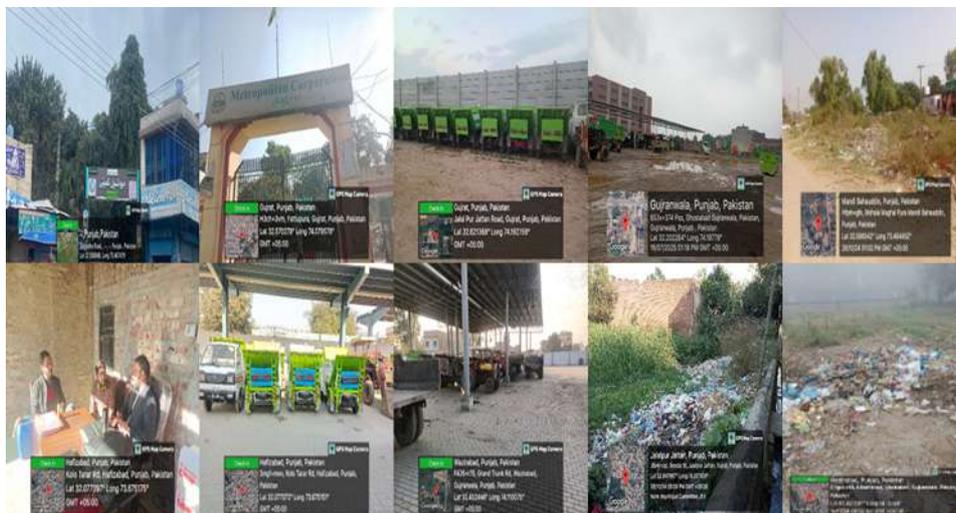


Figure 4-10. Existing Infrastructure of GWMC

Mandi Bahauddin and Hafizabad Districts have relatively fewer urban centers but maintain structured SWM systems, each with multiple dumpsites and support infrastructure located strategically near population hubs. Mandi Bahauddin has three dumpsites serving the district, while Hafizabad, with two dumpsites, benefits from its position along the Islamabad-Lahore Motorway, aiding in transportation efficiency. Across the division, urban settlements marked in pink are positioned close to SWM facilities, enabling easier waste collection. The region’s transportation network—comprising motorways, highways, and secondary roads—supports the accessibility and mobility of waste collection fleets, ensuring that both high-density urban areas and rural zones receive appropriate SWM services. Overall, Gujranwala Division's infrastructure reflects a coordinated approach that prioritizes coverage, accessibility, and logistical efficiency.

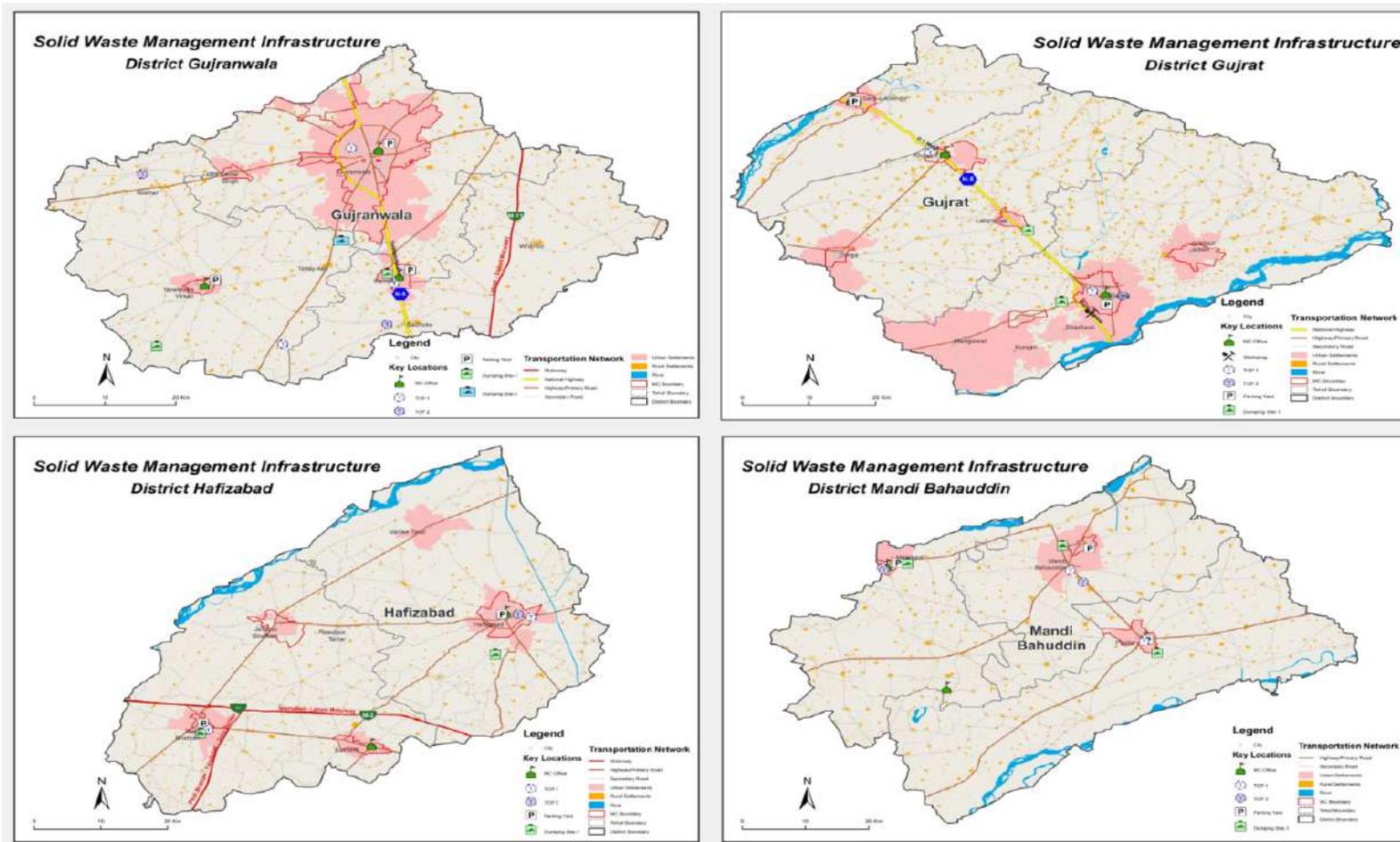


Figure 4-11. SWM Infrastructure of Gujranwala Division, District Wise.

#### 4.2.7 Waste Collection Efficiency

The collection efficiency of solid waste in Gujranwala Division varies significantly across its districts, highlighting disparities in waste management performance. District Hafizabad has the highest collection efficiency at 51%, followed by Gujranwala at 45%, Gujrat at 39%, and Mandi Bahauddin at just 31%. This indicates that more than half of the waste in Hafizabad is being collected, while a significant portion of the waste in other districts, particularly Mandi Bahauddin, remains unmanaged. Despite Gujranwala generating the most of solid waste (2,530 tons/day), only 1,143 tons/day are collected, reflecting gaps in infrastructure or operational capacity. These figures suggest a need for improved collection systems, increased fleet capacity, and better planning to enhance overall efficiency across the division.

To improve waste collection efficiency in the Gujranwala Division, strategic investments are needed. Expanding the fleet size, providing more waste bins at accessible points, and establishing additional transfer stations in rural and underserved areas can enhance waste collection and transportation. Moreover, ensuring more equitable distribution of waste management resources between urban and rural districts is essential to bridge the service gap. Public awareness campaigns that promote proper waste disposal, recycling, and community participation in waste management can further enhance local waste management efforts. By focusing on infrastructure improvements, resource allocation, and raising awareness in both urban and rural areas, Gujranwala Division can develop a more effective and sustainable waste management system that benefits all districts equally.

**Table 4-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program.**

COLLECTION EFFICIENCIES				
DISTRICT	Gujranwala	Gujrat	Mandi Bahaudin	Hafizabad
TOTAL WASTE COLLECTION (T/D)	1143	505	204	260
TOTAL WASTE GENERATION (T/D)	2530	1304	659	513
COLLECTION EFFICIENCY (%) BEFORE OUTSOURCING	45	39	31	51
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>29</sup>			

#### 4.2.8 Scavenging Activities

In Gujranwala Division, scavenging is primarily carried out by the informal sector working privately without official oversight. These waste pickers collect recyclable materials from dumpsites, transfer stations, and urban neighborhoods, especially in high-waste districts like

<sup>29</sup> Current waste collection efficiency is obtained during discussion with WMC.

Gujranwala and Gujrat. While they help reduce the volume of waste reaching landfills, their unregulated activities often interfere with formal waste collection processes and contribute to environmental and health risks. The lack of integration with the official solid waste management (SWM) system limits the overall efficiency and sustainability of waste operations across the division.



Figure 4-12. Scavenging Activities.

#### 4.2.9 Fuel Allocation to SWM Fleet

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of the waste management system, directly impacting the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle

Table 4-13. Annual Fuel Allocation of machinery.

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRE PER DAY- BAU	TOTAL FUEL (DIESEL) CONSUMPTION LITRE PER DAY- BAU	DIESEL CONSUMPTION PER LITRE (DUMPSITE)-BAU
GUJRANWALA	Gujranwala City	16	5,990	480
	Kamoke	13	480	90
	Nowshera Virkan	-	180	-
	Wazirabad	19	1,160	120
<b>TOTAL</b>		<b>48</b>	<b>7,810</b>	<b>690</b>
GUJRAT	Gujrat	138	1,263	90
	Kharian	10	990	120
	Sarai Alamghir	-	280	60
<b>TOTAL</b>		<b>148</b>	<b>2,533</b>	<b>270</b>
MANDI BHAUDDIN	Mandi Bahauddin	35	687	150

	Phalia	26	380	-
	Malakwal	6	160	30
	<b>TOTAL</b>	<b>67</b>	<b>1,227</b>	<b>180</b>
<b>HAFIZABAD</b>	Hafizabad	-	205	45
	Pindi Bhattian	54	600	60
	<b>TOTAL</b>	<b>54</b>	<b>805</b>	<b>105</b>

#### 4.2.10 Budget Allocation to SWM Fleet

Budget allocation to the Solid Waste Management (SWM) fleet in the Gujranwala Division plays a vital role in ensuring effective waste collection and transportation across all districts. It enables the procurement, operation, and maintenance of vehicles, supports day-to-day logistics, and ensures timely waste removal services. Adequate funding is essential to maintain fleet performance, manage operational staff, and enhance overall service efficiency. However, the Gujranwala Waste Management Company has an annual budget of 18,036million, all budget is non-development budget to manage outsourcing, HR, & company operations<sup>30</sup>.

Table 4-13. Budget Allocation of GWMC

Annual Budget of GWMC (2024-2025)	18,036 million PKR
Development Budget	Nil
Non-Development Budget	18,036 million PKR

#### 4.2.11 Fruit Mandi and Slaughter House

In Gujranwala city, fruit and vegetable markets (mandis) generate approximately 10 tons of waste daily across three locations, with only one being actively managed by the Gujranwala Waste Management Company (GWMC). Waste collection from this mandi is efficiently handled using tractor trolleys and arm roll trucks with 10m<sup>3</sup> containers, achieving 90% collection efficiency. In contrast, the Gujranwala city has one slaughterhouse, where waste management is largely self-managed, with 1.5T/D waste generated, of which 10 large and 40 small animals are slaughtered, and the management of waste is managed by the corporation of Gujranwala.

Table 4-14. Fruit Mandi and Slaughter House Details of Gujranwala Division

FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Total No	3 (only 1 attended by GWMC)	Total No.	1

<sup>30</sup> Details provided by Gujranwala Waste Management Company

FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Daily Waste Gen (T/D)	10	Daily Waste Gen (T/D)	1.53
Collection Efficiency %	90	Collection Efficiency %	100
Collection/Transport Mechanism	Through Tractor Trolleys and Arm Roll Truck (Container 10 m <sup>3</sup> )	Collection/Transport Mechanism	Managed by the Corporation
		Animals Slaughtered	10+50=60

#### 4.2.12 Special Events Resource Induction

During Eid ul-Adha, the Gujranwala Division faces significant waste management challenges due to the large volume of animal waste generated. To address this, six temporary collection points (TCPs) were set up over the three-day festival in 2024. Animal remains were collected using rented pickups and mini dumpers, then transferred to temporary storage points with the help of rental excavators. From there, the waste was transported to the final disposal site at Bakhrewali and covered with soil to minimize environmental impact. Over 200 rental vehicles were deployed to ensure smooth operations, highlighting the need for extra mechanical and human resources during such special events.

Table 4-15. SWM Arrangements During Special Events by Gujranwala Waste Management Company in the Division

SWM DURING FESTIVALS (ESPECIALLY ON EID UL-ADHA)	
<b>NO. OF COLLECTION POINTS</b>	6 Temporary Collection Point
<b>DISPOSAL ARRANGEMENTS</b>	The animal remains/waste collected by the rented pickups/mini dumpers has been transferred to the Temporary Storage Point. six TSPs was established during 3 days of Eid-ul-Adha 2024. The waste collected at each TCP was transferred to rental dumpers with the aid of rental excavators and these dumpers then transferred this waste to the final disposal site at Bakhrewali.
	Covering of waste with soil.
<b>EXTRA RESOURCES (HR + MECHANICAL)</b>	Yes, more than 200 Rental vehicles are required on the special eve of Eid-ul-Adha for smooth functioning

## 5 CHAPTER: LAHORE DIVISION

### 5.1 Divisional Profile:

Lahore Division, located in Punjab, Pakistan, comprises the districts of Lahore, Sheikhupura, Kasur, and Nankana Sahib. It is a major economic, industrial, and cultural center, with Lahore city at its core. The division hosts a diverse range of industries, including textiles, pharmaceuticals, IT, construction, and food processing, and is supported by a robust infrastructure network that boosts trade and tourism. Fertile agricultural lands further contribute to Pakistan’s food production, particularly in wheat, rice, sugarcane, and horticulture.

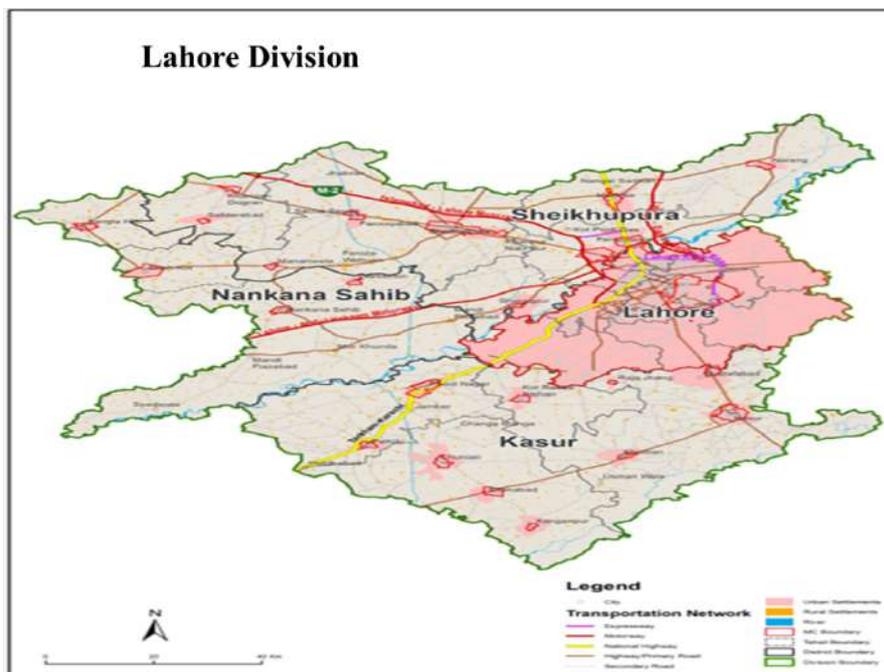


Figure 5-1. SWM Operational Jurisdiction Map of Lahore Division.

Table 5-1. Districts in Lahore Division.

DISTRICTS IN LAHORE DIVISION	
1	Lahore
2	Sheikhupura
3	Kasur
4	Nankana Sahib

Culturally rich, the division features prominent historical and religious landmarks such as the Lahore Fort, Badshahi Mosque, and Nankana Sahib, drawing tourists and pilgrims alike.

However, it also faces modern urban challenges like traffic congestion, pollution, and waste management. Rapid population growth and urban expansion have intensified the need for sustainable development. To tackle these issues, Lahore Division is focusing on smart city initiatives, infrastructure upgrades, and environmental conservation to balance heritage preservation with economic growth.

### 5.1.1 Administrative Setup

The administrative setup of Lahore Division is structured under the leadership of the Commissioner, who oversees all divisional functions and is supported by a Personal Secretary and a Law Officer. The Commissioner is assisted by multiple Additional Commissioners, including those responsible for Revenue (Rev.), Coordination (Coord.), and Consolidation (Cons.) functions, reflecting the broad range of administrative responsibilities.

The structure further branches into various specialized roles and units. The Director (D&F) supervises Assistant Directors in Planning (AD(P)), Research & Development (AD(R&D)), and Finance (AD(F)). The Assistant Commissioners (ACs) for General (AC(G)), Revenue (AC(R)), and Petition (AC(P)) handle core administrative branches such as General, Establishment, Nazarat, and Dairy Dispatch, along with Revenue & HVC tasks. Additionally, the Assistant Director (S) and Petition Cell handle specific operational and public grievance matters, creating a well-organized framework to ensure effective governance and service delivery across the division.

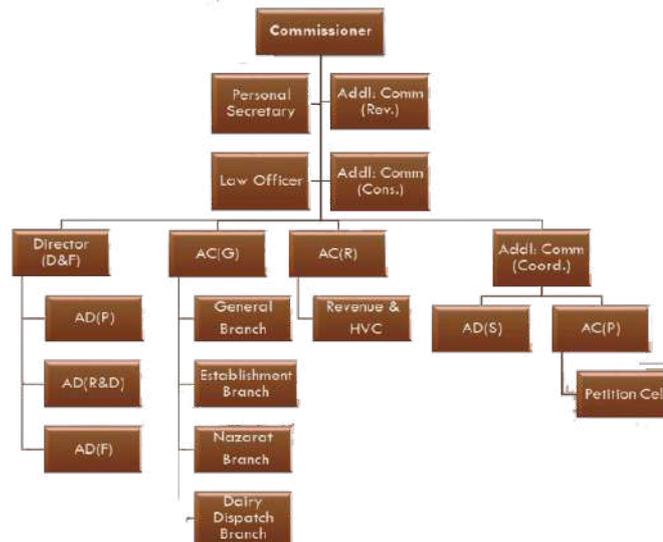


Figure 5-2. Administrative Setup of Lahore Division<sup>31</sup>.

<sup>31</sup> <https://lahoredivision.punjab.gov.pk/organogram>

### 5.1.2 Population Statistics

Based on the 2023 census data and applying district-specific annual growth rates, the population of Lahore Division is projected to continue growing steadily through 2025. The division, comprising Lahore, Sheikhpura, Kasur, and Nankana Sahib districts, reflects a mix of high-density urban populations and expansive rural communities.

By applying the annual growth rates — Lahore (2.65%), Kasur (2.84%), Sheikhpura (2.66%), and Nankana Sahib (3.19%) — the division’s total population is projected to increase to 23 million in 2025. Lahore District alone is expected to reach 13.7 million, Kasur 4.33 million, Sheikhpura 4.28 million, and Nankana Sahib 1.74 million. These projections underscore the need for continued investments in infrastructure, public services, and sustainable urban planning to support the growing population.

Table 5-2. Population statistics of Lahore<sup>32</sup>.

SR. NO	DISTRICT	RURAL POPULATION (2025)	URBAN POPULATION (2025)	TOTAL
1	Lahore	0	13,705,288	13,705,288
2	Sheikhpura	2,587,896	1,692,916	4,280,812
3	Kasur	2,940,132	1,393,177	4,333,308
4	Nankana Sahib	1,388,034	356,789	1,744,823

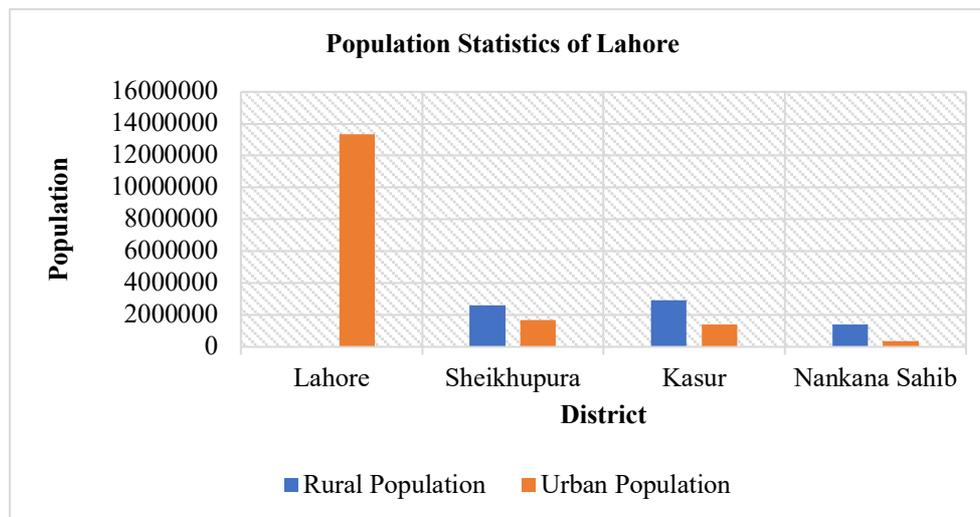


Figure 5-3. Graphical Representation of Population Statistics of Lahore Division

### 5.1.3 Demography of Lahore

The demography of Lahore Division reveals a varied landscape in terms of population density, urban development, and economic activity. Lahore District, covering 177,200 hectares, is the most urbanized and economically active, with over 2 million households and 1,696 high-rise

<sup>32</sup> Primary Data Source LG& CD Department, Government of Punjab

economic entities. In addition, it hosts 180,509 normal-structure economic units, reflecting its status as a major commercial and industrial hub.

In contrast, the districts of Sheikhupura, Kasur, and Nankana Sahib show more rural characteristics. Sheikhupura, with an area of 374400 hectares, has around 652,458 households, 33 high-rise entities, and a total of 133,575 economic entities. Kasur spans 399500 hectares and includes 645,308 households and 113,384 economic entities. Nankana Sahib, the smallest in population and area (221600 hectares), has 246,956 households and approximately 93,950 economic entities, with most of them in normal structures. This distribution highlights the concentration of urban and economic infrastructure in Lahore, while the surrounding districts maintain a more mixed or rural economic profile.

Table 5-3. Demography of Lahore Division<sup>33</sup>.

SR. NO	DISTRICT	AREA HECTARES	NO OF HOUSEHOLDS	NO OF ECONOMIC ENTITIES HIGH RISE	NO OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
1	Lahore	177200	2010225	1696	180509	-
2	Sheikhupura	374400	652458	33	99,590	33,985
3	Kasur	399500	645308	16	104,330	9,054
4	Nankana Sahib	221600	246956	10	46970	46980

#### 5.1.4 Land Use Area of Lahore

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report is shown in the tabulated form.

Table 5-4. Land use area of Lahore in Hectares

DISTRICT	REPORTED AREA	CULTIVATED AREA	UN-CULTIVATED AREA	CROPPED AREA
LAHORE	177200	142500	34700	285000
KASUR	399500	32000	79500	640000
NANKANA SAHIB	221600	18000	41600	36000
SHEIKHUPURA	374400	30000	74400	60000

#### 5.1.5 Climatic Conditions of Lahore Division

Lahore Division, comprising Lahore, Kasur, Nankana Sahib, and Sheikhupura, experiences a semi-arid climate shaped by its central location in Punjab, Pakistan. Summers are intensely hot, with temperatures frequently rising above 40°C, especially in June. The region receives the bulk of its rainfall during the monsoon season from July to September, with July being the wettest month, recording an average of 135 mm of rain. Winters are generally mild, with temperatures ranging between 5°C and 20°C. Dense fog is common in winter months, particularly in January, affecting visibility and transportation.

<sup>33</sup> Primary Data Source Local Government (LG&CDD)

Each district in the division follows similar climatic patterns, although slight variations exist due to geographical positioning. Kasur and Nankana Sahib, primarily agrarian areas, rely heavily on the monsoon rains to support farming activities. Sheikhupura also experiences similar seasonal variations, with short but chilly winters and high summer temperatures. While this climate favors agriculture, it also brings challenges such as urban flooding during monsoons, heatwaves, and increasing pressure on water resources. These conditions demand efficient water management, urban planning, and disaster preparedness to sustain both the urban and rural livelihoods in the division.

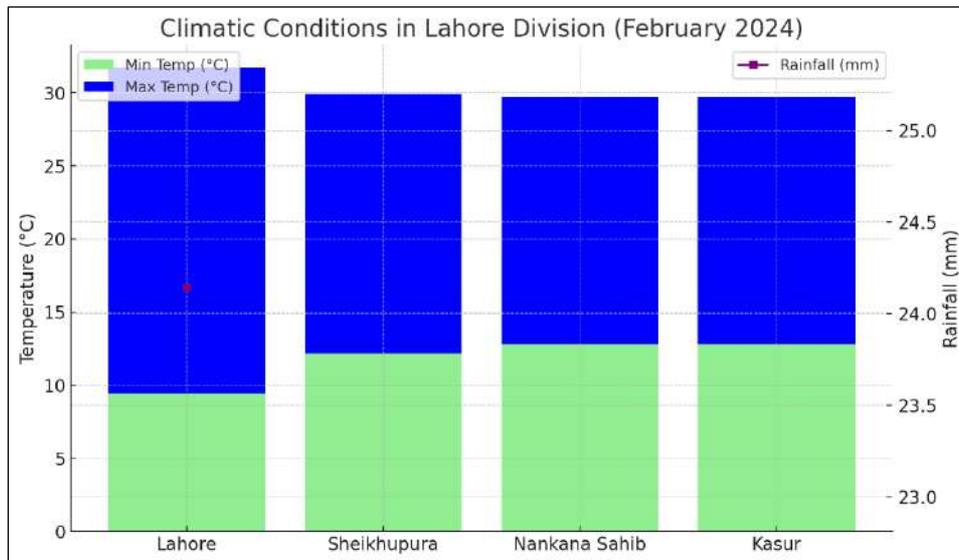


Figure 5-4. Graphical Representation of the Climatic Conditions in Lahore Division's Districts<sup>34</sup>.

<sup>34</sup> <https://www.accuweather.com/en/pk/lahore/260622/weather-forecast/260622>

**Table 5-5. Tabular Representation of the Climatic Conditions in Lahore Division's Districts-2024**

DISTRICTS	WINTER AVG. TEMP.(°C)	WINTER RAINFALL(MM)	SUMMER AVG. TEMP.(°C)	SUMMER RAINFALL(MM)
LAHORE	13.95	14	32.75	166
SHEIKHUPUR A	14.2	14	33.9	202
NANKANA SAHIB	14.2	14	33.9	202
KASUR	14.2	14	33.9	202

## 5.2 Asset Mapping of Solid Waste Management Services

### 5.2.1 SWM Administrative setup

The Lahore Waste Management system operates under the Local Government and Community Development (LG&CD) Department of the Punjab Government, which oversees its administrative and operational framework. The Lahore Waste Management Company (LWMC) is the key entity responsible for delivering solid waste management services across urban and rural areas of Lahore Division. Established under the Companies Ordinance, LWMC functions with administrative and financial autonomy but remains accountable to the LG&CD Department. Its governance structure includes a Board of Directors that formulates policies and ensures financial oversight, while the Chief Executive Officer (CEO) leads the day-to-day operations.

LWMC carries out waste collection, transportation, and disposal services, utilizing a combination of in-house teams in the Lahore district while in other districts collection and transportation services are outsourced to local contractors under Suthra Punjab Program. The organization also runs community engagement and awareness campaigns through its communication wing, promoting responsible waste segregation and disposal practices among citizens. The HR and administration departments handle staffing, logistics, and training to support a streamlined waste management system across the division.

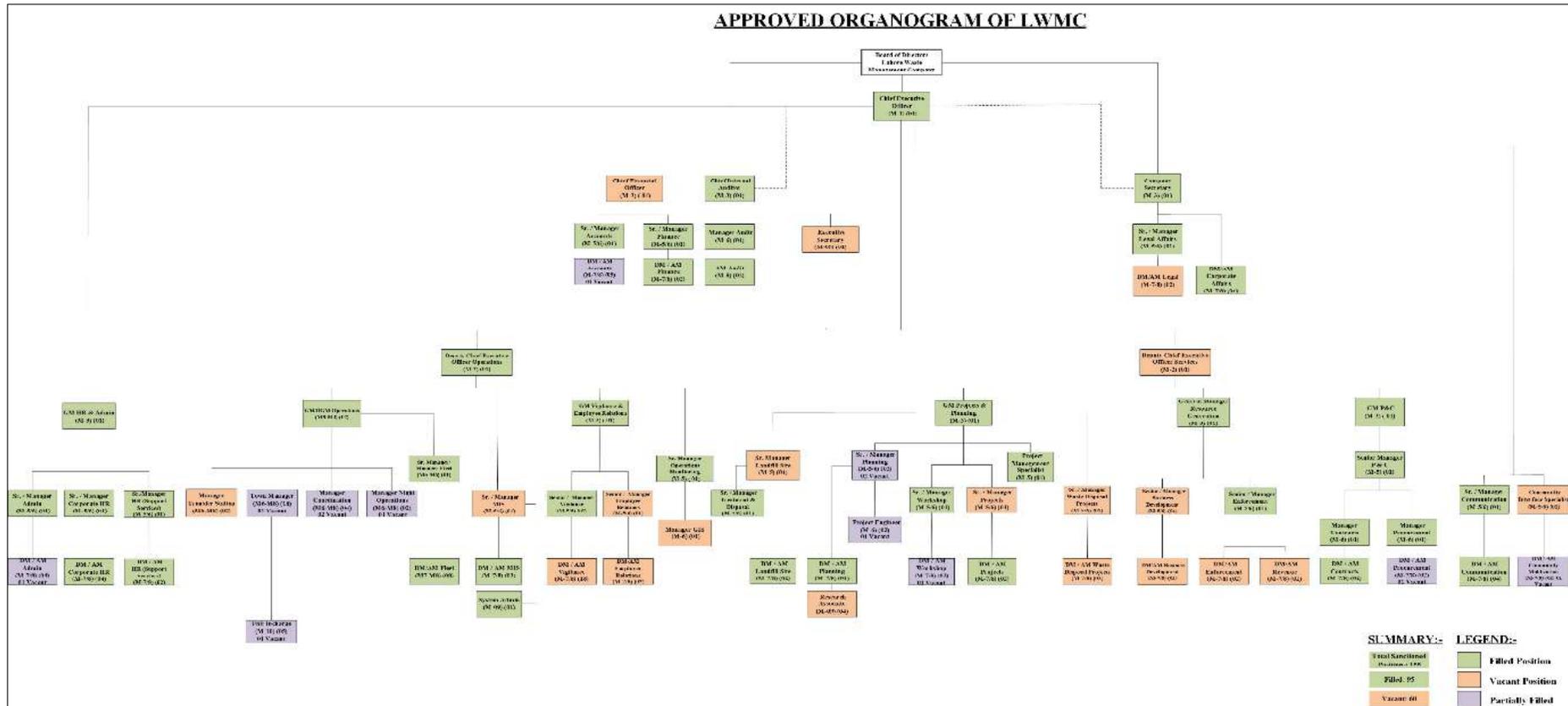


Figure 5-5. Administrative setup of Lahore Waste Management Company. <sup>35</sup>

<sup>35</sup> <https://lwmc.com.pk/organogram.php>

## 5.2.2 Population and Waste Generation

Based on projected population figures from the 2023 census and standard per capita waste generation rates, the total waste generation in Lahore Division is estimated at approximately 9,929 tons per day. The Lahore Waste Management Company (LWMC) is responsible for managing solid waste exclusively within Lahore District, where the entire population is urban. Using a waste generation rate of 0.54 kg/capita/day<sup>36</sup> and a projected population of around 11.7 million (excluding cantonment areas, which have independent waste systems), Lahore generates approximately 6,333 tons/day of municipal solid waste.

In the other districts of the division—Sheikhupura, Kasur, and Nankana Sahib—a mixed per capita waste generation rate is applied: 0.45 kg/day for urban areas and 0.32 kg/day for rural areas. These three districts, based on their urban-rural population splits, collectively contribute an estimated 3,762 tons/day of waste. While LWMC manages Lahore’s waste, other local bodies are responsible for waste management in the rest of the division. This highlights the need for integrated planning across administrative boundaries to address the division’s growing solid waste management challenges.

**Table 5-6. Tehsil-Wise Population and Waste Generation of Lahore Division**

DISTRICTS	TEHSILS	AREA	POPULATION (2025)	WG T/D 2025	
LAHORE	Lahore City	Urban	4,296,669	2320	
		Rural		-	
	Raiwind	Urban	1,171,516	633	
		Rural	-	-	
	Model town	Urban	3,445,195	1860	
		Rural	-	-	
	Shalimar town	Urban	2,814,081	1520	
		Rural	-	-	
	SHEIKHUPURA	Sheikhupura	Urban	808,383	364
			Rural	1,056,517	338
Ferozwala		Urban	359,929	162	
		Rural	705,660	226	
Muridke		Urban	368,898	166	
		Rural	398,805	128	
Safdarabad		Urban	105,443	47	
		Rural	236,129	76	
Sharkpur		Urban	50,263	23	
		Rural	190,785	61	

<sup>36</sup> [Assessment of Solid Waste Management System in Pakistan and Sustainable Model from Environmental and Economic Perspective](#)

<b>NANKANA SAHIB</b>	Nankana Sahib	Urban	137,479	62
		Rural	996,014	319
	Shah kot	Urban	95,800	43
		Rural	225,669	72
	Sanglahill	Urban	123,511	56
		Rural	166,351	53
<b>KASUR</b>	Kasur	Urban	800,485	360
		Rural	914,145	293
	Chunian	Urban	223,211	100
		Rural	814,122	261
	Pattoki	Urban	246,844	111
		Rural	881,645	282
Kot Radha	Urban	122,637	55	
	Rural	330,220	106	
<b>TOTAL</b>			<b>21,777,940</b>	<b>9929</b>

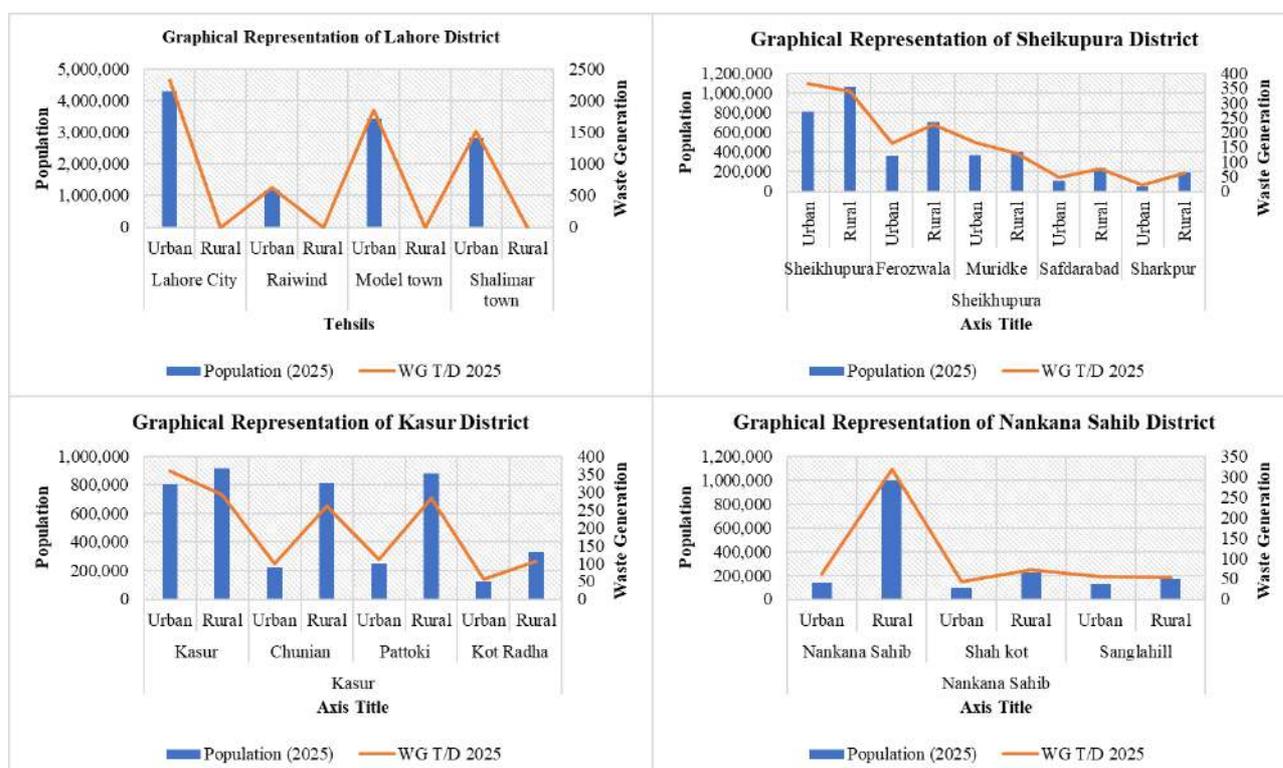


Figure 5-6. Graphical Representation of Population and Waste Generation of Lahore Division

### 5.2.3 Waste Composition

As part of this project in Lahore, an on-site waste characterization study was conducted to better understand the composition of municipal solid waste. Using the quarter coning method, a physical waste characterization survey was carried out in the city, complemented by a

chemical waste analysis performed during both the summer and winter seasons to capture seasonal variations. Samples were collected and analyzed at SGS, an EPA-certified laboratory, to ensure reliable results. While a separate, detailed report will be published, key findings from this analysis reveal important insights into Lahore’s waste streams. Biodegradable waste emerged as the largest component, accounting for approximately 49.42% to 70.50% of the total waste. Plastics constituted around 12.09% to 15.90%, while diaper waste was also notably significant, ranging from 6.28% to 16.71%. Textile waste made up about 4.03% to 6.94% of the overall waste stream. Additional categories and detailed breakdowns can be found in tables 5–7. These results highlight the urgent need for targeted waste management strategies to effectively address these predominant waste types and improve overall waste diversion and recycling efforts in Lahore.



Figure 5-7. Physical Waste Characterization in Lahore Division.

Table 5-7. Components Segregated from Waste in Lahore Division

SR. NO.	PHYSICAL WASTE COMPOSITION	DISTRICT WISE WASTE COMPOSITION IN %			
		Lahore	Sheikhupura	Kasur	Nankana
1	Combustibles	2.46	0.58	0.24	5.81
2	Diaper	9.81	6.28	16.71	15.94
3	Elec.-Electronic W.	1.79	0.00	0.02	0.42
4	Glass	8.87	0.14	0.41	0.87

5	Hazardous W	0.03	0.01	0.25	0.00
6	Biodegradable W.	49.42	70.50	63.15	47.47
7	Metals	0.06	0.02	0.01	0.03
8	Non-Combustibles	3.40	3.81	1.65	4.60
9	Paper-Cardboard	0.42	2.22	0.60	0.45
10	Pet	1.02	0.00	0.05	0.06
11	Nylon	0.42	0.28	0.29	0.94
12	Plastics	15.25	12.09	12.43	15.90
13	Tetrapak	2.11	0.05	0.06	0.59
14	Textile	4.93	4.03	4.15	6.94
		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

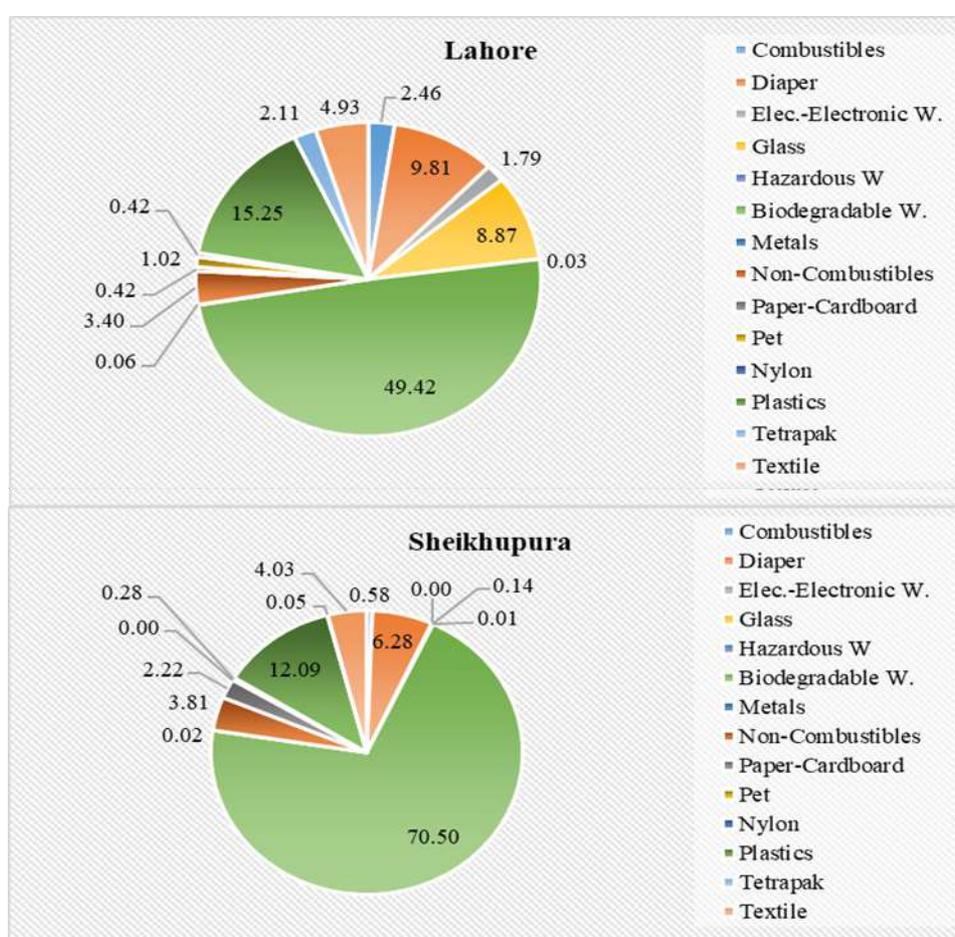


Figure 5-8. Graphical Representation of Waste Composition Breakdown in Lahore, and Sheikhupura

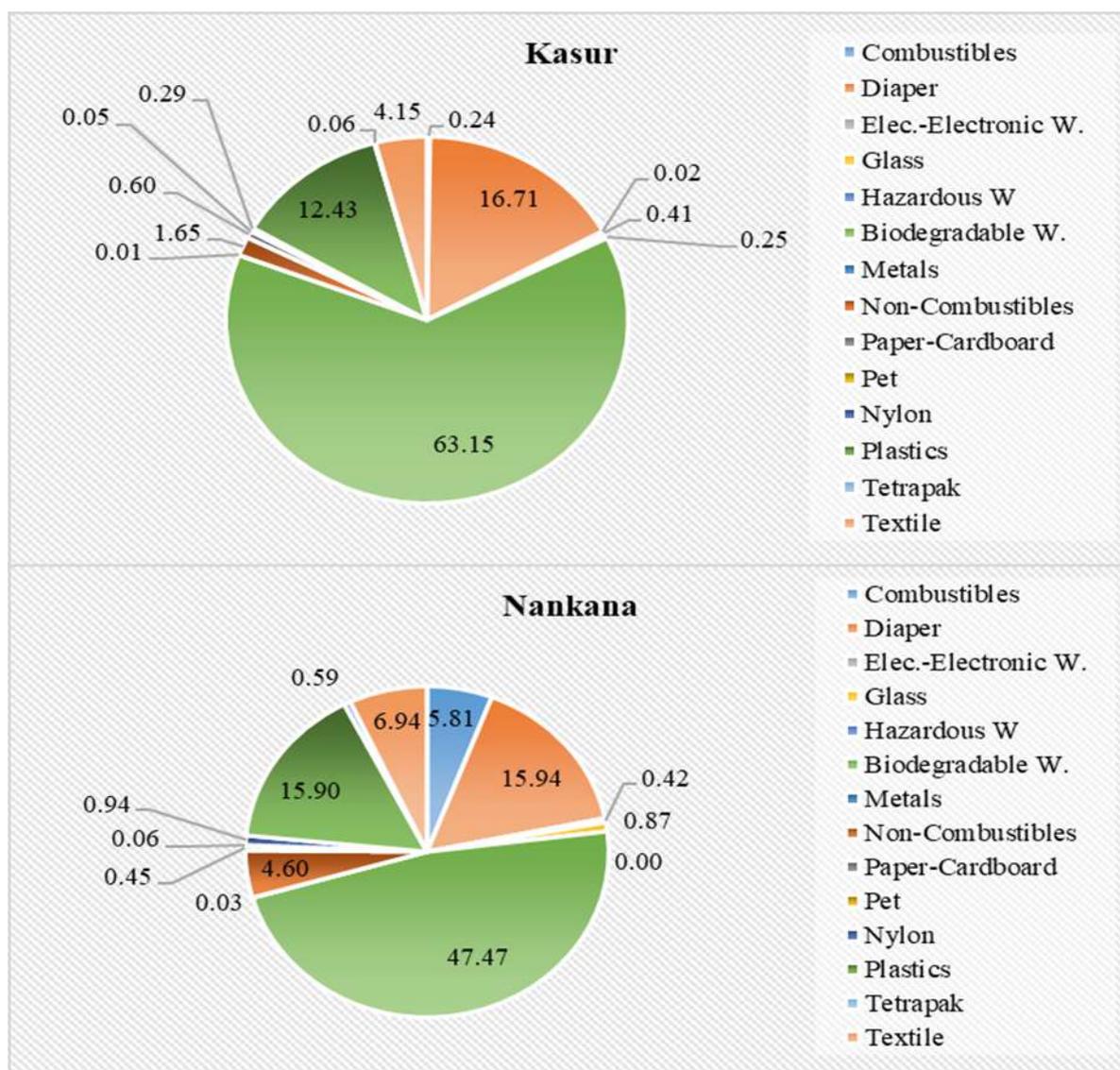


Figure 5-9. Graphical Representation of Waste Composition Breakdown in Nankana, and Kasur.

### 5.2.4 Primary and Secondary waste collection

In Lahore Division, solid waste management operates through a two-tiered system comprising primary and secondary waste collection, primarily overseen by the Lahore Waste Management Company (LWMC). Primary collection involves door-to-door (DtD) services and the placement of community bins, especially in urban and rural areas. Implementation of door to door waste collection system is in process in the city of Lahore by LWMC. Secondary collection entails transporting waste from waste containers (community bins)/temporary collection points (TCPs) or transfer stations to the Lakhodair landfill site. LWMC manages primary collection directly and outsources secondary transportation to enhance efficiency. However, in other districts of Lahore division collection and transportation services are

outsourced to contractors and LWMC's professional are on monitoring of the services providing by the contractors in respective districts as per their contractual agreement. Despite these structured efforts, challenges persist, including limited coverage in peri-urban areas, reliance on outdated equipment, and inefficiencies in route planning, leading to delays and reduced service quality<sup>37</sup>.

A significant issue in Lahore's waste management is the role of the informal sector. Approximately 15,000 scavengers and 400 junk shops operate independently, collecting and recycling waste without formal coordination with LWMC. This unregulated activity often leads to littering around collection points and conflicts with municipal authorities. Moreover, the lack of integration of these informal workers into the official waste management framework hampers efforts to improve overall efficiency and sustainability. Addressing these challenges requires strategic planning, investment in infrastructure, and policies that incorporate informal workers into the formal system to enhance waste collection and disposal services across Lahore Division<sup>38</sup>.



Figure 5-10. Primary and Secondary Waste Collection Fleet

<sup>37</sup> Evolution of Solid Waste Management System in Lahore: A Step towards Sustainability of the Sector in Pakistan

<sup>38</sup> <https://journals.sagepub.com/doi/abs/10.1177/0734242X13499811#:~:text=Framework%20for%20integration%20of%20informal%20waste%20management%20sector%20with%20the%20formal%20sector%20in%20Pakistan>

**Table 5-8. Waste Management Assets of Primary and Secondary Collection (Current Machinery Available with Local Government, TMAs/WMC).**

SR. NO	DISTRICT	TEHSIL	LOADER RICKSHAWS	COMPACTOR (7 M <sup>3</sup> )	DUMPERS (5 M <sup>3</sup> )	TRACTOR LOADER	DUMPERS (10M <sup>3</sup> )	FRONT-END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER(MS)	DRAIN CLEANER	TRACTOR TROLLEY(2M <sup>3</sup> )	CHAIN ARM ROLL (2.5 M <sup>3</sup> )	MINI TIPPER	
1	Nankana Sahib	Nankana Sahib	2	0	0	7	0	0	0	0	0	7	0	1	
		Shahkot	0	0	0	1	0	0	0	0	0	2	0	1	
		Sangla Hill	0	0	0	1	1	0	0	0	0	2	0	0	
2	Sheikhupura	Sharaqpur	0	0	0	1	0	0	0	1	0	2	0	0	
		Muridke	2	5	0	1	1	2	1	0	1	4	0	8	
		Safdarabad	2	0	0	3	0	0	0	0	0	5	0	0	
		Sheikhupura	2	0	0	8	0	0	0	0	2	0	18	1	0
		Ferozwala	0	0	0	2	0	0	0	0	1	0	3	0	0
3	Kasur	Kasur	11	0	0	6	0	0	0	0	1	2	17	1	0
		Kot Radha Kishan	6	0	0	1	0	0	0	0	0	1	2	0	0
		Chunian	3	0	0	1	0	0	0	0	1	0	6	0	0
		Pattoki	6	0	0	1	0	0	0	0	1	0	6	0	0
		Raiwind	0	10	3	3	3	0	2	4	0	0	0	0	2
4	Lahore	Model Town	10	35	6	8	5	0	2	4	0	2	0	8	
		Shalimar	1	37	6	9	8	0	2	3	0	2		12	
		City	37	115	32	44	22	6	16	21	6	18	6	49	

**Table 5-9. Waste Management Assets of Primary and Secondary Collection (Additional Machinery will be Deployed by Local Contractor Under SUTHRA Punjab Program).**

SR. NO	DISTRICT	TEHSIL	LOADER RICKSHAW S	COMPACTOR (7 M <sup>3</sup> )	DUMPER S (5M <sup>3</sup> )	TRACTOR LOADER	DUMPERS (10M <sup>3</sup> )	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER( MS)	DRAIN CLEANER	TRACTOR TROLLEY (2 M <sup>3</sup> )	RICKSHAW WASHER	CHAIN ARM ROLL (2.5 M <sup>3</sup> )	MINI TIPPER	
1	Nankana Sahib	Nankana Sahib	143	2	9	2	10	6	1	1	2	9	1	0		
		Shahkot	37	1	3	2	2	2	2	1	1	2	2	1	0	
		Sangla Hill	34	1	3	2	2	2	1	1	1	2	1	1	0	
2	Sheikhupura	Sharaqpur	29	1	3	2	3	1	1	0	2	1	1	1		
		Muridke	68	0	7	5	7	1	0	0	1	5	2	2		
		Safdarabad	39	1	3	0	3	1	1	1	2	0	0	0	1	
		Sheikhupura	220	9	17	4	20	6	1	0	2	3	1	1	9	
		Ferozwala	115	8	9	4	13	5	1	0	2	5	1	1	8	
3	Kasur	Kasur	187	8	14	4	17	6	1	0	0	0	1	8		
		Chunian	130	4	10	7	10	3	1	0	2	6	1	4		
		Pattoki	145	4	11	8	11	4	1	0	2	9	1	3		
		Kot Radha Kishan	52	2	6	3	5	2	1	1	2	4	1	1		
4	Lahore	Raiwind	0	10	3	3	3	0	2	4	0	0	0	2	15	
		Model Town	10	35	6	8	5	0	2	4	0	2	0	8	65	

Shalimar	1	37	6	9	8	0	2	3	0	2	12	61	
City	37	115	32	44	22	6	16	21	6	18	6	49	289

**Table 5-10. Existing and Required HR for Lahore Division**

Sr. No	District	TEHSIL (HUMAN RESOURCE)	CURRENT HR	ADDITIONAL HR REQUIRED
1	Nankana Sahib	Nankana Sahib	182	526
		Shahkot	64	190
		Sangla Hill	72	137
2	Sheikhupura	Sharaqpur	24	150
		Muridke	95	505
		Safdarabad	56	165
		Sheikhupura	427	1176
		Ferozwala	42	1009
3	Kasur	Kasur	482	821
		Kot Radha Kishan	40	265
		Chunian	108	653
		Pattoki	188	610
		Raiwind	539	0
4	Lahore	Model Town	1200	0
		Shalimar	1238	0
		City	7089	0

### 5.2.5 Waste Transfer and Disposal

The solid waste transfer and disposal system in Lahore Division—which includes the districts of Lahore, Sheikhupura, Nankana Sahib, and Kasur—varies significantly in effectiveness and infrastructure. Lahore has the most developed system, managed by the Lahore Waste Management Company (LWMC), with one major operational dumpsite handling approximately 5,000 tons of waste daily. However, challenges persist due to poor waste segregation, which results in mixed waste being sent to landfills, hindering recycling and treatment efforts. Additionally, Lahore’s single landfill site is nearing its capacity and accommodate waste about 3-4 years, and due its management issue it’s converted into dumpsite from systematic sanitary landfill site. One study reveals that methane plume was observed in October 2020 because “the vents created in the landfill to let this methane out in small quantities get choked because of the excessive garbage being dumped here<sup>39</sup>,” Despite a relatively strong road and transport network, the city needs further investments in recycling centers and waste-to-energy solutions to enhance sustainability.



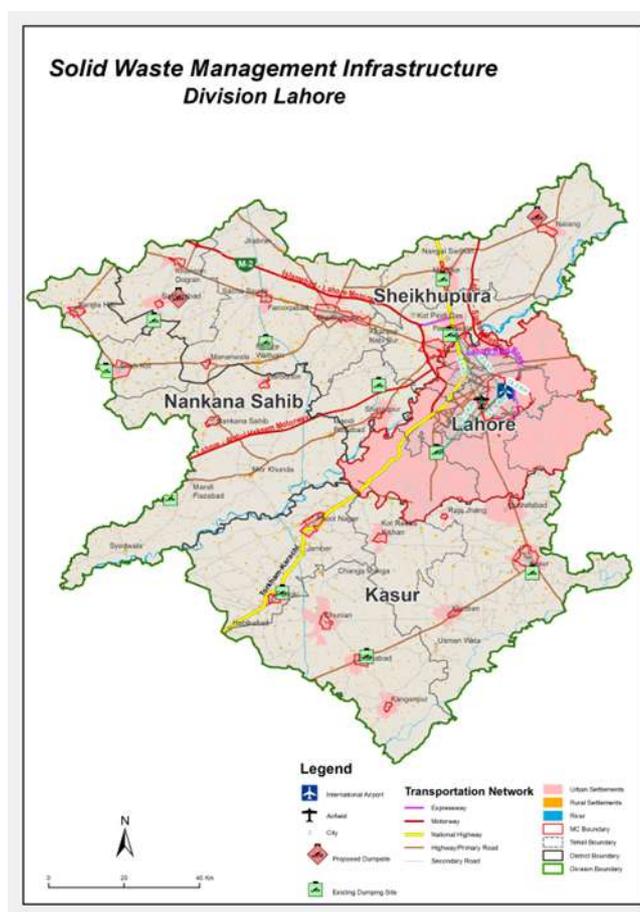
In contrast, the surrounding districts face more acute challenges. Nankana Sahib, though recently equipped with one dumpsite, handles only about 24 tons of waste per day and suffers from limited infrastructure, resulting in informal dumping practices in rural areas. Sheikhupura and Kasur lack operational dumpsites altogether, with waste transfer hampered by poor road conditions, inadequate vehicles, and the absence of centralized disposal systems. Waste in these districts is often transported inefficiently and without segregation, making environmentally sound disposal difficult. Across the division, improvements in transportation logistics, waste

<sup>39</sup> <https://loksujag.com/story/methane-plumes-in-lahore>

collection infrastructure, and decentralized processing facilities are crucial to achieving an efficient and sustainable solid waste management system.

**Table 5-11. Dumpsite in Lahore Division**

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
NANKANA SAHIB	01	24	8760	2022	2040
SHEIKHUPURA	0	N/A	N/A	N/A	N/A
KASUR	0	N/A	N/A	N/A	N/A
LAHORE <sup>40</sup>	01	5000	1,825,000	2016	N/A



**Figure 5-11. Solid Waste Management in Lahore Division – Dumpsite Locations and Proximity to Key Infrastructure**

<sup>40</sup> <https://epd.punjab.gov.pk/system/files/Final.pdf>

### 5.2.6 Existing Infrastructure

Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management (SWM) across the Lahore division. The existing solid waste management (SWM) infrastructure across the Lahore Division—covering Lahore, Sheikhpura, Nankana Sahib, and Kasur—shows a stark contrast in development and operational efficiency. Lahore District, managed by the Lahore Waste Management Company (LWMC), has an established in-house SWM system and has not been outsourced under the “Suthra Punjab” program. It includes a structured transportation network, a designated dumpsite, and transfer stations, with primary and secondary waste collection systems covering the urban expanse. Despite this, Lahore still faces challenges like unsegregated waste disposal and an overburdened landfill, emphasizing the need for more sustainable waste processing solutions.

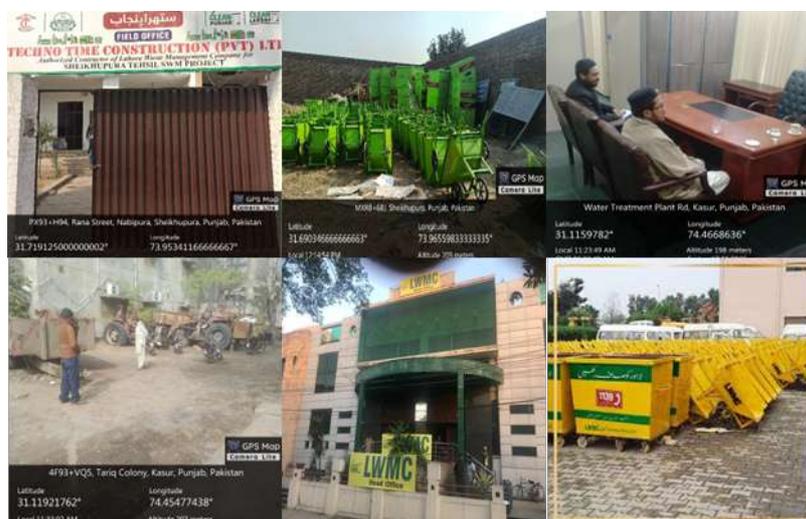


Figure 5-12. Existing Infrastructure of LWMC

In comparison, Sheikhpura, Nankana Sahib, and Kasur have outsourced their SWM services under the Suthra Punjab program to improve waste handling in less urbanized areas. These districts lack operational dumpsites (except Nankana Sahib with one site since 2022), and waste is transferred over longer distances, often using the limited infrastructure. Rural and peri-urban areas in these districts especially struggle with inadequate waste collection coverage, informal dumping, and poor transportation logistics. The program aims to streamline waste management in these regions by involving private sector efficiency, but the current infrastructure still requires significant upgrades, including dedicated transfer stations, landfill development, and improved vehicle access to ensure reliable and sanitary waste disposal.

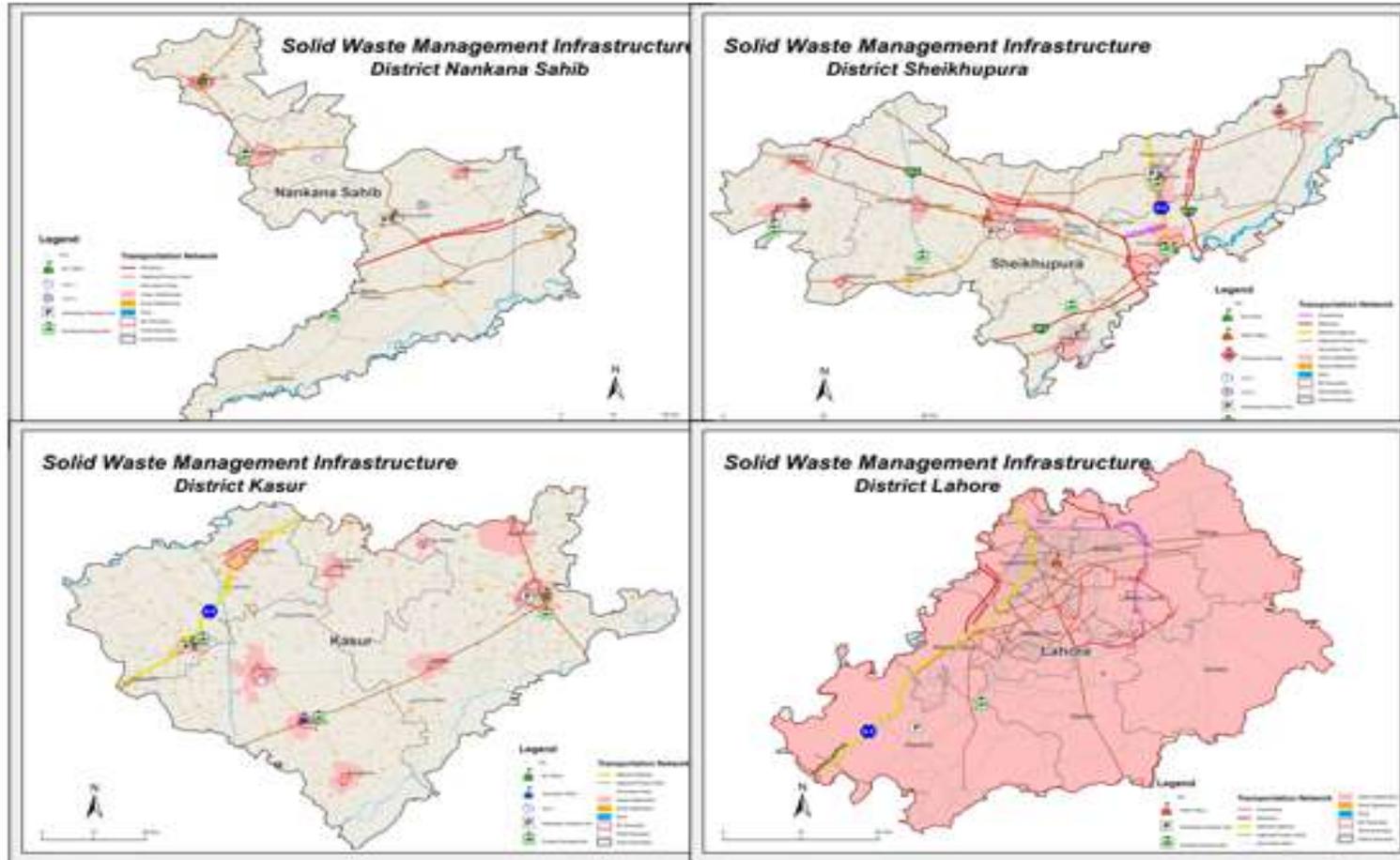


Figure 5-13. SWM Infrastructure of Lahore Division

### 5.2.7 Waste Collection Efficiency

The collection efficiency of solid waste in the Lahore Division shows a sharp contrast between Lahore and its neighbouring districts—Nankana Sahib, Sheikhpura, and Kasur. Lahore records the highest collection efficiency at 70%, collecting around 4,297 tons of waste daily out of 6,166 tons generated. This relatively high rate reflects the city's more advanced infrastructure, organized collection systems, and better access to waste transportation and disposal facilities. However, despite these systems, gaps in waste segregation and the strain on existing dumpsites remain ongoing challenges.

In contrast, Nankana Sahib (21%), Sheikhpura (24%), and Kasur (23%) display very low collection efficiencies. These districts generate substantial amounts of waste, ranging from 605 to 1,590 tons per day, yet collect only a small portion. The low collection rates highlight issues such as limited waste collection coverage, insufficient transportation resources, and weak infrastructure, particularly in rural and semi-urban areas. Enhancing collection efficiency in these regions will require targeted investments in waste collection fleets, improved road access, and development of local transfer and disposal facilities to ensure cleaner and healthier communities. This collection efficiency will be improved over a year after the instruction of complete waste collection and transportation resources under the Suthra Punjab Program.

**Table 5-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program**

DISTRICT	Nankana Sahib	Sheikhpura	Kasur	Lahore
<b>TOTAL WASTE COLLECTION (T/D)</b>	119t/D	382 t/D	362t/D	4297t/D
<b>WASTE GENERATION (T/D)</b>	605t/D	1590 t/D	1568 t/D	6166 t/D
<b>COLLECTION EFFICIENCY (CE) (%) BEFORE OUTSOURCING</b>	21%	24%	23%	70%
<b>COLLECTION EFFICIENCY (%) AFTER OUTSOURCING</b>	70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>41</sup>			84 <sup>42</sup>

### 5.2.8 Scavenging Activities

Scavenging activities in Lahore Division, particularly within Lahore city, constitute a vital yet informal component of the region's waste management system. Recent studies underscore the significant role of waste pickers in diverting substantial amounts of recyclable materials from landfills, thereby contributing to the circular economy. For instance, a 2022 mapping project by the Circular Plastic Institute highlighted the diverse categories of waste pickers in Lahore,

<sup>41</sup> Current waste collection efficiency is obtained during discussion with WMC.

<sup>42</sup> Primary waste collection is being performed by LWMC itself (data collected from video-wall LWMC) while for secondary waste collection, LWMC has outsourced that function.

including street pickers, dumpsite workers, and itinerant buyers. These individuals often operate without formal recognition, facing challenges such as a lack of protective equipment, exposure to hazardous materials, and social stigmatization<sup>43</sup>.

Despite these challenges, the informal sector's contribution to waste management is substantial. A study published in 2023 in *Applied Sciences* noted that approximately 84% of Lahore's waste is collected and disposed of formally, with the remaining portion often managed by informal waste pickers or, unfortunately, illegally dumped. These waste pickers recover recyclable materials, which are then sold to junkshops or recycling industries, creating an income stream for themselves and supplying raw materials for recycling processes. However, the lack of integration between formal waste management systems and the informal sector leads to inefficiencies and missed opportunities for improved waste recovery and worker welfare. Efforts to formalize and support the informal waste sector could enhance overall waste management efficiency and provide better working conditions for these essential workers<sup>44</sup>.



Figure 5-14. Scavenging Activities.

### 5.2.9 Fuel Allocation to SWM Fleet

Fuel allocation for the Solid Waste Management (SWM) fleet in Lahore Division, particularly under the management of the Lahore Waste Management Company (LWMC), is organized through contractual agreements with fuel providers using fleet card systems to ensure efficient and transparent fuel distribution. This allocation supports a large fleet of waste collection vehicles, including compactors and dumpers, essential for managing daily waste collection across the city. Proper fuel management is critical for maintaining consistent operations, minimizing delays, and reducing environmental impact. Recent studies and operational reports

<sup>43</sup> <https://cpi.ksbl.edu.pk/mapping-the-landscape-waste-pickers-in-pakistan-challenges-opportunities-organizational-strategies>

<sup>44</sup> <https://www.pjoes.com/Role-of-the-Informal-Sector-in-Recycling-r-nWaste-in-Eastern-Lahore%2C89442%2C0%2C2.html>

emphasize the need for optimized fuel consumption strategies to enhance cost-effectiveness and promote sustainable SWM practices in the region.

**Table 5-13. District Wise Fuel Consumption of Lahore Division SWM-Fleet**

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRE PER DAY- BAU	TOTAL FUEL (DIESEL) CONSUMPTION LITRE PER DAY-BAU	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)-BAU
NANKANA SAHIB	Nankana Sahib	11	840	210
	Shahkot	4	210	30
	Sangla Hill	-	210	30
<b>TOTAL</b>		<b>15</b>	<b>1,260</b>	<b>270</b>
SHEIKHUPURA	Sharaqpur	-	230	30
	Muridke	40	617	50
	Safdarabad	6	540	90
	Sheikhupura	6	1,920	240
	Ferozwala	-	350	60
<b>TOTAL</b>		<b>13</b>	<b>2,810</b>	<b>390</b>
KASUR	Kasur	35	1,790	180
	Chunian	10	590	30
	Pattoki	19	590	30
	Kot Radha Kishan	19	230	30
<b>TOTAL</b>		<b>48</b>	<b>1,410</b>	<b>90</b>
LAHORE	Raiwind	62	428	135
	Model Town	302	1,257	330
	Shalimar	257	1,373	360
	City	1,296	7,093	1,800
<b>TOTAL</b>		<b>1,917</b>	<b>10,152</b>	<b>2,625</b>

### 5.2.10 Budget Allocation

The overarching framework for local government budgeting in Punjab is outlined in the Punjab Local Government Act 2022. According to this legislation, local governments are mandated to allocate their budgets between development and non-development expenditures. According to the data provided by Lahore Waste Management Company 17% is allocated for development and 83% is allocated as a non-development budget to run expenses of the company for the fiscal year 2024-2025.<sup>45</sup>

**Table 5-14. Budget Allocation of LWMC**

Over-all Budget of LWMC for the year 2024-2025	31,762 million PKR
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<sup>45</sup> <https://www.scribd.com/document/737366450/punjab-local-government-act-2022-pdf>

Development Budget Allocation	5,399.5 million PKR
Non-Development Allocation	26,362.46 million PKR

### 5.2.11 Fruit Mandi and Slaughter House

Lahore Division hosts several key fruit and vegetable markets (mandis) and slaughterhouses that are integral to its agricultural and meat supply chains. The Badami Bagh Fruit and Vegetable Market, established in 1969, is one of the largest in Punjab but faces challenges due to urban congestion. To address this, the Punjab government has developed the Naimat Nagar Fruit and Vegetable Market over 300 acres in the Kala Khatai area, aiming to meet international standards and serve as an export hub. This new market will feature modern infrastructure, including cold storage facilities, and improved accessibility via major highways and public transport routes<sup>46</sup>.

In terms of meat processing, Lahore houses several registered slaughterhouses, such as those operated by Zenith Associates on Manga Mandi Raiwind Road. Additionally, the Punjab Agriculture & Meat Company (PAMCO) runs the Lahore Meat Processing Complex (LMPC), a state-of-the-art facility with a capacity to process 500 beef animals and 6,000 mutton animals daily. LMPC adheres to international food safety standards and supports both domestic supply and meat exports. However, challenges persist, including the presence of illegal slaughterhouses that bypass health regulations, leading to concerns about meat quality and public health<sup>47</sup>. According to details given by LWMC officials, All Fruit & Vegetable markets and slaughterhouses have their own solid waste management systems, and LWMC is not providing any services at such places. They have their system for the collection & disposal of offal, blood, and organic waste (coming from vegetable and fruit markets).

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<sup>46</sup><https://www.inp.net.pk/article-detail/inp-wealthpk/pakistans-first-modern-vegetable-fruit-market-being-developed-in-lahore>

<sup>47</sup><https://tribune.com.pk/story/2535091/crackdown-launched-against-illegal-slaughterhouses>



Figure 5-15. Slaughterhouse and Fruit Mandi in Lahore

### 5.2.12 Special Events Resource Induction

Special event arrangements for Solid Waste Management (SWM) in Lahore Division are coordinated with increased operational focus to ensure cleanliness and hygiene during public gatherings, festivals, and national events such as Eid-ul-Adha, Pakistan Day, and Independence Day. The Lahore Waste Management Company (LWMC) typically implements comprehensive action plans, which include deploying additional staff, operating extra waste collection vehicles, setting up temporary waste storage points, and ensuring 24/7 monitoring through control rooms. Specific arrangements are made for high-footfall areas like parks, mosques, markets, and slaughter sites during Eid, where the company distributes biodegradable waste bags and ensures prompt collection of animal waste. These efforts aim to maintain sanitary conditions, prevent public health issues, and provide an efficient, responsive waste management service during peak activity periods across the division. At Eid ul Adah event in 2024, almost 50,000 tons of animal waste is collected and disposed of according to standard SOP by the Lahore Waste Management Company.

## 6 CHAPTER: SIALKOT DIVISION WITH RESPECT TO PROVISION OF SOLID WASTE MANAGEMENT SERVICES

### 6.1 Divisional Profile:

Sialkot located in north-eastern Punjab, Pakistan, is known for its historical significance, industrial strength, and economic contribution. This divisional profile is based on the operational jurisdiction of the Sialkot Solid Waste Management Company (SWMC), which currently manages solid waste services in the districts of Sialkot and Narowal. Sialkot, a global industrial hub, boasts advanced infrastructure and a strong export-oriented economy, while Narowal is predominantly agricultural, contributing significantly to food production and rural development. This combination of industrial dynamism and agricultural productivity is a vital player in Pakistan’s economy and trade. With its urban growth centres and vibrant rural areas, the region presents a balanced but complex socio-economic landscape.

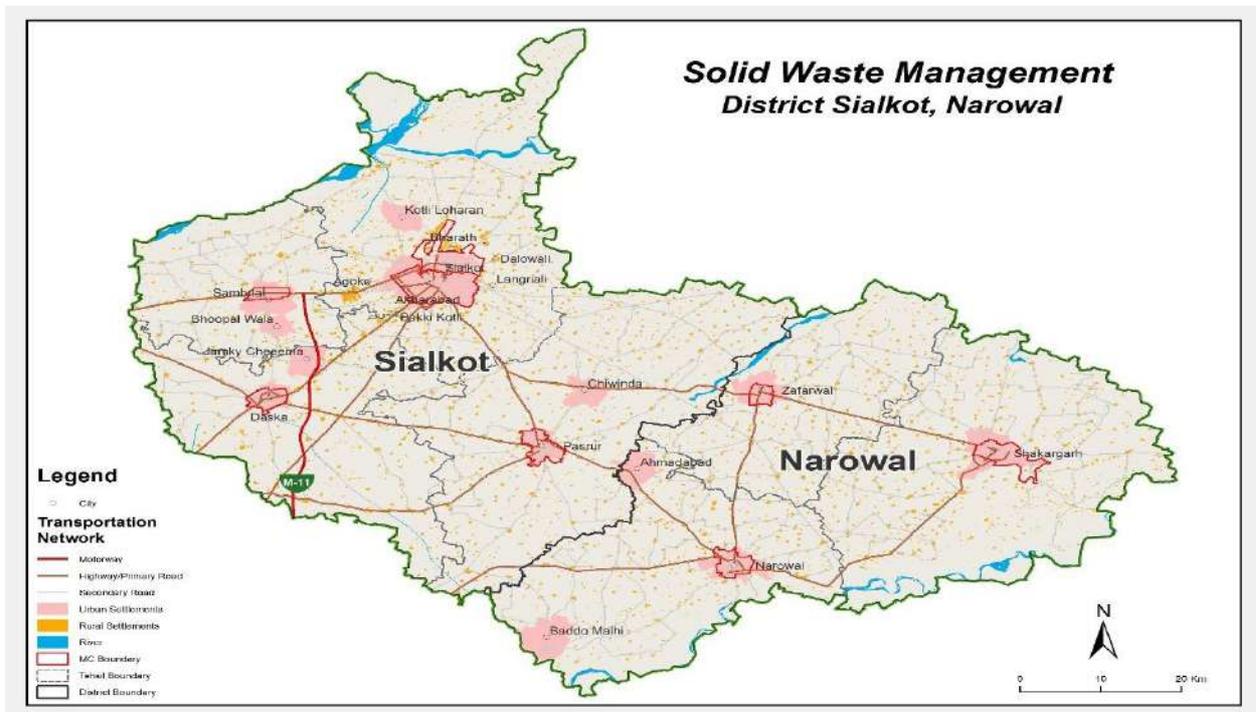


Figure 6-1. SWM Operational Jurisdiction Map of Sialkot Division

Sialkot District excels in manufacturing sports goods, surgical instruments, leather products, and textiles, supported by facilities like Pakistan’s first privately operated international airport and dry port. While the district's industrial activity fuels economic growth and employment, it also generates challenges such as air pollution, groundwater stress, and environmental degradation—issues that SWMC is addressing through structured waste management interventions. Narowal, on the other hand, sustains the region’s agricultural base and supports religious tourism through the Kartarpur Corridor. However, it faces limitations in industrial

development, infrastructure, and access to essential services like sanitation and solid waste management. To ensure inclusive and sustainable progress, the division must strengthen environmental management, reduce urban-rural disparities, and enhance infrastructure through continued support from entities like SWMC.

**Table 6-1. Districts in Sialkot Division.**

DISTRICTS IN SIALKOT DIVISION	
1	Sialkot
2	Narowal

### 6.1.1 Administrative Setup

Administratively Sialkot comes under Gujranwala Division and follows the same hierarchy under the Local Government and Community Development Department (LG&CDD). Here due to formulation of Sialkot Waste Management Company which is operating at division level, it is taken as a separate division w.r.t solid waste management services and outsourcing of these services under Suthra Punjab Program.

### 6.1.2 Population Statistics

Sialkot is located in northeastern Punjab, Pakistan, is a demographically diverse region that reflects both urban expansion and rural traditions. The division's population is estimated at approximately **6.7 million**<sup>48</sup> as of 2025, it will show a balanced mix of urban centers and agricultural communities. This demographic diversity plays a key role in shaping the region's developmental priorities, especially in areas such as public health, infrastructure, education, and environmental management.

With a steady **population growth rate averaging around 2.3%**, Sialkot Division faces increasing demands for effective public service delivery and resource management. The rising population also presents challenges in terms of urban planning, waste management, and the need for expanded municipal services. These dynamics highlight the importance of strategic.

**Table 6-2. Population Statistics of Sialkot and Narowal<sup>49</sup>.**

SR. NO	DISTRICTS	URBAN		TOTAL
		POPULATION-2025	RURAL POPULATION-2025	
1	Sialkot	1619791	3114757	4734548
2	Narowal	387748	1655856	2043604

<sup>48</sup> Primary Data Source is Local Government & Community Development Department, Government of Punjab

<sup>49</sup> Ibid, sheet 27-11

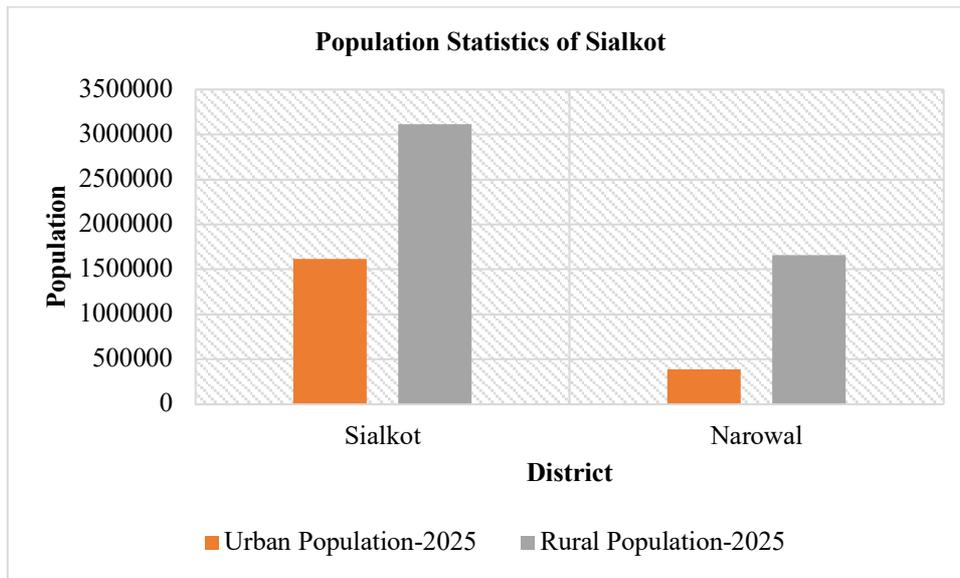


Figure 6-2. Graph of population statistics of Sialkot and Narowal.

### 6.1.3 Demography of Sialkot

The demography of Sialkot Division reflects a growing and economically active population spread across a diverse geographic area. Covering a combined area of approximately 535300 hectares, the division is home to over 952,856 households, indicating a high population density with significant residential development. The region's demographics also highlight a strong presence of economic activity, with a total of 197,322 registered economic entities operating across both urban and semi-urban zones.

The division features 87 high-rise economic structures, reflecting pockets of vertical commercial development, primarily in more urbanized localities. The vast majority—197,235 economic units—are housed in normal structures, which suggests a predominance of small to medium-scale businesses, workshops, and traditional markets. This economic layout points to a well-distributed commercial base that supports both industrial output and rural economies, underlining the region's role as a vital contributor to Punjab's economy.

Table 6-3. Demography of Sialkot and Narowal<sup>50</sup>

SR. NO	DISTRICT	AREA HECTARES	NO. OF HOUSEHOLDS	NO. ECONOMIC ENTITIES HIGH RISE	NO OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
1	Sialkot	301600	671,320	73	126,666	126,739
2	Narowal	233700	281,536	14	70,569	70,583

### 6.1.4 Land use area of Sialkot Division

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report, are shown in tabulated form.

Table 6-4. District Wise Land Use Area of Sialkot and Narowal<sup>51</sup>

DISTRICT	CULTIVATED AREA (HA)	IRRIGATED AREA (HA)	RAINFED AREA (HA)	UNCULTIVAT ED AREA (HA)	FOREST (HA)	POTENTIALLY CULTIVATED AREA (HA)	NOT AVAILABLE FOR CULTIVATION (HA)
SIALKOT	260,432	0	0	40,168	2900	800	1300
NAROWAL	188,255	2,291	185,964	52,646	4,033	28,686	26,645

### 6.1.5 Climatic Conditions of Sialkot Division

The climatic conditions of this division are significantly shaped by its geographical positioning. This region is marked by a subtropical climate, which features sweltering summers, monsoon precipitation, and relatively mild winters. In Sialkot and Narowal, the summer months are characterized by high humidity and heat, while winter brings a notable chill, with temperatures potentially plummeting to  $-2^{\circ}\text{C}$  ( $28^{\circ}\text{F}$ ). June and July stand out as the peak of summer heat, whereas the winter season can be quite severe. The landscape is predominantly flat and fertile, which is conducive to agricultural activities. The region supports a robust agricultural output with an average annual rainfall of around 1000 mm. The post-monsoon season (mid-September to mid-November) brings hot days and cooler nights with low humidity, offering some relief from the summer heat. During winter (mid-November to March), the weather remains mild to warm during the day, but heavy rainfall occasionally occurs, impacting both urban and rural areas. These seasonal variations play a significant role in shaping the agricultural cycles and overall living conditions in the region.

<sup>50</sup> Primary Data Source LG&CDD

<sup>51</sup> [https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table\\_1\\_punjab\\_districts.pdf](https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table_1_punjab_districts.pdf)

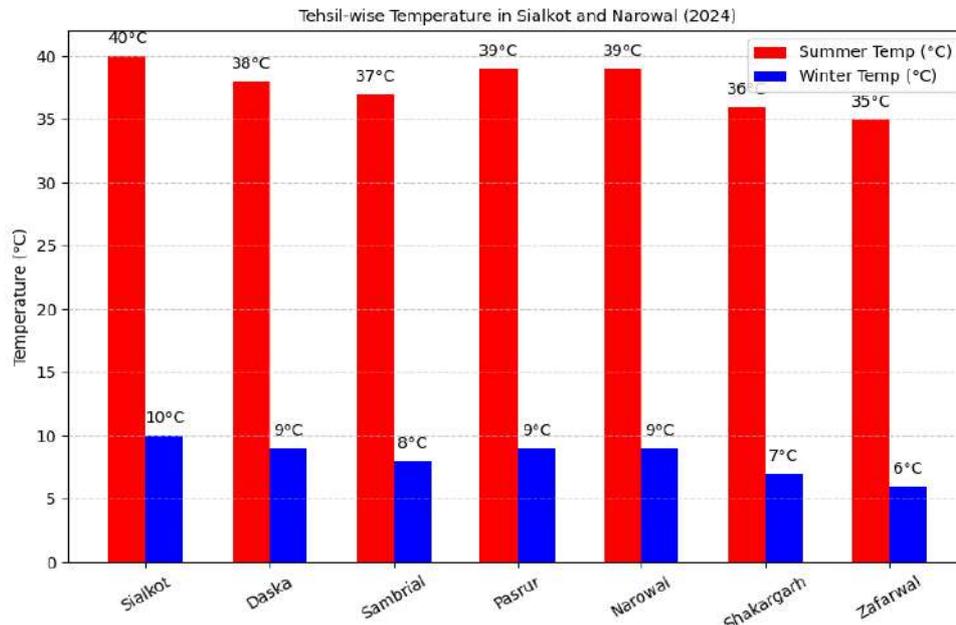


Figure 6-3. Graphical representation of the climatic conditions in Sialkot Division's districts<sup>52</sup>

Table 6-5. Tabular representation of the climatic conditions in Sialkot Division's districts.<sup>53</sup>

DISTRICT	SUMMER TEMP (°C)	WINTER TEMP (°C)	MONSOON RAINFALL 2024 (MM)	AVG. ANNUAL RAINFALL 2024 (MM)
SIALKOT	35 – 40	5 – 10	700 - 900	1,000 - 1,200
NAROWAL	34 – 39	4 – 9	600 - 800	900 - 1,100

## 6.2 Asset Mapping of Solid Waste Management Services

### 6.2.1 SWM Administrative setup

The Sialkot Waste Management Company (SWMC) operates under the Local Government and Community Development Department of Punjab, responsible for solid waste management in the region. As shown in the organogram, the company is led by a Chairman and a Board of Directors, with day-to-day operations managed by the Managing Director. The MD is supported by various departmental heads overseeing Operations, Finance, HR/Admin, Procurement, Communication, MIS/GIS, and Internal Audit.

<sup>52</sup> <https://www.pmd.gov.pk/en/> & <https://sialkot.punjab.gov.pk/climate>

<sup>53</sup> <https://www.pmd.gov.pk/en/>

Each department is structured with managers and assistant managers, though several assistant-level roles—particularly in HR, Admin, and Communication—are currently vacant. The Operations Division is the most extensively staffed, reflecting its core role in service delivery. The Finance and MIS/GIS divisions are also well-supported, ensuring financial management and digital operations. The color-coded chart indicates staffing status: green for filled, white for vacant, and blue for partly filled positions. Overall, SWMC’s structure supports efficient planning, coordination, and monitoring of waste services in line with provincial policies.

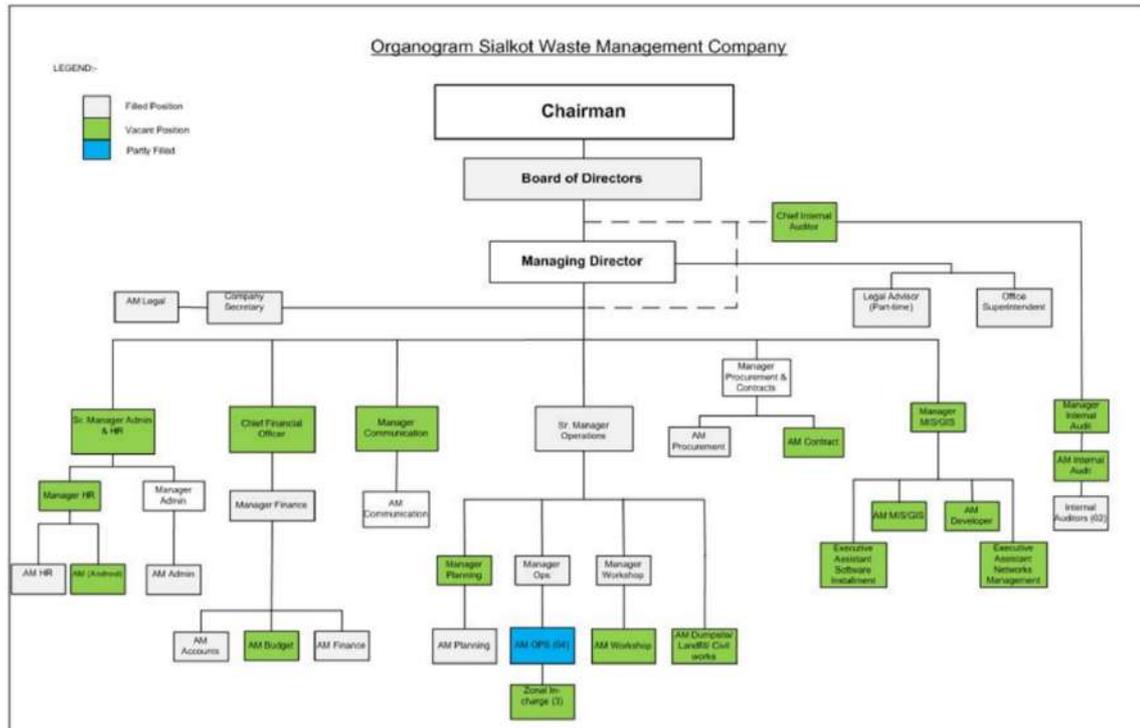


Figure 6-4. Administrative setup of Sialkot Waste Management Company.<sup>54</sup>

## 6.2.2 Population and Waste Generation

The Sialkot Division, comprising the Sialkot and Narowal districts, has a rapidly growing population, resulting in a steady increase in waste generation and corresponding management challenges. With a combined population of over approximately 6.8 million, Sialkot & Narowal generates an estimated 2,428 tons of waste per day. Urban centers like Sialkot City contribute significantly to municipal solid waste, with an average generation rate of 0.45 kg per capita per day, primarily stemming from households, commercial zones, and industrial sectors. The district's prominent industrial base—including sports goods, surgical instruments, and leather

<sup>54</sup> [https://sialkot.punjab.gov.pk/Sialkot\\_Waste\\_Management\\_Company](https://sialkot.punjab.gov.pk/Sialkot_Waste_Management_Company)

production—also contributes to the waste stream, often requiring specialized handling and disposal due to the nature of industrial byproducts.

In contrast, the rural areas across the division contribute waste at a slightly lower generation rate of 0.32 kg per capita per day, mainly consisting of organic and agricultural waste. These rural and peri-urban regions face unique environmental challenges, especially with informal dumping and limited collection infrastructure. Addressing these issues requires a comprehensive and region-specific solid waste management strategy focused on effective collection, safe disposal, and enhanced recycling practices to improve public health and environmental sustainability throughout the division.

**Table 6-6. Tehsil-wise population and waste generation of Sialkot Division**

SR. NO	DISTRICT	TEHSILS		POPULATION- 2025	WG T/D		
1	Sialkot	Sialkot	Urban	1060135	477		
			Rural	1147539	367		
		Sambrial	Urban	143244	64		
			Rural	335209	107		
		Daska	Urban	280971	126		
			Rural	749331	240		
		Pasrur	Urban	135441	61		
			Rural	882678	282		
2	Narowal	Narowal	Urban	182893	82		
			Rural	528511	169		
		Shakargarh	Urban	146821	66		
			Rural	661107	212		
		Zafarwal	Urban	58034	26		
			Rural	466239	149		
		<b>TOTAL</b>				<b>6,778,152</b>	<b>2428</b>

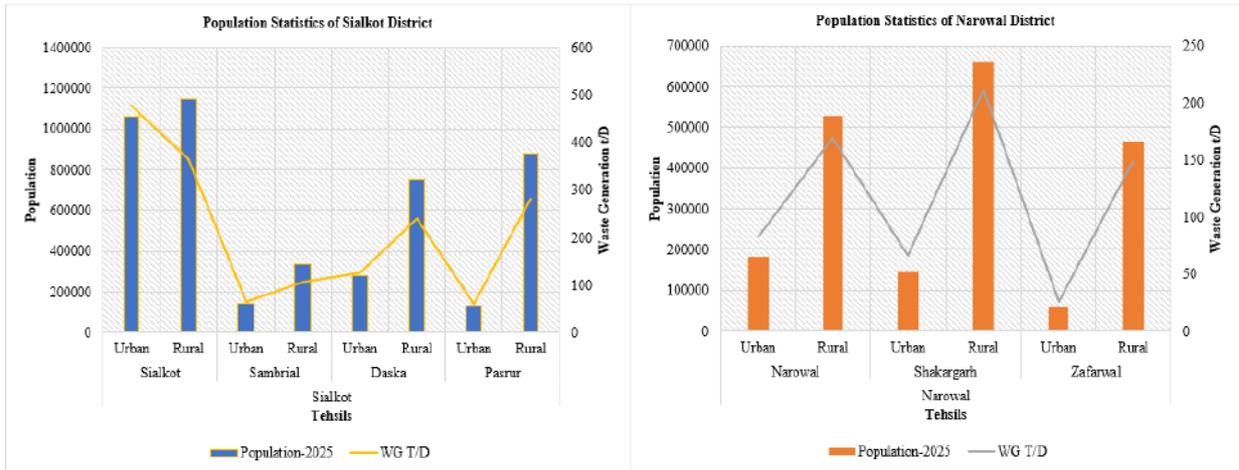


Figure 6-5. Graphical representation of population and Waste Generation of Sialkot Division.

### 6.2.3 Waste Composition

A comprehensive waste characterization study was conducted in Punjab's 41 districts, focusing on the tehsils of divisional headquarters using the quarter coning method. In districts with operational waste management companies.



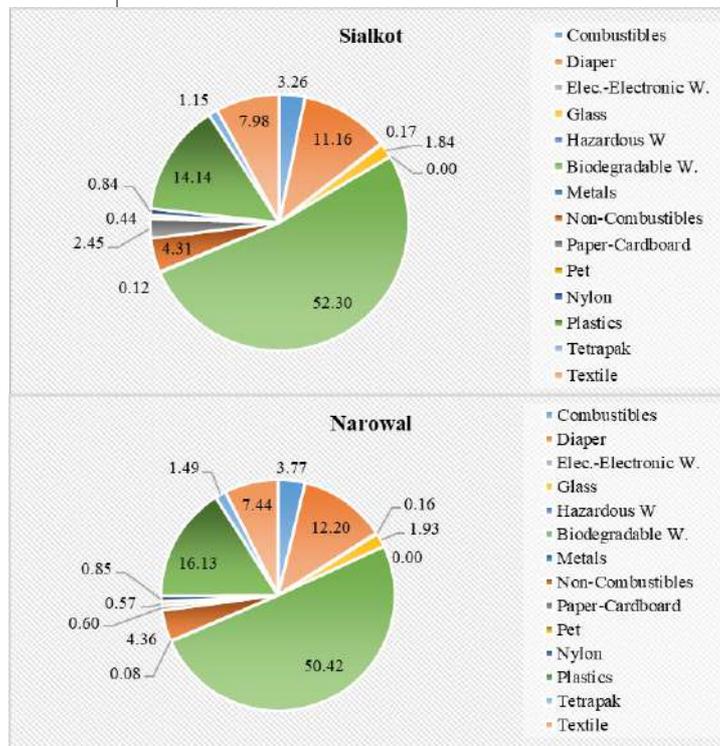
Figure 6-6. Physical Waste Characterisation of Sialkot Division.

These samples were analyzed for chemical composition at SGS, an EPA-certified laboratory, to identify seasonal variations in waste generation. A detailed report on these findings will be published separately.

In Sialkot, the waste stream is predominantly composed of diapers (21.96%), plastics (16.01%), and combustible materials (24.51%), with biodegradable waste accounting for 23.14%. In contrast, Narowal's waste is chiefly biodegradable (50.42%), with lower percentages of diapers (12.20%), plastics (16.13%), and combustible materials (3.77%). These differences highlight the need for tailored waste management strategies in each district.

**Table 6-7. Components segregated from waste in Sialkot and Narowal Districts.**

SR. NO.	PHYSICAL WASTE COMPOSITION	DISTRICT WISE WASTE COMPOSITION IN %	
		Sialkot	Narowal
1	Combustibles	3.26	3.77
2	Diaper	11.16	12.20
3	Elec.-Electronic W.	0.17	0.16
4	Glass	1.84	1.93
5	Hazardous W	0.00	0.00
6	Biodegradable W.	52.30	50.42
7	Metals	0.12	0.08
8	Non-Combustibles	4.31	4.36
9	Paper-Cardboard	2.45	0.60
10	Pet	0.44	0.57
11	Nylon	0.84	0.85
12	Plastics	14.14	16.13
13	Tetrapak	1.15	1.49
14	Textile	7.98	7.44
		100.00	100.00



**Figure 6-7. Graphical Representation of Waste Characterization Study**

#### 6.2.4 Primary and Secondary Waste Collection

In Sialkot Division, the Sialkot Waste Management Company (SWMC) manages solid waste collection through a structured system involving both primary and secondary waste management processes. The primary collection involves door-to-door waste gathering from residential, commercial, and institutional sources using hand carts and mini dumpers. Sanitary workers collect waste directly at the source to prevent accumulation in public spaces. These mini dumpers then deposit waste into fixed containers or collection points placed on major roads, making the process efficient and accessible for the next stage.

The secondary collection phase entails transferring waste from these containers and community bins—ranging in capacity from 0.8m<sup>3</sup> to 5m<sup>3</sup>—to transfer stations or directly to disposal sites. Larger vehicles like compactors and dumpers are used to move the collected waste to designated landfills or dumpsites. This two-tiered system ensures the efficient movement of waste from households to final disposal locations. However, the division currently lacks robust waste segregation and recycling mechanisms, which are essential for sustainable waste management. As part of ongoing reforms, the system is in a transition phase, with local contractors being gradually outsourced to manage collection and transfer services across tehsils under SWMC supervision, aiming to improve service delivery and infrastructure as waste volumes increase.

**Table 6-8. Waste Management Assets of Primary and Secondary collection (Current Machinery available with Local Government/WMC)**

SR. NO	DISTRICT	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7M3)	TRACTOR OR LOADER	DUMPERS (10M3)	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER (MS)	TRACTOR TROLLEY
1	Sialkot	Sialkot	15	12	0	5	6	3	0	20
		Sambrial	2	0	3	0	0	0	0	3
		Daska	5	2	5	1	0	0	0	3
		Pasrur	5	0	2	0	0	0	0	4
		Narowal	1	0	2	0	0	0	1	2
2	Narowal	Shakargarh	3	0	0	0	0	0	0	0
		Zafarwal	1	0	1	0	0	0	0	1

**Table 6-9. Waste Management Assets of Primary and Secondary Collection (Additional machinery) will be Deployed by the contractor**

SR. NO	DISTRICT	TEHSILS	L. RICKSHAWS	COMPACTOR (7M <sup>3</sup> )	DUMPERS (5M <sup>3</sup> )	TRACTOR LOADER	DUMPERS (10M <sup>3</sup> )	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER	DRAIN CLEANER	TRACTOR TROLLEY (2.5)	RICKSHAW WASHER	MINI DUMPER
1	Sialkot	Daska	103	3	9	3	9	4	1	1	2	11	2	4
		Pasrur	114	3	9	7	10	5	1	1	2	12	2	5
		Sambrial	46	3	4	1	5	2	1	1	2	3	2	3
		Sialkot	177	0	20	15	18	4	0	0	2	5	0	1
2	Narowal	Narowal	72	3	6	4	7	3	1	1	2	8	2	5
		Shakargarh	91	2	8	8	7	4	1	1	2	13	2	1
		Zafarwal	63	1	6	4	5	3	1	1	2	8	2	1

**Table 6-10: Current and Additional HR for Sialkot Division**

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
SIALKOT	Daska	170	550
	Pasrur	75	565
	Sambrial	60	338
	Sialkot	345	1463
NAROWAL	Narowal	84	406
	Shakargarh	14	482
	Zafarwal	25	285

### 6.2.5 Waste Transfer and Disposal

The solid waste management system in Sialkot and Narowal involves waste collection from residential, commercial, and industrial areas, which is then transported to dumpsites or temporary disposal locations. According to the map, key dumpsites and transfer stations are located in both districts, with Sialkot having two unofficial dumpsites and Narowal having two official ones.

Based on the table:

- Sialkot generates 642 tons/day of waste, amounting to 234,330 tons/year, but lacks officially designated landfill sites, relying on temporary dumping.
- Narowal disposes 226 tons/day (82,611 tons/year) at official dumpsites, established in 2020 and 2024, with plans to remain operational until 2040.

Both districts face challenges like unregulated dumping, inadequate landfill facilities, and environmental hazards. Improvements in waste-to-energy projects, controlled landfills, and better infrastructure are needed to ensure sustainable waste disposal.



Figure 6-8. Solid Waste Management in Sialkot and Narowal – Dumpsite Locations and Proximity to Key Infrastructure.

To address these issues, efforts are being made to improve waste collection, introduce recycling programs, and explore sustainable disposal methods. Public awareness campaigns and stricter regulations are essential to encourage proper waste segregation and minimize environmental damage. However, without significant investment in modern waste management infrastructure, Narowal will continue to struggle with ineffective waste disposal and its associated risks.

Table 6-11. Dumpsites in the Sialkot and Narowal Districts

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
SIALKOT	2(un-official)	642t/D	234,330t/y	Monthly (basis)	Not Defined
NAROWAL	2	226t/D	82,611 t/y	2020 & 2024	2040

## 6.2.6 Existing Infrastructure

The solid waste management infrastructure depicted in the maps for Sialkot and Narowal districts is organized to ensure systematic collection, transportation, and disposal of municipal waste. Each district features designated Municipal Committee (MC) offices, which serve as administrative centers for coordinating waste management activities. There are multiple primary and secondary waste collection points strategically distributed across urban and semi-urban areas to facilitate the regular gathering of waste from households and businesses.

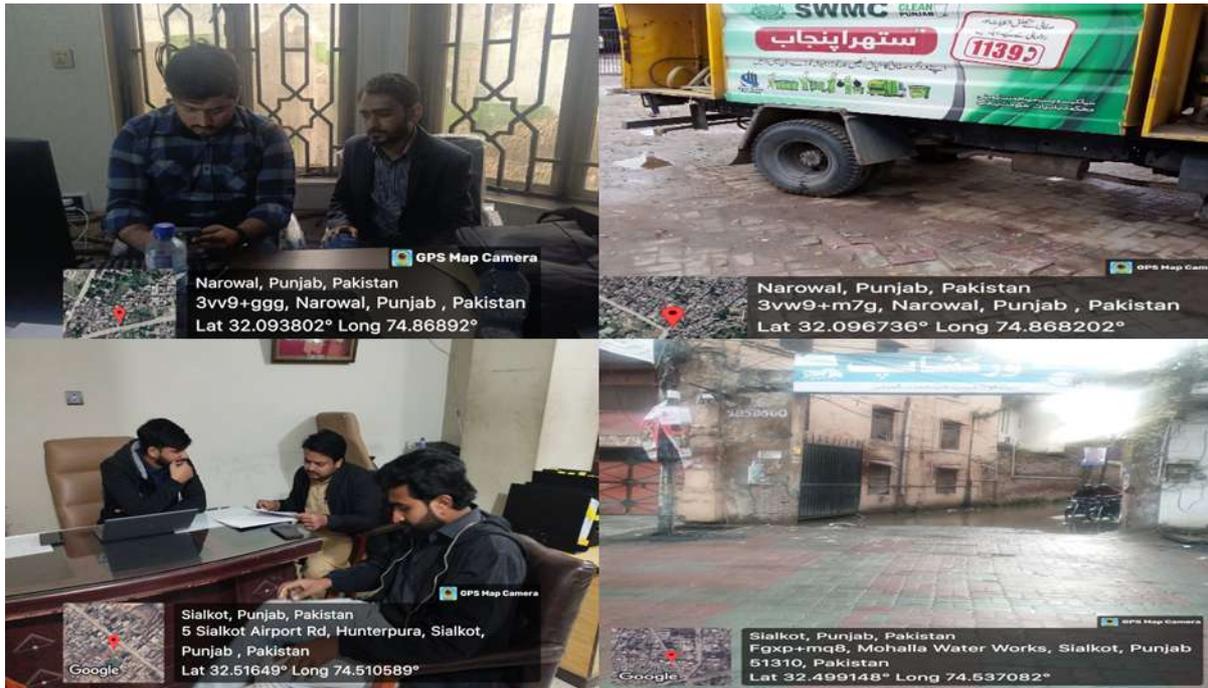


Figure 6-9. Existing Infrastructure of Sialkot WMC

Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management (SWM) across the Sialkot & Narowal districts. The infrastructure also includes dedicated dumping sites where collected waste is transported for final disposal. Parking areas for waste collection vehicles and workshops for vehicle maintenance are provided to support the operational efficiency of the waste management system. The districts are interconnected by a network of highways, primary, secondary, and minor roads, as well as railway lines, enabling smooth and timely movement of waste collection vehicles between collection points, dumping sites, and administrative centers. This organized setup ensures that waste is managed efficiently from collection to disposal, minimizing environmental and public health risks in the division.

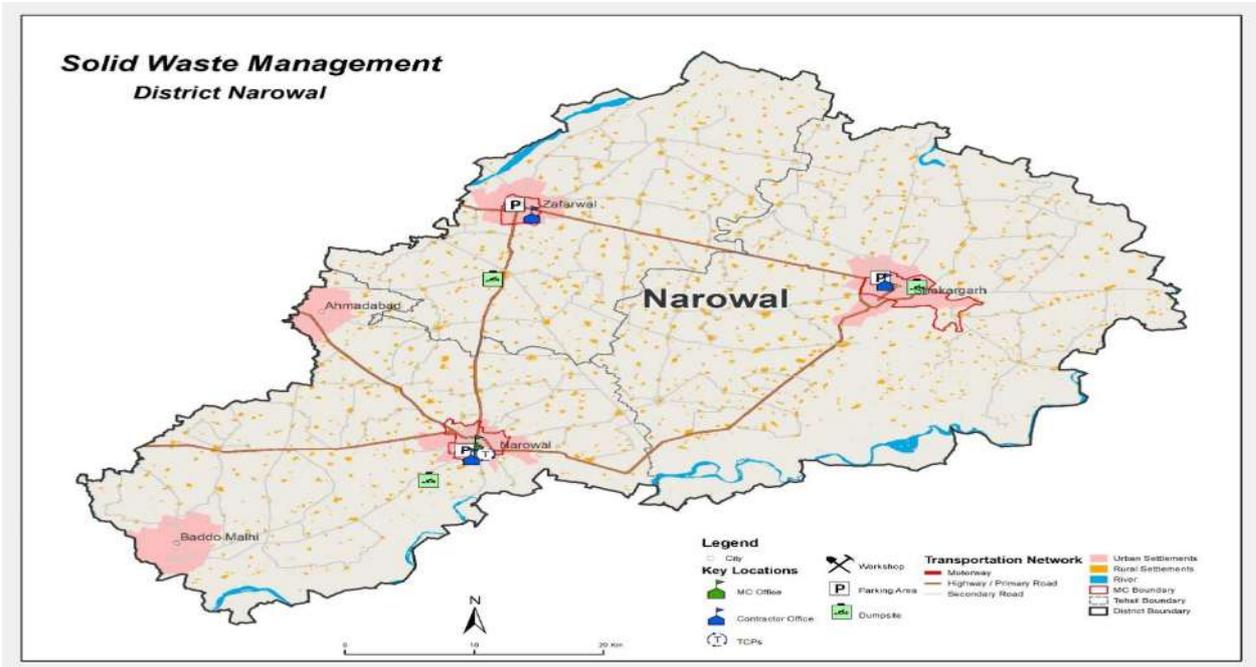


Figure 6-10. SWM Infrastructure of Narowal District

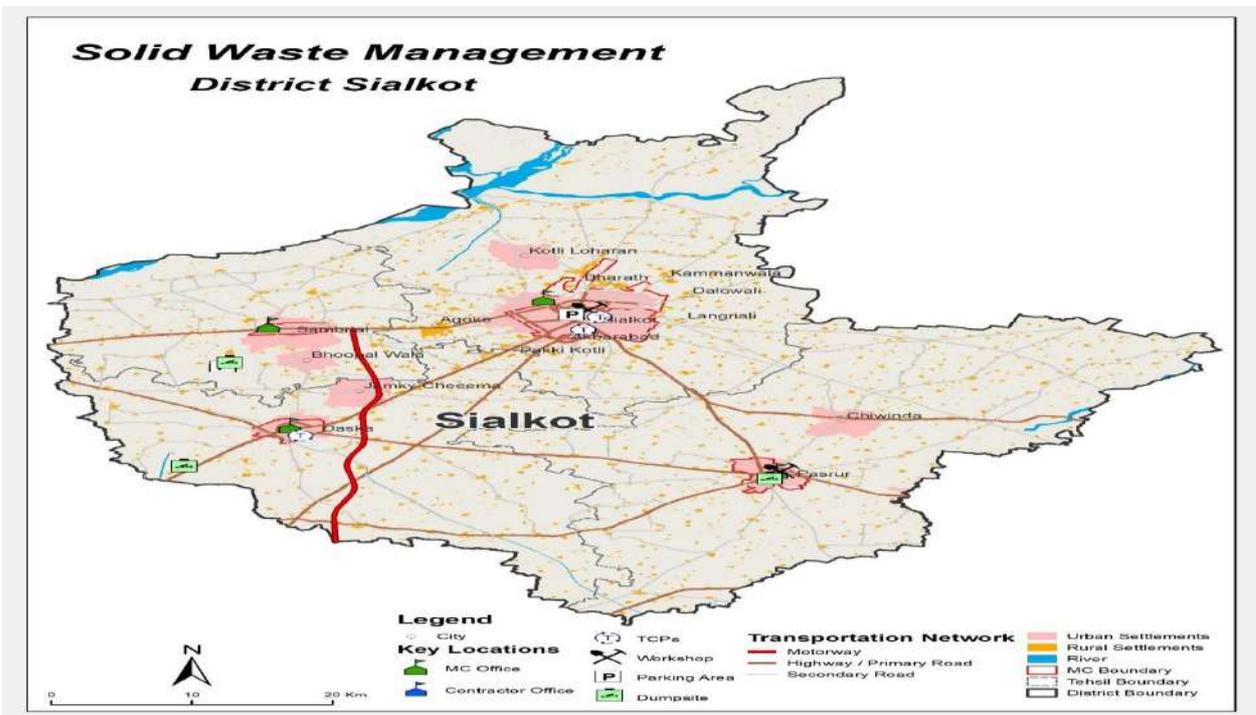


Figure 6-11. SWM Structure of Sialkot District

### 6.2.7 District wise Waste Collection Efficiency (WCE)

The waste collection efficiency for Sialkot and Narowal is assessed based on machinery trips, fuel consumption (l/km or l/h), daily operational hours, and the loading capacity of waste collection vehicles. Waste generation in Sialkot is estimated at 1,726 tons/day (t/D), while Narowal generates 2,430 t/D. The actual waste collected depends on the available fleet, its capacity per trip, and fuel efficiency.

Sialkot benefits from a structured urban waste management system with municipal and private sector involvement, but rural areas still face challenges due to limited resources and informal disposal methods. Similarly, Narowal struggles with inconsistent collection, particularly in rural regions, leading to open dumping and burning.

Currently, Sialkot collects 835 t/D, achieving a 48% efficiency rate, while Narowal collects 881 t/D, with a 36% efficiency rate. Both districts face considerable gaps in waste collection, especially in rural areas, where insufficient resources, inefficient collection systems, and informal dumping contribute to lower efficiency.

**Table 6-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program**

COLLECTION EFFICIENCIES		
DISTRICT	Sialkot	Narowal
TOTAL WASTE COLLECTION (T/D)	835	881
WASTE GENERATION (T/D)	1726	2430
COLLECTION EFFICIENCY (CE) (%) BEFORE OUTSOURCING	48%	36%
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>55</sup>	

### 6.2.8 Scavenging Activities

Scavenging in the Sialkot and Narowal and Sialkot districts is primarily observed in almost all tehsils. Informal sector is associated with scavenging activities to run this business and has strong footprint in the circular economy. From households to municipality containers, dumpsites at every step of the waste management process, scavengers are picking waste, usually recyclables that can be reused and have some market value, like plastics, iron, hair, nylon, etc. to run their business. Indirectly, they reduce the amount of waste that needs to be transferred to the dumpsite daily and support the solid waste management sector informally but there is need to take this sector on board with the municipality to take full advantage of this sector. Value. Most of the scavengers are reluctant to use Personal Protective Equipment and are exposed to serious health and safety risks there should be proper legislations will be

<sup>55</sup> Current waste collection efficiency is obtained during discussion with WMC.

formulated to take care of the scavenger's health and safety issues. It is encouraged to provide training programs to sanitary workers as well as scavengers to make work environment sustainable and hazard free.



Figure 6-12. Scavenging Activities.

### 6.2.9 Fuel Allocation

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systems. It directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle daily.

Table 6-13. Fuel Consumption of Sialkot SWM-Fleet

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)
SIALKOT	Sialkot	134	2,873	100
	Sambrial	13	454	90
	Daska	29	651	170
	Pasrur	12	602	60
<b>TOTAL</b>		<b>188</b>	<b>4,581</b>	<b>420</b>
NAROWAL	Narowal	2	361	60
	Shakargarh	2	241	30
	Zafarwal	2	255	30
<b>TOTAL</b>		<b>7</b>	<b>857</b>	<b>120</b>

### 6.2.10 Budget Allocation

Budget allocation plays a critical role in the success of Solid Waste Management (SWM) systems. Adequate financial resources are essential for the planning, implementation, and

maintenance of an effective waste management system. In the Sialkot Division, waste management funding is divided into development and non-development budgets. The development budget focuses on long-term improvements, including new landfill sites, waste treatment plants, and modern equipment. The non-development budget covers daily operations such as salaries, fuel, vehicle maintenance, and contractor payments. Insufficient funding leads to inefficient waste collection and environmental issues, highlighting the need for better resource allocation and sustainable financing. The development and non-development budgets has not been provided by the Sialkot waste management company.

### 6.2.11 Fruit Mandi and Slaughter House

The Fruit Mandis in Sialkot Division are vital trade hubs, ensuring a smooth supply of fresh produce while supporting the local economy. However, efficient waste management is essential to maintain hygiene and minimize spoilage. Sialkot waste management company doesn't provide any details regarding solid waste produced from such places because they have their own collection, transportation and disposal arrangements.

### 6.2.12 Special Events Resource Induction

In District Narowal last year, special waste management arrangements are made during festivals, particularly on Eid ul-Adha, to handle the increased waste generation. In Zafarwal Tehsil, 78 collection points are set up with the provision of polybags for waste collection. Similarly, in Shakargarh, 112 collection points are established to manage waste efficiently. The Narowal Solid Waste Management (SWM) department also implements 93 collection points for waste disposal during these events. However, there are only three designated disposal sites, and no additional human or mechanical resources are allocated, highlighting a need for enhanced waste management planning during peak occasions. In contrast, in Sialkot District, extra machinery and human resources are deployed during such events, but specific numbers were not provided by the resource persons.



Figure 6-13. Induction of SWM resources on Special Events

## 7 CHAPTER: FAISALABAD DIVISION

### 7.1 Divisional Profile:

Faisalabad Division is a major administrative region in central Punjab, Pakistan, known for its significant role in agriculture and industry. The division encompasses the city of Faisalabad, which is a key industrial hub, especially for textiles, and serves as a vital economic center. It includes the following districts: **Faisalabad, Chiniot, Toba Tek Singh, and Jhang**, all of which contribute to the region’s agricultural productivity, particularly in crops like wheat, cotton, and sugarcane. Faisalabad Division has a well-developed infrastructure, including roads, railways, and communication networks, and continues to grow due to its strategic location and industrial development. Despite its economic importance, the region faces urbanization, waste management, and environmental sustainability challenges.

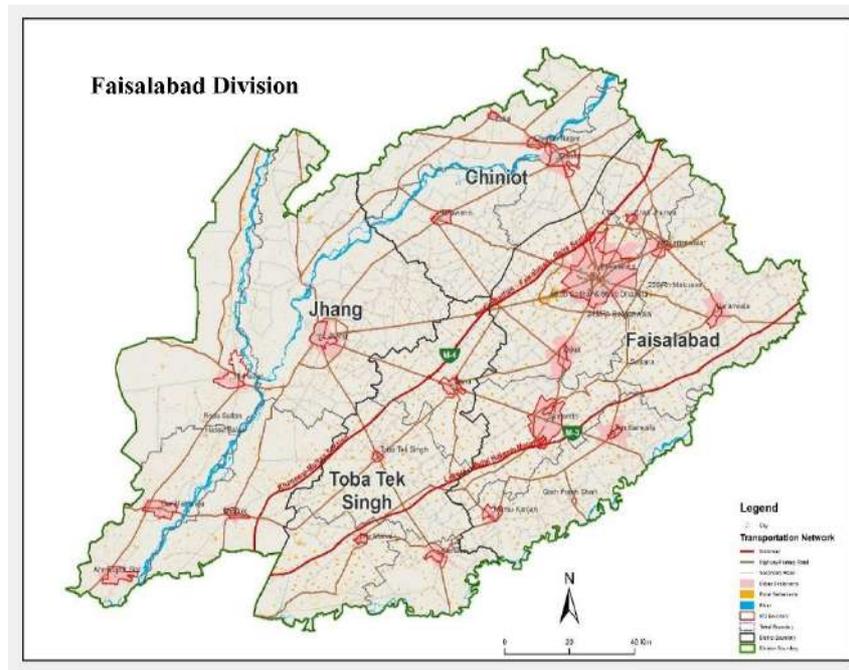


Figure 7-1. SWM Operational Jurisdiction Map of Faisalabad Division

Table 7-1. Districts in Faisalabad Division

#### DISTRICTS IN FAISALABAD DIVISION

1	Faisalabad
2	Chiniot
3	Toba Tek Singh
4	Jhang

Faisalabad Division is characterized by its strong agricultural base, with fertile land supporting the production of wheat, cotton, and sugarcane, alongside a robust industrial sector, particularly in textiles, which makes it one of Pakistan's major economic contributors. The region is home to a growing urban population, especially in Faisalabad city, which is a key industrial hub.

Despite its economic strengths, Faisalabad Division faces several challenges, including rapid urbanization that puts pressure on infrastructure, waste management systems, and environmental sustainability. Additionally, issues such as water scarcity, pollution, and inadequate public services in rural areas continue to hinder the division's overall development and quality of life for residents. Administrative Setup

The administrative setup of the Faisalabad Division under the LG&CD Department is organized hierarchically to ensure efficient governance. At the top is the Commissioner, responsible for overall administration and policy implementation. Additional Commissioners for Revenue, Coordination, and Consolidation oversee specialized areas, including land records, interdepartmental coordination, and revenue matters.

A Director (Development & Finance), supported by Assistant Directors, manages planning, budgeting, and development projects. Administrative functions are handled by Assistant Commissioners, with the AC (General) overseeing general administration, and the AC (Revenue) focusing on revenue and high-value cases.

The Additional Commissioner (Coordination) manages interdepartmental tasks and public complaints, assisted by the AC (P) and Petition Cell. This structured setup enables effective policy execution and public service delivery across the division by the local government officers of tehsils and union councils under the supervision of divisional LG&CD officials

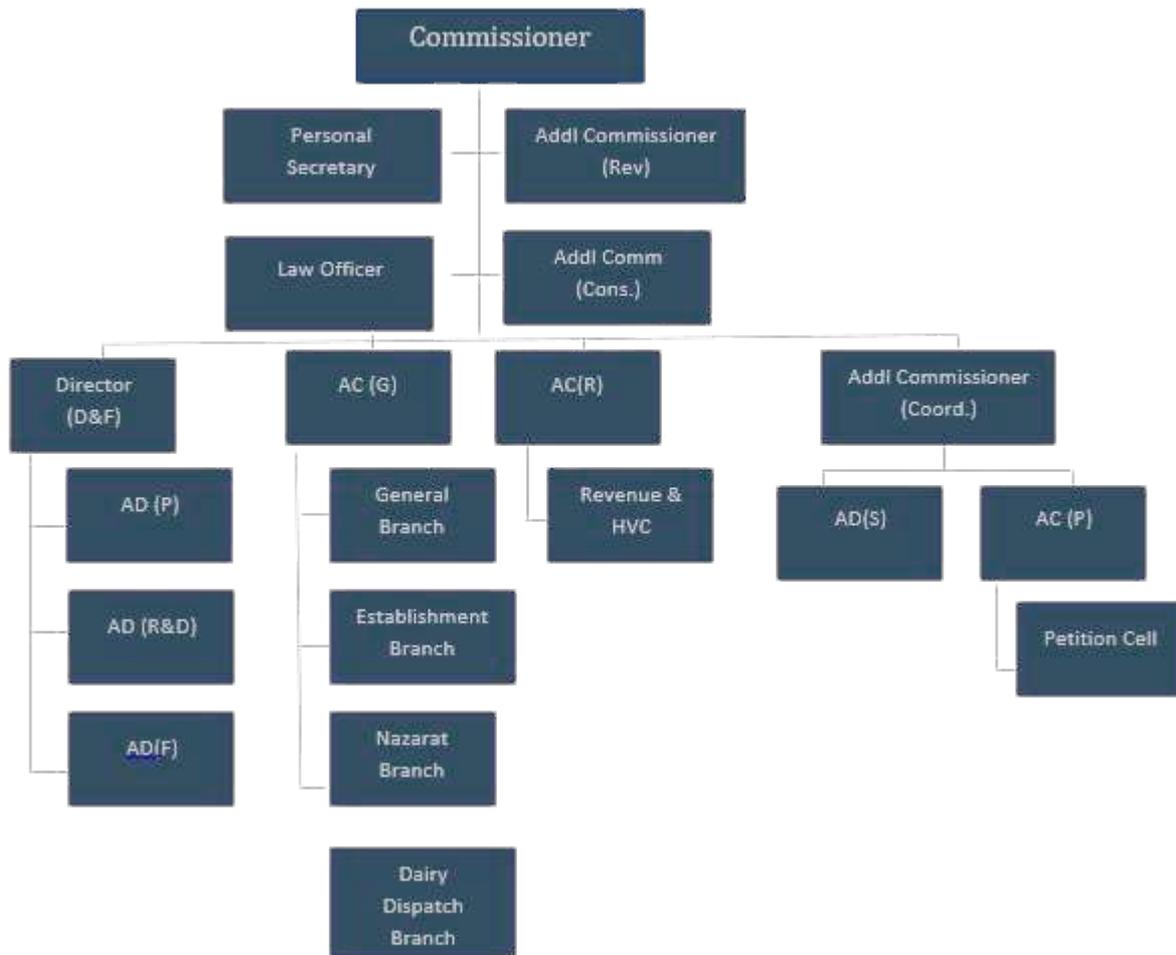


Figure 7-2. Administrative setup of Faisalabad Division

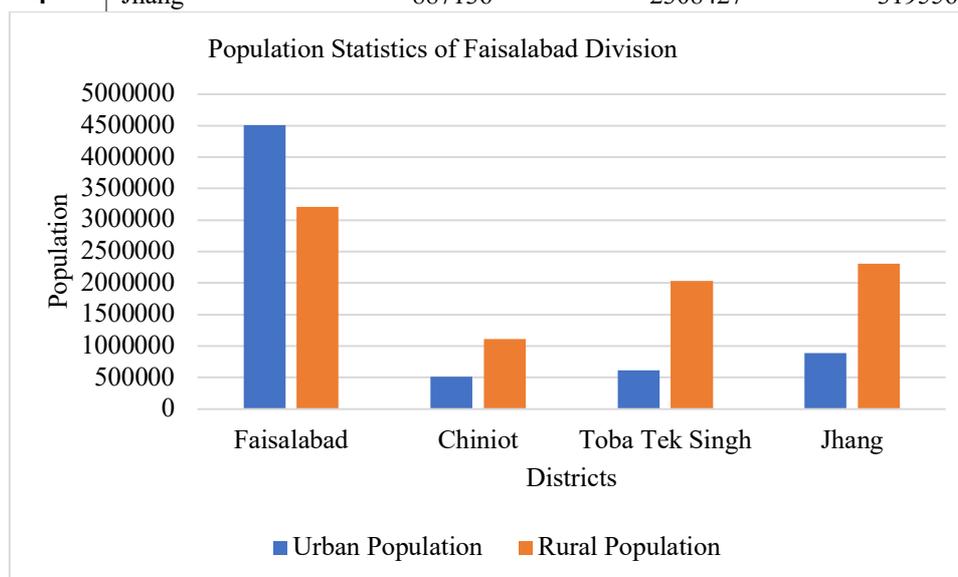
### 7.1.1 Population Statistics

Faisalabad Division, located in Punjab, Pakistan, has a projected population of approximately 15.2 million in 2025, based on the 2023 census. The division consists of four districts: Faisalabad, Chiniot, Jhang, and Toba Tek Singh. Faisalabad District is the most populous with a projected 7.7<sup>56</sup> million (by excluding the Saddar area, as managed by Walton Cantonment Board(WCB)), residents and the highest annual growth rate of 2.38%, reflecting its urban and industrial significance. Chiniot has a population of 1.6 million with a growth rate of 2.24%, while Jhang, with 3.19 million people, shows the slowest growth at 1.95%, indicative of its rural composition. Toba Tek Singh, with 2.6 million people, grows at a rate of 2.31%. The overall population growth rate for the division is 2.27%, showing a steady demographic rise across urban and rural areas as projected from the 2023 census data.

<sup>56</sup> Primary Data Source LG & CD Department, Government of Punjab.

**Table 7-2. District Wise Population Statistics of Faisalabad Division.**

SR. NO	DISTRICT	URBAN POPULATION	RURAL POPULATION	TOTAL
1	Faisalabad	4504918	3209845	7714763
2	Chiniot	517444	1116686	1634131
3	Toba Tek Singh	611636	2037138	2648774
4	Jhang	887136	2308427	3195563



**Figure 7-3. Graph of population statistics of Faisalabad**

### 7.1.2 Demography of Faisalabad

As of the 2023 census, Faisalabad Division in Punjab, Pakistan, comprises four districts: Faisalabad, Jhang, Toba Tek Singh, and Chiniot, collectively spanning an area of approximately 1,791,800 Hectares and housing a population of about 16.23 million. Faisalabad District is the most populous, with around 9.08 million residents and 1.38 million households, followed by Jhang with 3.07 million people, Toba Tek Singh with 2.52 million, and Chiniot with 1.56 million. The division exhibits a predominantly rural character, with 61.49% of its population residing in rural areas and 38.51% in urban centers. Economically, the region hosts a significant number of enterprises, with Faisalabad District alone accounting for over 216,000 economic entities, underscoring its role as a major industrial and commercial hub. Literacy rates vary across the division, with Faisalabad District leading at 73.41%, while Chiniot records the lowest at 55.05%. The demographic profile reflects a young and diverse population, with Punjabi being the predominant language spoken throughout the division.

**Table 7-3. Demography of Faisalabad Division<sup>57</sup>**

Sr. No	District	Area Hectares	No of Households	No of Economic Entities High Rise	No of Economic Entities Normal Structure	Total Economic Entities
1	Faisalabad	5,85,700	1,382,773	416	215,745	216,161
2	Chiniot	2,64,300	256,438	2	51,364	51,366
3	Toba Tek Singh	3,25,200	393,896	7	68,724	68,731
4	Jhang	6,16,600	491,999	14	95,143	95,157

### 7.1.3 Land use area of Faisalabad

Based on the available data from the Pakistan Bureau of Statistics census 2023, here is the land utilization statistics for the Faisalabad Division:

**Table 7-4. Land use area of Faisalabad in Hectares.<sup>58</sup>**

District	Reported Area	Cultivated Area	Un-Cultivated Area
FAISALABAD	5,85,700	480,000	104,000
CHINIOT	2,64,300	-	-
TOBA TEK SINGH	3,25,200	-	-
JHANG	6,16,600	-	-

### 7.1.4 Climatic Conditions of Faisalabad Division

Faisalabad Division has a subtropical to semi-arid climate with hot, humid summers (26.9°C to 45.5°C) from mid-April to October, peaking in May and June. Monsoon rains in July and August provide relief and support agriculture. Winters, from November to mid-February, are cool and dry (4.1°C to 19.4°C) with frequent fog. Spring lasts from mid-February to late March with mild, dry weather. The region receives about 375 mm of annual rainfall, mainly during the monsoon. Despite challenges like extreme heat and fog, the climate supports agriculture through adaptive practices and irrigation.

<sup>57</sup> Primary Data Source LG&CDD

<sup>58</sup> [https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table\\_1\\_punjab\\_districts.pdf](https://www.pbs.gov.pk/sites/default/files/population/2023/tables/table_1_punjab_districts.pdf)

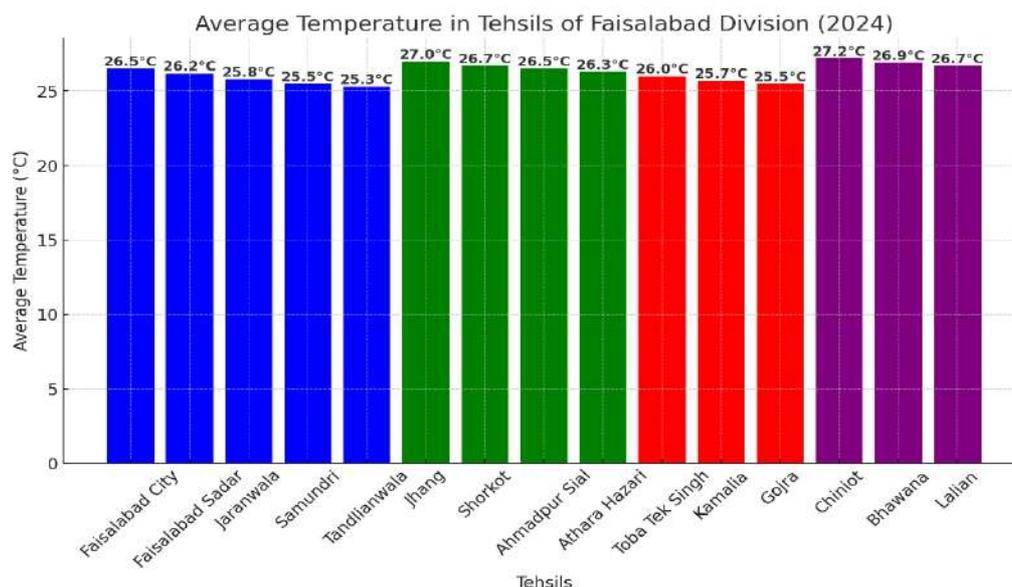


Figure 7-4. Graphical representation of the climatic conditions in Faisalabad Division's districts<sup>59</sup>

Table 7-5. Tabular representation of the climatic conditions in Faisalabad Division's districts.<sup>60</sup>

DISTRICT	SUMMER TEMP (°C)	WINTER TEMP (°C)	MONSOON RAINFALL 2024 (MM)	AVG. ANNUAL RAINFALL 2024 (MM)
FAISALABAD	35.0	12.0	300	500
CHINIOT	35.5	11.5	310	510
TOBA TEK SINGH	34.5	12.5	290	490
JHANG	36.0	11.0	280	480

## 7.2 Asset Mapping of Solid Waste Management Services

### 7.2.1 SWM Administrative setup

The organizational chart presents a structured hierarchy, beginning with the Board of Directors at the top, followed by key leadership positions, including the Head of Internal Audit, Executive Director, Chairman, Managing Director, and Company Secretary. The company is divided into various functional departments, each managed by senior executives. The HR & Administration, Finance, Communications, and Operations divisions are pivotal, with General Managers (GMs) and Senior Managers overseeing essential business functions. The Operations Department is the most extensive, encompassing Transport & Workshop, Waste-to-Energy (WTE), and Landfill Management, among others. Additionally, departments such as Planning, Budgeting, and IT/MIS contribute to strategic growth and technological advancement. The chart also highlights multiple Assistant Managers (AM) and Deputy Managers (DM), ensuring smooth operations across different domains. This structure emphasizes a clear chain of

<sup>59</sup> <https://www.punjab.gov.pk/search/node?keys=faisalabad>

<https://www.pmd.gov.pk/en/>

<sup>60</sup> [www.pmd.gov.pk](http://www.pmd.gov.pk)

command, promoting efficiency, collaboration, and effective decision-making to achieve organizational goals.

The company collaborates with private contractors, utilizes modern equipment, and follows environmental guidelines to ensure sustainable waste management. This comprehensive approach enables efficient service delivery in both urban and rural areas, emphasizing cleanliness and environmental sustainability.

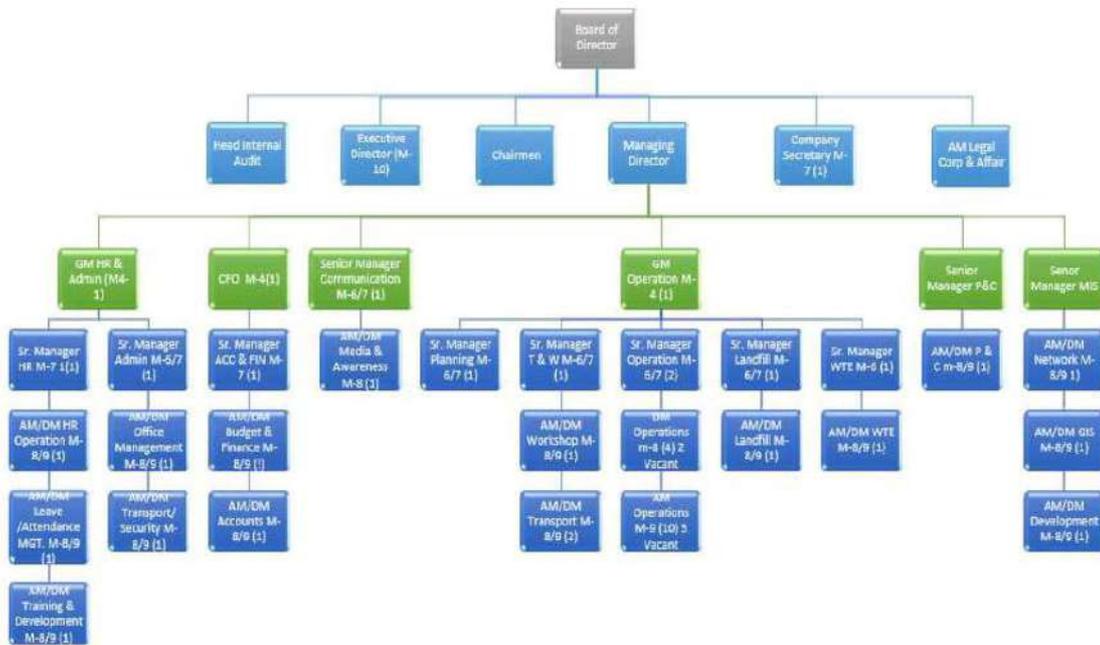


Figure 7-5. Administrative setup of Faisalabad Waste Management Company<sup>61</sup>

## 7.2.2 Population and Waste Generation

Faisalabad Division generates a substantial amount of solid waste daily due to its rapid urbanization, industrial activity, and expanding settlements. Based on standard per capita waste generation rates—0.45 kg per day in urban areas and 0.32 kg per day in rural areas—the division produces an estimated 5,710 metric tons of waste each day. Annually, the division generates around 2.07 million metric tons of waste. The high volume reflects the growing demand for an efficient waste management system that incorporates modern collection, recycling, and disposal methods. Integrating technology, involving private sector stakeholders,

<sup>61</sup>[https://urbanunit.gov.pk/Download/publications/Files/17/2023/Faisalabad%20Regional%20Development%20Plan%20-%20Solid%20Waste%20Management\\_compressed.pdf](https://urbanunit.gov.pk/Download/publications/Files/17/2023/Faisalabad%20Regional%20Development%20Plan%20-%20Solid%20Waste%20Management_compressed.pdf)

and enforcing environmental regulations are critical to managing this waste sustainably and protecting public health.

**Table 7-6. Tabular representation of Population and Waste Generation of all Tehsils of Faisalabad Division**

SR. NO	DISTRICT	TEHSILS		POPULATION	WG T/D		
1	FAISALABAD	Chak Jhumra	Urban	64,476	29		
			Rural	339,962	109		
		Faisalabad City	Urban	3,868,318	1,741		
			Rural	34,101	11		
		Jaranwala	Urban	282,921	127		
			Rural	1,535,525	491		
		Samundari	Urban	197,376	89		
			Rural	563,810	180		
		Tandlian wala	Urban	91,827	41		
			Rural	736,447	236		
		2	CHINIOT	Bhowana	Urban	41,170	19
					Rural	407,463	130
				Chiniot	Urban	332,643	150
					Rural	329,360	105
Lalian	Urban			143,631	65		
	Rural			379,864	122		
Gojra	Urban			229,439	103		
	Rural			562,433	180		
3	TOBA TEK SINGH			Kamalia	Urban	178,450	80
					Rural	262,763	84
				Peer Mahal	Urban	65,639	30
					Rural	459,311	147
				Toba Tek Singh	Urban	138,109	62
					Rural	752,630	241
		18-Hazari	Urban	31,054	14		
			Rural	314,427	101		
		4	JHANG	Ahamdpur Sial	Urban	84,905	38
					Rural	422,678	135
				Jhang	Urban	705,666	318
					Rural	1,011,690	324
				Shorkot	Urban	65,511	29
					Rural	559,632	179
<b>TOTAL</b>				<b>15,193,231</b>	<b>5,710</b>		

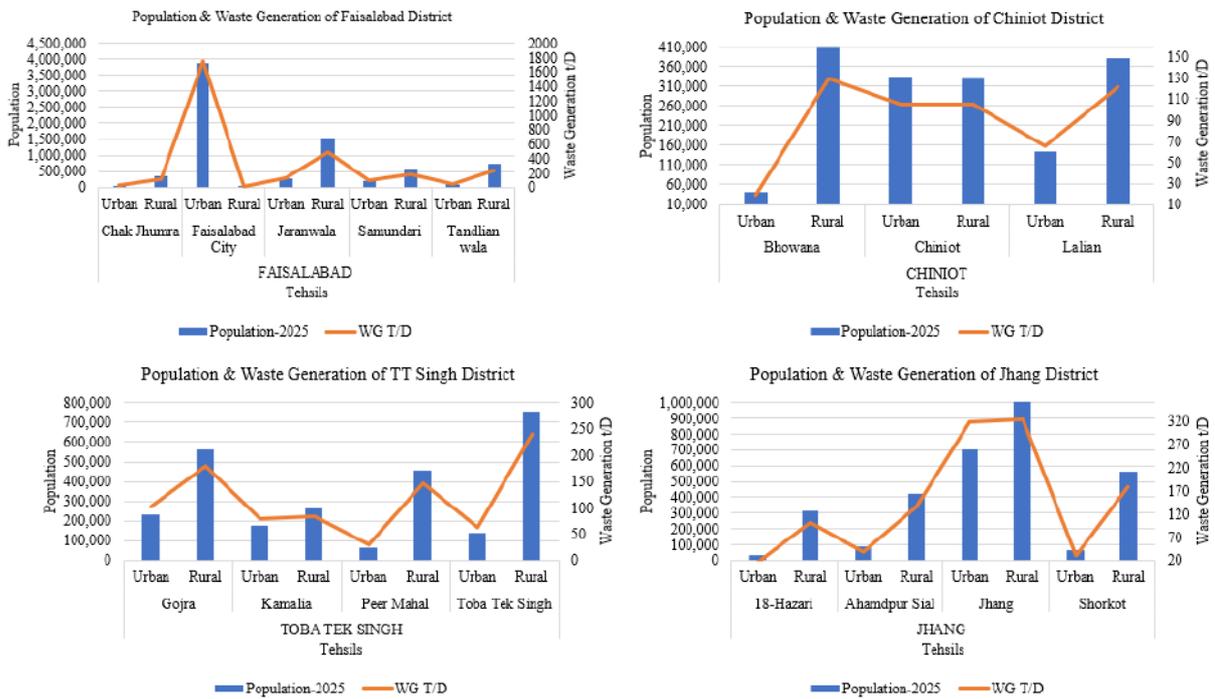


Figure 7-6. Graphical representation of population and Waste Generation of Faisalabad Division.

### 7.2.3 Waste Composition/Characterization:

On-site waste characterization is performed as a part of this project. Among 41 districts of Punjab, a physical waste characterization study was performed in the tehsils of divisional headquarters Physical and chemical waste analysis (Summer and Winter) of solid waste was conducted, and for chemical analysis, samples were sent to SGS (EPA-certified Laboratory). It will help to depict the seasonal variations in waste generation.



Figure 7-7. Physical Waste Characterization in Faisalabad Division

A seasonal physical waste characterization study was conducted in 2025 across the Faisalabad Division, covering the districts of Faisalabad, Jhang, Chiniot, and Toba Tek Singh. Using the quarter-coning method, the study analyzed the composition of municipal solid waste to identify key waste streams in these areas. The findings revealed that biodegradable waste constituted the largest share across all districts, with Toba Tek Singh and Chiniot exhibiting the highest proportions, followed by Faisalabad and Jhang. Overall, the Faisalabad Division recorded higher levels of biodegradable waste compared to other regions, ranging from 61.70% to 69.02%. Plastics accounted for approximately 9.52% to 13.16%, while diaper waste was also significant, averaging between 13.12% and 16.64%, which is relatively high. Further details on these results are provided in Table 7-7, underscoring the need for targeted waste management strategies tailored to these predominant waste categories.

Table 7-7. Physical Waste Characterization Study for the Faisalabad Division

PHYSICAL WASTE COMPOSITION	FAISALABAD	JHANG	CHINIOT	TOBA TEK SINGH
COMBUSTIBLES	0.69	0.43	0.41	0.92
DIAPER	13.12	16.64	14.08	13.30
ELEC.-ELECTRONIC W.	0.05	0.03	0.07	0.03
GLASS	0.47	0.67	0.31	0.64
HAZARDOUS W	0.09	0.10	0.23	0.13
BIODEGRADABLE W.	61.70	65.91	68.02	69.02
METALS	0.14	0.05	0.02	0.05
NON-COMBUSTIBLES	3.50	2.56	2.64	1.65
PAPER-CARDBOARD	1.16	0.82	0.75	1.05

PET	0.20	0.01	0.01	0.14
NYLON	0.42	0.27	0.29	0.26
PLASTICS	13.16	9.52	9.23	10.05
TETRAPAK	0.32	0.04	0.02	0.05
TEXTILE	4.97	2.93	3.92	2.70
<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>



Figure 7-8. Graphical Representation of Waste Characterization of Faisalabad Division

## 7.2.4 Primary and Secondary Waste Collection

In the districts of Faisalabad Division, waste collection faces numerous challenges due to varying levels of urbanization, infrastructure, and public awareness. The division consists of four districts: Faisalabad, Chiniot, Toba Tek Singh, and Jhang. As a major industrial and commercial center, Faisalabad city has a structured municipal waste collection system, including door-to-door collection and secondary transportation from community bins to transfer stations or landfill sites. However, the management of industrial and hazardous waste remains a concern, and the high volume of commercial waste adds to operational inefficiencies. Chiniot and Toba Tek Singh have relatively better infrastructure for primary and secondary waste collection, with waste being transported efficiently to designated disposal sites, yet issues such as informal dumping and difficult access to certain areas persist. In rural districts like Jhang, waste collection services are limited, with local councils managing collection, but scattered populations and inadequate road networks slowing down the process. Informal

collection methods dominate in these areas, leading to minimal waste segregation and inefficient transportation. Secondary waste transportation faces delay due to insufficient equipment and poorly optimized routes. Despite these challenges, ongoing efforts focus on raising public awareness, enhancing service efficiency, and implementing sustainable waste management practices across the Faisalabad Division.

Table 7-8. Waste Management Assets of Primary and Secondary Collection (Current Machinery Available with Local Government/WMC).<sup>62</sup>

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7 M <sup>3</sup> )	DUMPER S (5 M <sup>3</sup> )	TRACTO R LOADER	DUMPER S (10M <sup>3</sup> )	FRONT END LOADE R	VACUU M SWEEPE R	MECHANI CAL SWEEPER (MS)	TRACTO R TROLLE Y	RICKSHA W WASHER	CHAI N ARM ROLL
FAISALABA D	Faisalabad	-	15	8	12	28	10	56	4	5	2	27
	Jaranwala	-	4	2	2	-	-	4	-	5	-	-
	Samundari	-	-	-	1	-	-	1	-	2	-	1
	Tandlianwala	4	-	-	2	-	-	-	-	3	-	-
	Jhumra	-	-	-	1	-	-	1	-	1	-	-
CHINIOT	Chiniot	-	-	-	1	-	-	-	-	4	-	2
	Lalian	-	-	-	1	-	-	-	-	1	-	1
	Bhowana	2	-	-	1	-	-	-	-	1	-	-
	Toba Tek Singh	-	-	-	-	-	-	-	-	1	-	1

<sup>62</sup> [Primary](#) Data Source LG&CD of Punjab Government

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7 M <sup>3</sup> )	DUMPER S (5 M <sup>3</sup> )	TRACTOR LOADER	DUMPER S (10M <sup>3</sup> )	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER (MS)	TRACTOR TROLLEY	RICKSHAW WASHER	CHAIN ARM ROLL
TOBA TEK SINGH	Gojra	-	3	-	4	-	1	2		4		1
	Kamalia	-	2	1	1			4		3		-
	Peer Mahal				1					1		
	Jhang	14	2		2			6		2		4
JHANG	Ahmad Pur Sial									1		
	Athara Hazari									1		
	Shorkot	3								2		2

Table 7-9. Waste Management Assets of Primary and Secondary collection (Additional Machinery will be Deployed by Local Contractor).<sup>63</sup>

DISTRICT	TEHSIL	ADDITIONAL MACHINERY REQUIRED											
		Loader Rickshaws	Compactor (7 m <sup>3</sup> )	Dumpers (5 m <sup>3</sup> )	Tractor Loader	Dumpers (10 m <sup>3</sup> )	Front End Loader	Vacuum Sweeper	MECHANICAL SWEEPER (MS)	Drain Cleaner	Tractor Trolley	Rickshaw Washer	Chain Arm Roll
FAISALABAD	Faisalabad	399	50	6	13	40	5	68	4	2	28	2	62
	Jaranwala	196	2	9	11	11	5	8	2	2	22	2	24
	Samundari	79	3	5	4	5	4	5	1	2	9	2	9

<sup>63</sup> [Primary](#) Data Source by LG&CD Department, Government of Punjab

## Asset Mapping of Solid Waste Management Services in Punjab -Report



	Tandlianwal a	88	2	5	4	6	5	5	2	2	10	2	11
	Jhumra	45	1	3	3	3	3	1	1	2	5	2	5
<b>CHINIOT</b>	Chiniot	55	5	4	3	4	4	9	1	2	2	2	7
	Lalian	71	2	4	4	4	5	4	1	3	9	2	7
	Bhowana	50	1	3	4	3	4	1	1	2	7	2	6
<b>TOBA TEK SINGH</b>	Toba Tek Singh	113	2	6	9	6	4	4	1	2	16	2	11
	Gojra	90	-	5	2	7	3	5	1	2	8	2	10
	Kamalia	40	1	2	2	3	4	1	1	2	3	2	7
	Peer Mahal	68	1	4	4	4	4	2	1	2	9	2	7
<b>JHANG</b>	Jhang	165	8	12	10	11	5	12	2	2	21	2	20
	Ahmad Pur Sial	65	1	4	6	4	5	2	2	2	8	2	7
	Athara Hazari	46	1	3	4	3	4	1	1	2	6	2	5
	Shorkot	80	1	5	6	4	4	2	1	2	10	2	6

Table 7-10. Current and Additional HR for Faisalabad Division.<sup>64</sup>

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
FAISALABAD	Faisalabad	2,305	3,786
	Jaranwala	134	1,140
	Samundari	31	562
	Tandlianwala	30	568
	Jhumra	32	248
CHINIOT	Chiniot	164	491
	Lalian	47	393
	Bhowana	16	289
TOBA TEK SINGH	Toba Tek Singh	41	597
	Gojra	98	535
	Kamalia	107	311
	Peer Mahal	51	318
	Jhang	205	1,326
JHANG	Ahmad Pur Sial	26	359
	Athara Hazari	18	241
	Shorkot	27	411

### 7.2.5 Waste Transfer and Disposal

Waste transfer and disposal in the districts of Faisalabad Division face various challenges related to infrastructure, logistics, and capacity. As the largest urban and industrial center, **Faisalabad** has a structured waste transfer system where collected waste is transported from primary collection points to landfill sites and waste treatment facilities. However, inefficient segregation leads to mixed waste, complicating disposal and recycling efforts. The existing landfill sites are overburdened, requiring better waste management strategies. In the Faisalabad Division, each of the four districts—Faisalabad, Chiniot, Toba Tek Singh, and Jhang—operates a single dumpsite for waste disposal. Faisalabad's dumpsite, established in 1995, handles approximately 935 tons of waste daily, amounting to an annual disposal of 341,275 tons, with a tentative closure projected for 2041. Chiniot's facility, operational since 2007, manages 84 tons per day (30,660 tons annually) and is expected to close by 2033. Toba Tek Singh's site, active since 2013, processes 116 tons daily (42,340 tons annually), with a tentative closure in 2035. Jhang's dumpsite, in operation since 2014, disposes of 55 tons per day (20,075 tons annually) and is projected

<sup>64</sup> Primary Data Source LG&CD-Department, Government of Punjab

to close by 2034. These figures highlight the current waste disposal capacities and timelines for each district within the division.

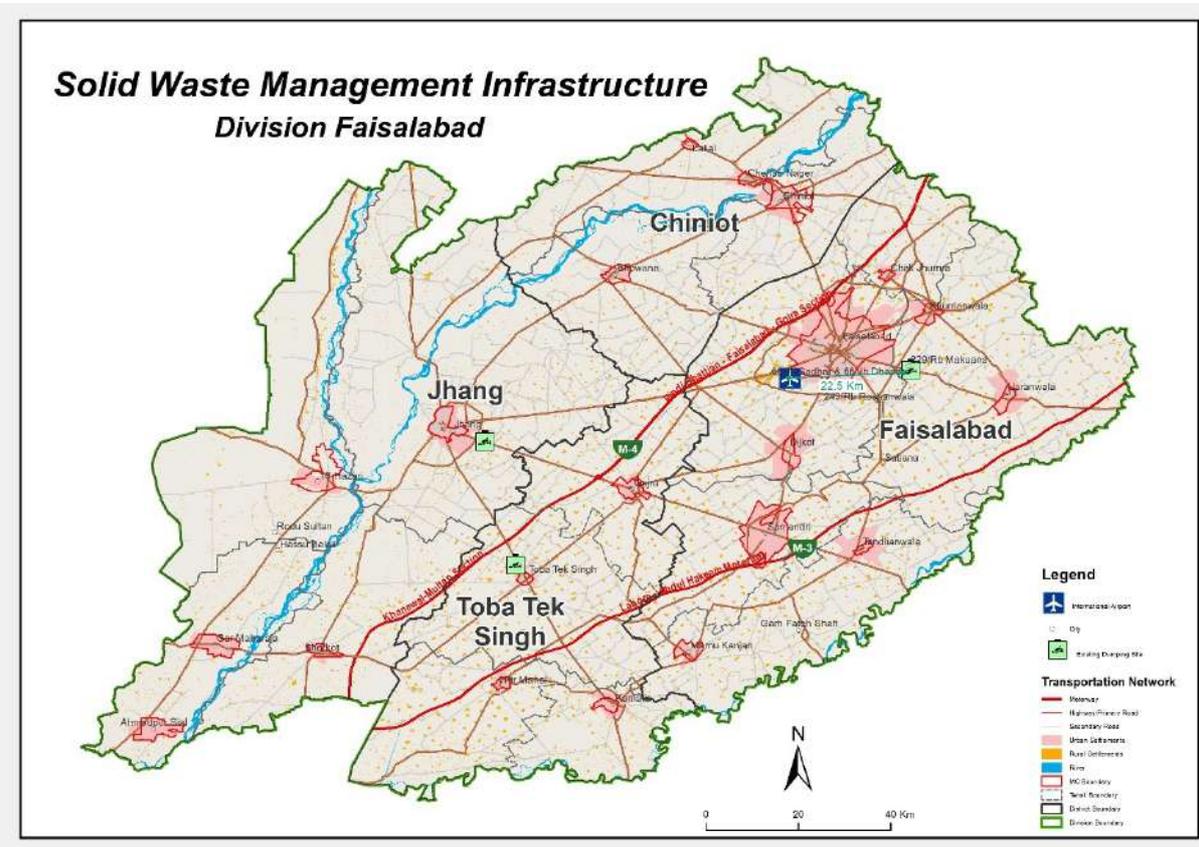


Figure 7-9. Dumpsite Location and Proximity to Key Infrastructure

Overall, the Faisalabad Division requires improved waste segregation, modern waste transfer vehicles, and enhanced infrastructure to ensure environmentally safe and efficient waste disposal.

Table 7-11. Dumpsites in Faisalabad Division

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS/DAY)	ANNUAL WASTE DISPOSAL (TONS/YEAR)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
FAISALABAD	01	935	341,275	1995	2041
CHINIOT	01	84	30,660	2007	2033
TOBA TEK SINGH	01	116	42,340	2013	2035
JHANG	01	55	20,075	2014	2034

### 7.2.6 Existing Infrastructure (SWM)

The Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management (SWM) across the Faisalabad division

encompassing the districts of Faisalabad, Chiniot, Jhang, and Toba Tek Singh, is depicted through dedicated facilities and an extensive transportation network. Each district features designated dumpsites and transfer stations strategically located near urban centers. The road network, comprising major and minor roads, facilitates efficient waste transport from collection points to disposal or processing sites.

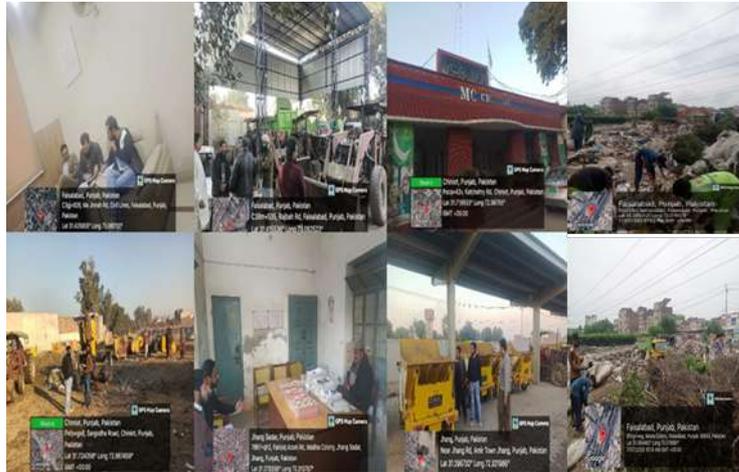


Figure 7-10. Existing Infrastructure of FWMC

Faisalabad District, being the most industrialized and urbanized, shows a denser concentration of SWM facilities and roadways compared to the relatively less populated districts like Jhang and Chiniot. The infrastructure indicates an effort toward organized waste management, though disparities in facility distribution suggest a need for further development in certain areas, especially in remote or rural zones

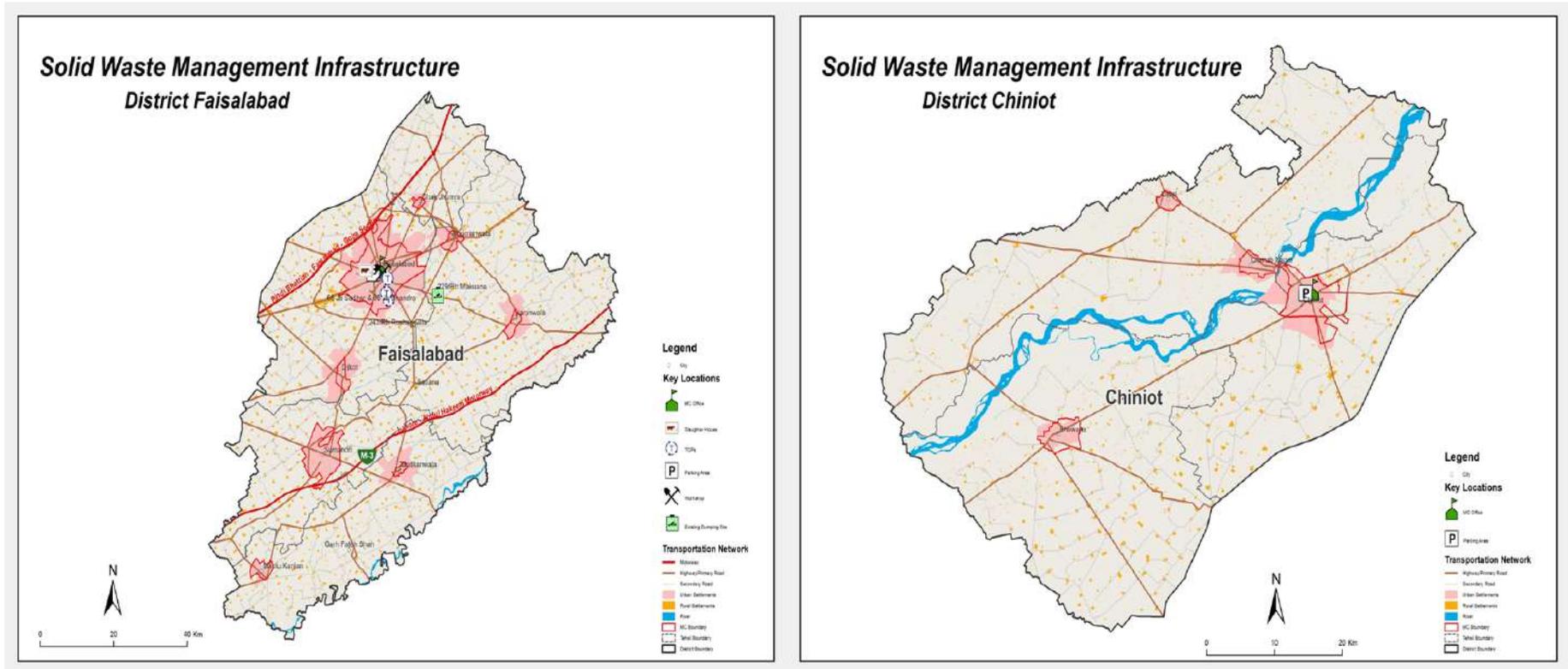


Figure 7-11. District Faisalabad & Chiniot-SWM Infrastructure of Faisalabad Division

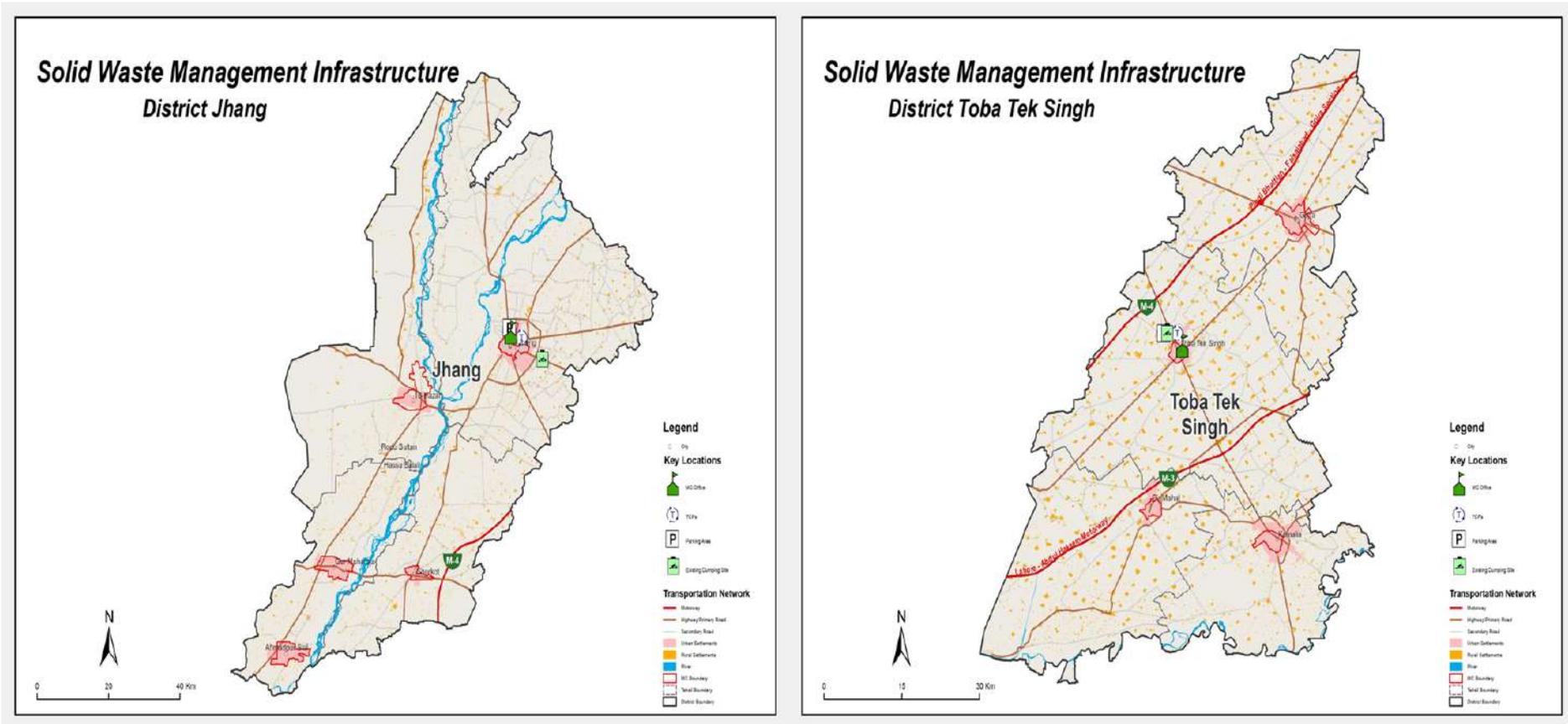


Figure 7-12. District Jhang & Toba Tek Singh-SWM Infrastructure of Faisalabad Division

### 7.2.7 Waste Collection Efficiency (WCE)

The waste collection efficiency across Faisalabad Division highlights significant gaps between waste generation and actual waste collection, indicating the need for improved management systems. Faisalabad District generates the highest amount of waste at 3,054 tons per day, but collects only 935 tons, resulting in a collection efficiency of 31%—the highest among all districts but still far from ideal. Chiniot generates 590 tons daily and collects just 90 tons, yielding a collection efficiency of only 15%. Similarly, Toba Tek Singh produces 927 tons and collects 161 tons, with an efficiency of 17%, while Jhang generates 1,138 tons and collects 177 tons, achieving 16% efficiency. These figures reveal that a significant portion of waste remains uncollected daily, leading to environmental pollution and public health concerns. The low collection efficiencies underscore the urgent need for improved infrastructure, enhanced municipal capacity, and better community awareness to boost waste collection performance across the division.

**Table 7-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program**

COLLECTION EFFICIENCIES				
DISTRICT	Faisalabad	Chiniot	Toba Tak Singh	Jhang
TOTAL WASTE GENERATION (T/D)	3054	590	927	1138
TOTAL WASTE COLLECTION (T/D)	935	90	161	177
COLLECTION EFFICIENCY (CE) % BEFORE OUTSOURCING	31	15	17	16
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>65</sup>			

### 7.2.8 Scavenging Activities

In Faisalabad, like other parts of Punjab, the informal sector plays a significant role in scavenging activities and supports a large informal recycling market that contributes to the local economy. Scavengers typically collect valuable recyclables such as paper, cartons, plastics, and metals from municipal waste containers and transfer stations. Due to economic instability and limited job opportunities, marginalized communities often rely on scavenging as a means of survival. However, this work exposes them to serious health risks and physical injuries. In Faisalabad, there is a pressing need to integrate informal

<sup>65</sup> Current waste collection efficiency is obtained during discussion with WMC.

waste workers into the formal waste management system to move towards a more circular and sustainable economy.



**Figure 7-13. Scavenging Activities in Faisalabad Division**

Across the Faisalabad Division, scavenging remains both a necessity for survival and a significant challenge. Without protective measures, organized waste collection, or structured recycling program, waste pickers continue to work in unsafe environments. Addressing these issues requires improved waste management, better segregation practices, and a social support system to ensure safer and more sustainable livelihoods for those engaged in scavenging.

### **7.2.9 Fuel Allocation to SWM Fleet**

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systems. In 2025, the Faisalabad Division's solid waste management (SWM) operations exhibit significant fuel consumption patterns across its districts and tehsils. Faisalabad District leads with a daily diesel usage of 2,603 liters, predominantly in Faisalabad Tehsil, which alone consumes 2,010 liters, including 740 liters at dumpsites. Jaranwala and Samundari follow with 283 and 220 liters respectively, while Tandlianwala uses 90 liters of diesel and 13 liters of petrol daily. Chiniot District's tehsils collectively consume 180 liters of diesel and 6 liters of petrol per day, with Bhowana contributing the majority of petrol usage. In Toba Tek Singh District, Gojra stands out with 420 liters of diesel consumption daily, including 160 liters at dumpsites, whereas Kamalia uses 377 liters of diesel and 16 liters of petrol. Jhang District records a total daily diesel consumption of 807 liters, with Jhang Tehsil accounting for 407 liters and 60 liters at dumpsites. These figures highlight the reliance on diesel fuel for SWM activities in the division, emphasizing the need for efficient fuel management and potential exploration of alternative energy sources to enhance sustainability directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle daily.

**Table 7-13. Total Fuel Consumption L/D of Faisalabad Division**

DISTRICTS	TEHSIL	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)
FAISALABAD	Faisalabad	0	2010	740
	Jaranwala	0	283	90
	Samundari	0	220	30
	Tandlianwala	13	90	60
	Jhumra	0	0	0
<b>TOTAL</b>		<b>13</b>	<b>2603</b>	<b>920</b>
CHINIOT	Chiniot	0	40	30
	Lalian	0	110	30
	Bhowana	6	30	30
<b>TOTAL</b>		<b>6</b>	<b>180</b>	<b>90</b>
TOBA TEK SINGH	Toba Tek Singh	0	110	0
	Gojra	0	420	160
	Kamalia	16	377	45
	Pir Mahal	0	90	30
<b>TOTAL</b>		<b>16</b>	<b>997</b>	<b>235</b>
JHANG	Jhang	45	407	60
	Ahmedpur Sial	0	90	0
	18-Hazari	0	90	0
	Shorkot	0	220	0
<b>TOTAL</b>		<b>45</b>	<b>807</b>	<b>60</b>

### 7.2.10 Budget Allocation

Budget allocation plays a critical role in the success of the Solid Waste Management (SWM) system. Adequate financial resources are essential for the planning, implementation, and maintenance of an effective waste management system. The budget allocation to the SWM fleet in Faisalabad Division supports the operational efficiency of solid waste collection and disposal across its four districts: Faisalabad, Chiniot, Jhang, and Toba Tek Singh. This allocation primarily covers expenses related to fuel consumption, vehicle maintenance, and the procurement of essential waste-handling machinery like dumpers, tractors, and compactors. Faisalabad, being the largest and most urbanized district, receives a higher share of the fleet budget due to its extensive waste generation and complex logistics. The funding also ensures that vehicles servicing remote tehsils and dumpsites remain operational, helping maintain consistent and hygienic waste management practices throughout the division. According to the details provided by officials of Faisalabad Waste Management Company, from the allocated budget fiscal year

of the company, around 82% is used for non-development purposes and 18% is used for development purposes.

**Table 7-14. Budget Allocation of FWMC**

Overall Budget of FWMC for the year 2024-2025	4,674million PKR
Development Budget Allocation	841million PKR
Non-Development Allocation	3,833million PKR

### 7.2.11 Fruit Mandi and Slaughter House

In Faisalabad Division, the solid waste management (SWM) system for Fruit Mandi's and Slaughter Houses is designed to address the high volume of organic and biodegradable waste generated daily. In Fruit Mandis, waste such as spoiled fruits, vegetable peels, and packaging materials is collected regularly, with a focus on timely removal to prevent odor and pest issues. In Slaughter Houses, the SWM process involves the proper disposal of animal waste, including blood, bones, and offal, often using sealed containers and dedicated vehicles to avoid contamination. Specialized teams handle these sites, ensuring hygiene standards are maintained, and in some areas, efforts are made to convert organic waste into compost or energy. Proper scheduling, mechanized cleaning, and dedicated transfer points are key to managing this sector's unique waste streams efficiently across the division.

**Table 7-15. Details of Fruit Mandi and Slaughter House**

<b>Details of Fruit Mandi and Slaughter House</b>			
<b>FRUIT &amp; VEG MANDI</b>		<b>SLAUGHTERHOUSE</b>	
Total No	Sabzi Mandi	Total No.	1
-	-	Total Animals	500+200
Daily Waste Gen (T/D)	7.5	Daily Waste Gen (T/D)	23
Collection Efficiency %	80	Collection Efficiency %	100
Collection/Transport Mechanism	3-Tractor Trolley	Collection/Transport Mechanism	Tractor Trolleys
<b>Note: Small animals@7.5kg &amp; Large animals@96kg, soo (500*7.5+200*96)/1000</b>			



Figure 7-14. Fruit Mandi and Slaughter House in Faisalabad Division

### 7.2.12 Special Events Resource Induction

In the Faisalabad Division, Special Events Resource Induction for the management of Solid Waste Management (SWM) is a strategic measure taken to address the surge in waste generation during large-scale events such as religious festivals (Eid-ul-Azha, Eid Milad-un-Nabi, Muharram), political gatherings, public holidays, and cultural fairs. During these occasions, the regular SWM infrastructure is supplemented by additional human resources, machinery, and extended operational hours to maintain cleanliness and prevent environmental hazards<sup>66</sup>.

Temporary induction includes:

- Extra sanitary workers and supervisors
- Deployment of additional vehicles like dumpers, mini-tippers, and water bowsers
- Establishment of emergency control rooms
- Dedicated waste collection points near event sites
- Quick response teams for rapid cleanup after events

<sup>66</sup> <https://www.app.com.pk/domestic/district-administration-chalks-out-cleanliness-plan-to-keep-city-clean-on-eid>



Figure 7-15. Working of FWMC on Special Events



it vulnerable to water shortages. Additionally, issues such as poverty, lower literacy rates, and inadequate urban services impact the overall progress of the area. Addressing these challenges is vital for the division's long-term growth and stability.

### **8.1.1 Administrative Setup**

The administrative setup of Bahawalpur Division operates under the supervision of the Local Government and Community Development Department of the Punjab Government (LG&CD,GoP). The division is headed by the Commissioner, who is supported by a Personal Secretary and a Law Officer, and assisted by three Additional Commissioners responsible for Revenue (Rev), Consolidation (Cons.), and Coordination (Coord). This structure ensures oversight and coordination across all administrative and developmental functions within the division.

Various officers and branches work under this structure to manage key areas. The Director (Development & Finance) supervises the Assistant Directors for Planning (AD P), Research & Development (AD R&D), and Finance (AD F). The Assistant Commissioner General (AC G) oversees the General, Establishment, Nazarat, and Dairy Dispatch branches. The Assistant Commissioner Revenue (AC R) handles revenue matters and high-value cases (HVC). Under the Additional Commissioner Coordination, there is an Assistant Director (Services) and an Assistant Commissioner (Petitions), who manages the Petition Cell. This administrative framework, under the provincial government's guidance, facilitates effective local governance, public service delivery, and community development in Bahawalpur Division.

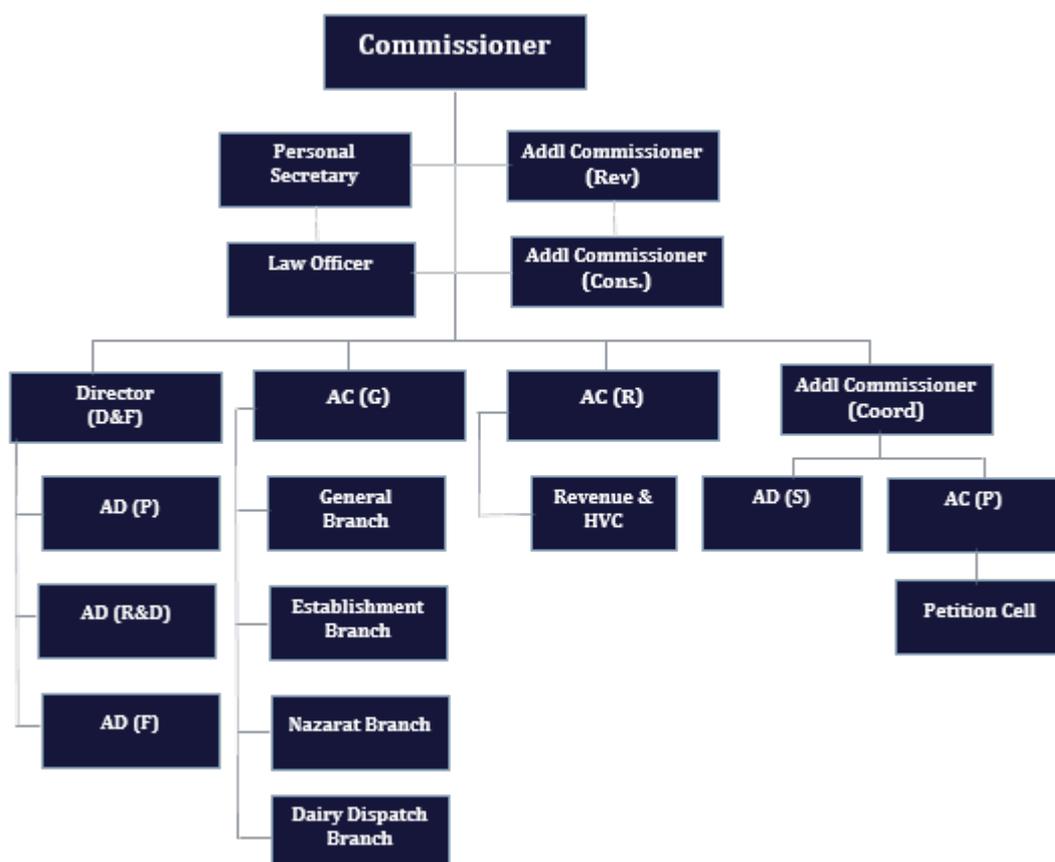


Figure 8-2. Administrative setup of the Bahawalpur Division.

### 8.1.2 Population Statistics

According to the 2023 census, the Bahawalpur Division comprises three districts—Bahawalpur, Bahawalnagar, and Rahim Yar Khan—with a diverse mix of urban and rural populations. Bahawalpur District has a population of approximately 3.8 million, with a predominantly rural composition and an annual growth rate of 2.63%. Bahawalnagar District, largely agricultural and rural, is home to around 3.8 million people and has the highest growth rate in the division at 3%. Rahim Yar Khan District, with a population of about 5.8 million, plays a vital role in trade and agriculture and has a growth rate of 2.47%.

The Bahawalpur Division has an average population growth rate of 2.53%, reflecting steady demographic expansion. The population distribution shows a significant rural majority across all three districts, although urban areas are gradually growing. These figures underscore the need for balanced development planning, especially in infrastructure, education, and healthcare, to meet the needs of a rapidly increasing population.

Table 8-2. Population statistics of Bahawalpur<sup>67</sup>.

Sr. No	District	Rural population	Urban population	Total
1	Bahawalpur	2181310	1652517	3833828
2	Bahawalnagar	2654685	1137323	3792007
3	Rahim Yar Khan	4383687	1471098	5854785

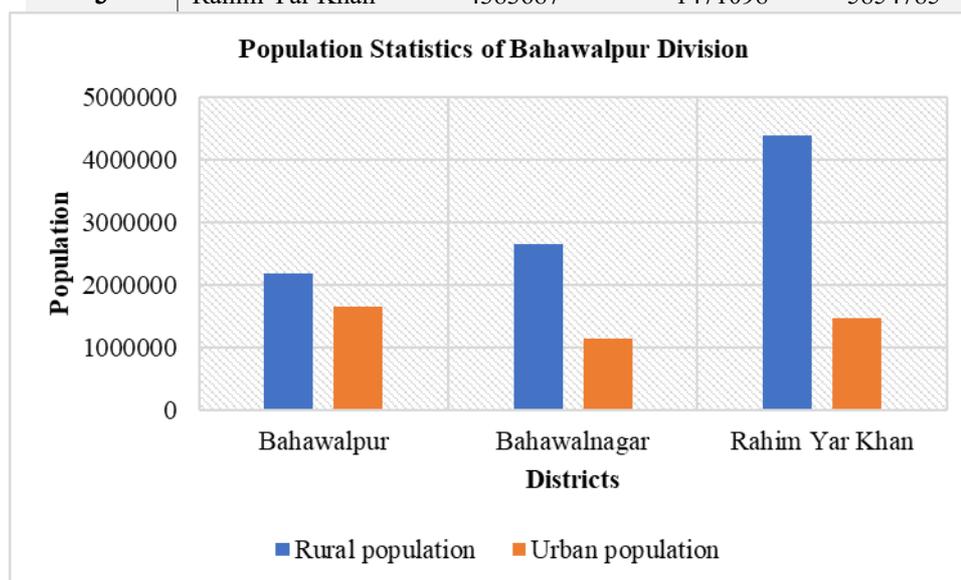


Figure 8-3. Graph of population statistics of Bahawalpur.

### 8.1.3 Demography of Bahawalpur

The Bahawalpur Division spans a vast geographical area, covering approximately 4.5 million hectares. It comprises a significant number of households and economic entities, reflecting a mix of urban and rural settlements. The division features high-rise structures alongside normal economic entities, indicating a blend of modern infrastructure and traditional business setups. The economic landscape is diverse, with a substantial presence of businesses and commercial activities across different tehsils.

Table 8-3. Demography of Bahawalpur.<sup>68</sup>

SR. NO	DISTRICT	AREA HECTARES	NO OF HOUSEHOLDS	NO. ECONOMIC ENTITIES HIGH-RISE	NO OF ECONOMIC ENTITIES IN NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
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<sup>67</sup> Primary Data Source: Local Government (LG&CDD)

<sup>68</sup> Primary Data Source: Local Government (LG&CDD)

1	Bahawalpur	2,483,000	673,437	35	129,482	129,517
2	Bahawalnagar	8,87,800	535,551	31	90,035	90,066
3	Rahim Yar Khan	1,188,000	826,942	41	131,427	131,468

#### 8.1.4 Land use area of Bahawalpur

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2023 report is shown in the tabulated form.

Table 8-4. Land use Area of Bahawalpur in Hectares.<sup>69</sup>

DISTRICT	REPORTED AREA	CULTIVATED AREA	UN-CULTIVATED AREA	CROPPED AREA
BAHAWALPUR	2483000	75700	18700	72800
BAHAWALNAGAR	887800	101600	12200	97300
RAHIM YAR KHAN	1,188,000	87500	14600	78700

#### 8.1.5 Climatic Conditions of Bahawalpur Division

Bahawalpur Division experiences a hot, dry subtropical climate influenced by its location in southern Punjab. Summers are long and intense, with average temperatures between 27°C–29°C, often exceeding 40°C, especially in Rahim Yar Khan, where it can surpass 45°C. Winters are mild to cool, ranging from 7°C to 15°C across the division.

Rainfall is low and mainly occurs during the monsoon season. Rahim Yar Khan receives the highest monsoon rainfall (100–120 mm, annual 180–250 mm), followed by Bahawalpur (80–100 mm, annual 150–200 mm) and Bahawalnagar (60–90 mm, annual 120–180 mm). The Cholistan Desert contributes to dry winds and dust storms, making agriculture and water management challenging, with the region heavily reliant on canal irrigation.

<sup>69</sup> [https://bos.punjab.gov.pk/system/files/PAS%202023%20%28finsl%20pdf%29.pdf?utm\\_source](https://bos.punjab.gov.pk/system/files/PAS%202023%20%28finsl%20pdf%29.pdf?utm_source)

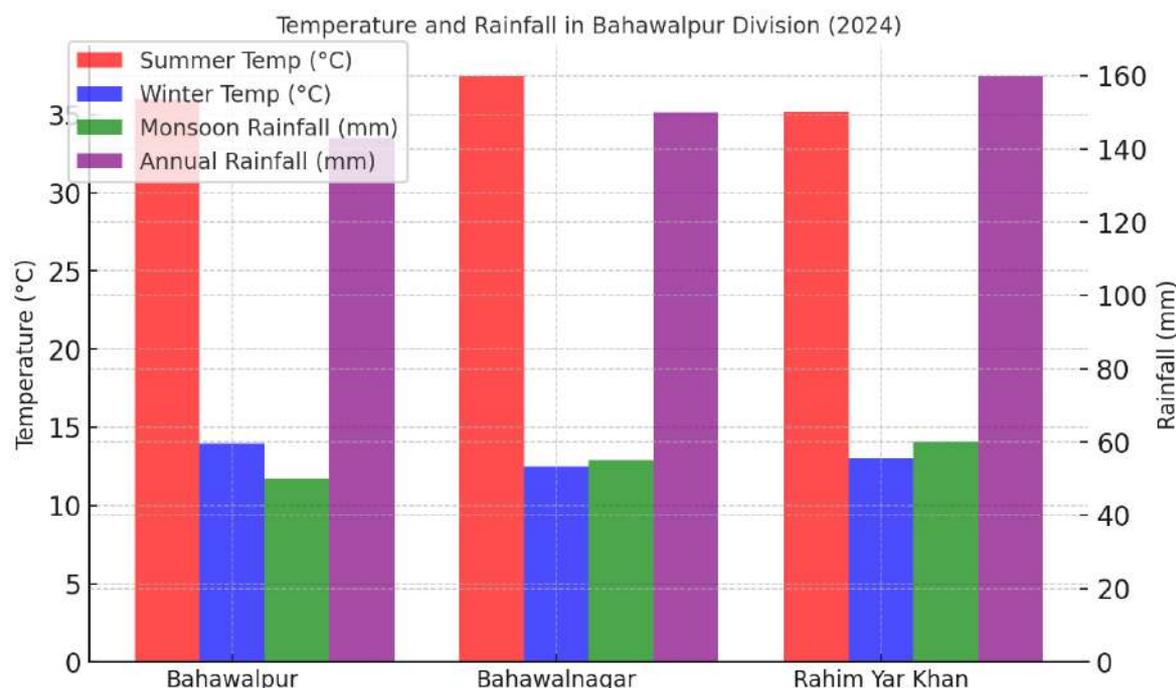


Figure 8-4. Graphical representation of the climatic conditions in Bahawalpur Division's districts<sup>70</sup>

Table 8-5. Tabular representation of the climatic conditions in Bahawalpur Division's districts

District	Summer temp (°c)	Winter temp (°c)	Monsoon rainfall 2024 (mm)	Avg. Annual rainfall 2024 (mm)
Bahawalpur	36	14	50	143
Bahawalnagar	37.5	12.5	55	150
Rahim yar khan	35.2	13	60	160

## 8.2 Asset Mapping of Solid Waste Management Services

### 8.1.6 SWM Administrative Setup

The Solid Waste Management (SWM) system in Bahawalpur is structured under a well-defined administrative framework, led by the Board of Directors, with a Chairman and a Chief Executive Officer (CEO) overseeing overall operations. A Company Secretary ensures coordination between various departments, which include HR/Admin, Procurement & Contracts, Operations, MIS, and Finance. Each department is managed by dedicated professionals, including assistant managers who handle specific roles such as communication, planning, workshops, IT, and finance. The Operations Department plays

<sup>70</sup> <https://www.pmd.gov.pk/en/>

a key role in waste collection and disposal, ensuring smooth execution of daily activities across the city and surrounding areas. The Bahawalpur Waste Management Company Organogram is

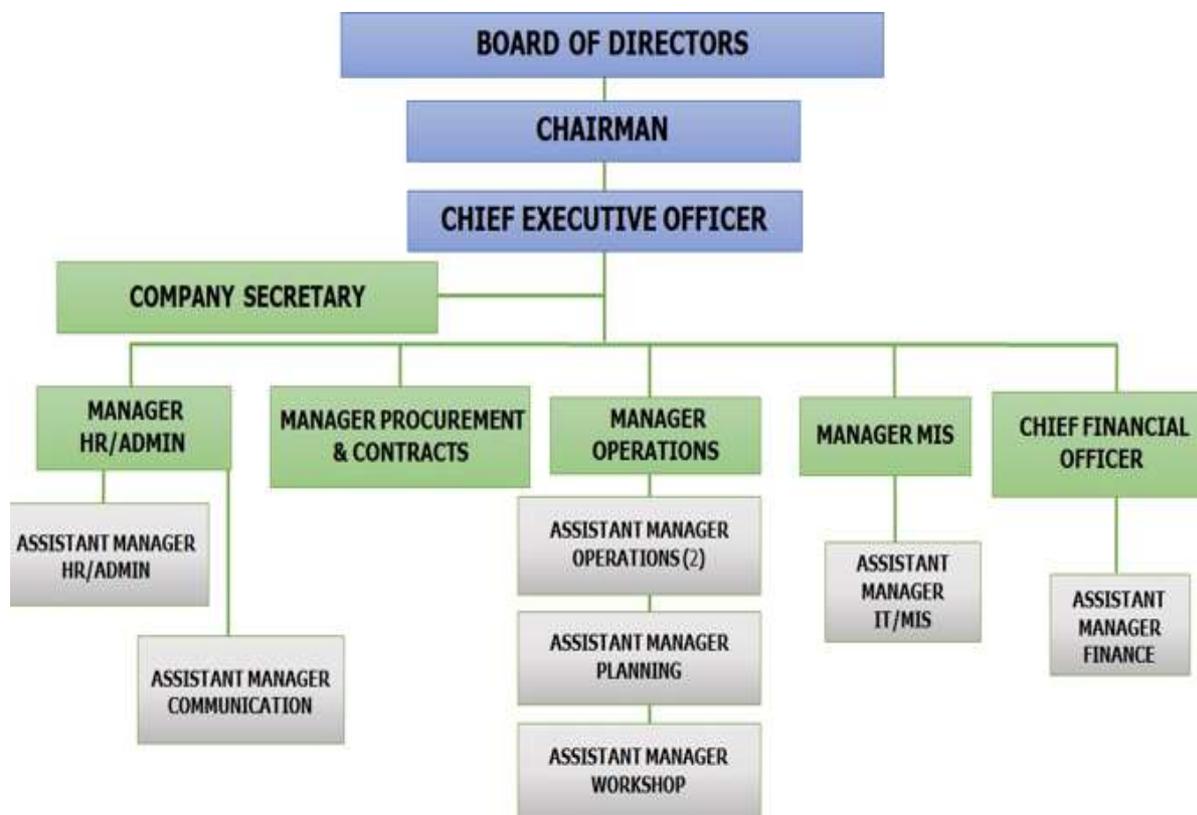


Figure 8-5. Administrative setup of the Bahawalpur Waste Management Company<sup>71</sup>

In addition to its internal structure, the SWM system in Bahawalpur collaborates with private contractors, integrating modern waste management equipment to enhance efficiency. The company follows environmental guidelines and sustainability principles, ensuring that waste disposal methods are eco-friendly and compliant with national regulations. This integrated approach enables effective service delivery in both urban and rural areas, contributing to improved sanitation, public health, and environmental sustainability. The focus remains on maintaining cleanliness, reducing waste accumulation, and promoting responsible waste management practices for a cleaner and healthier Bahawalpur.

<sup>71</sup> <https://www.bwmc.com.pk/og.html>

## 8.2.2 Population and Waste Generation

The Bahawalpur Division has a substantial and growing population, which significantly contributes to waste generation across its urban and rural areas. Rapid urbanization, population expansion, and increased commercial activities, particularly in key urban centers such as Bahawalpur City, Rahim Yar Khan, and Bahawalnagar, have led to a rise in municipal, industrial, and agricultural waste. Based on waste generation rates of 0.45 kg/capita/day in urban areas and 0.32 kg/capita/day in rural areas, the total waste generated in the Bahawalpur Division is estimated at approximately 4,868 tons per day.

This mounting waste volume presents serious environmental challenges due to inefficient waste collection systems, inadequate landfill infrastructure, and limited recycling efforts. Household refuse, plastic, and organic waste dominate the composition of solid waste. To address these issues, the region urgently needs effective waste management strategies that include waste segregation at source, expanded recycling programs, and environmentally sound disposal methods, ensuring a cleaner and more sustainable environment for the growing population.

**Table 8-6. Tabular Representation of Population and Waste Generation of all Tehsils of Bahawalpur Division.**

SR. NO	DISTRICT	TEHSILS	POPULATION-2025		W.G T/D 2025
			Urban	Rural	
1	BAHAWALPUR	Ahmadpur	Urban	438,106	197
			Rural	978,544	313
		Bahawalpur City	Urban	865,184	389
			Rural	-	0
		Hasilpur	Urban	234,515	106
			Rural	302,924	97
		Khairpur Tamewali	Urban	49,397	22
			Rural	251,096	81
		Yazman	Urban	65,315	29
			Rural	648,745	208
		Bahawalnagar	Urban	318,145	143
			Rural	722,255	231
		Chishtian	Urban	264,953	119
			Rural	640,541	205
2	BAHAWALNAGAR	Fort Abbas	Urban	173,925	78
			Rural	381,322	122
		Haronabad	Urban	240,929	108
			Rural	414,461	133
		Minchinabad	Urban	139,370	63
			Rural	496,106	159

Sr. No	District	Tehsils	POPULATION-2025	W.G T/D 2025
3	RAHIM YAR KHAN	Khanpur	Urban 362,018	163
			Rural 879,644	281
		Liaqatpur	Urban 128,976	58
			Rural 1,187,841	380
		Rahim Yar Khan	Urban 632,046	284
			Rural 1,238,504	396
		Sadiqabad	Urban 348,058	157
			Rural 1,077,699	345
	<b>TOTAL</b>		<b>13,480,620</b>	<b>4,868</b>

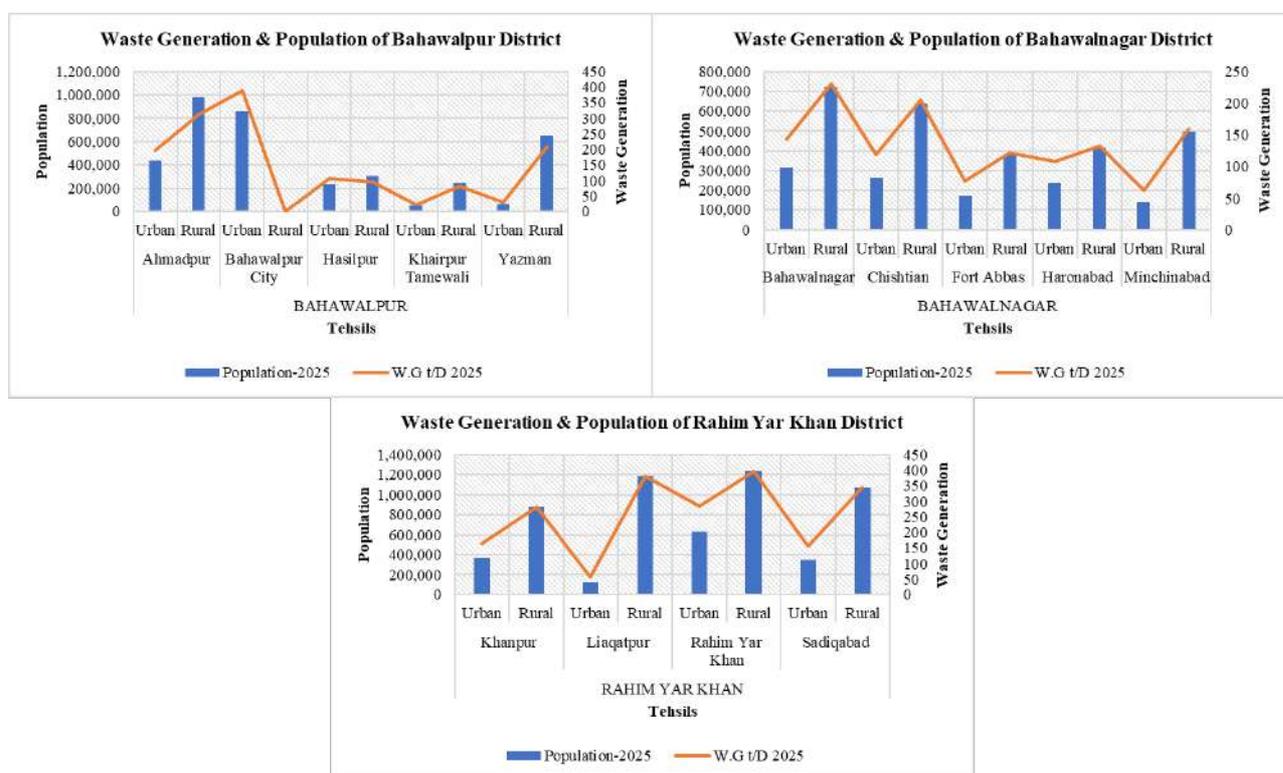


Figure 8-6. Graphical representation of population and Waste Generation of Bahawalpur Division

### 8.2.3 Waste Composition/Characterization

The physical waste characterization study conducted in Bahawalpur, Rahim Yar Khan, and Bahawalnagar of this division revealed significant variations in waste composition across different socio-economic areas, including commercial, low-income, middle-income, and high-income zones.



Figure 8-7. Conducting Physical Waste Characterization

The study, conducted in the winter and summer on seasonal basis, found that biodegradable waste constituted the highest percentage, ranging from 48.42% to 50%, followed by plastic waste, which was between 16% to 17%. Diapers, textiles, and non-combustible waste also made up notable portions of the total waste. Meanwhile, hazardous waste, e-waste, and metal waste were found to be negligible or absent. This data provides insights into the waste management needs of these areas and helps in formulating targeted disposal and recycling strategies.

Table 8-7. Waste Composition of the Bahawalpur Division

SR. NO.	PHYSICAL WASTE COMPOSITION	DISTRICT WISE WASTE COMPOSITION IN %		
		Bahawalpur	Bahawalnagar	Rahim Yar Khan
1	Combustibles	2.87	3.89	5.30
2	Diaper	13.61	12.32	13.16
3	Elec.-Electronic W.	0.14	0.01	0.11
4	Glass	1.47	2.38	1.15
5	Hazardous W	0.06	0.00	0.05
6	Biodegradable W.	50.57	50.65	48.42
7	Metals	0.12	0.00	0.03
8	Non-Combustibles	5.47	5.34	5.88
9	Paper-Cardboard	0.66	0.43	0.66
10	Pet	0.25	0.01	0.49
11	Nylon	0.20	0.10	0.88
12	Plastics	16.38	16.68	17.27
13	Tetrapak	1.93	1.11	0.51
14	Textile	6.26	7.07	6.09
	TOTAL IN %	100	100	100

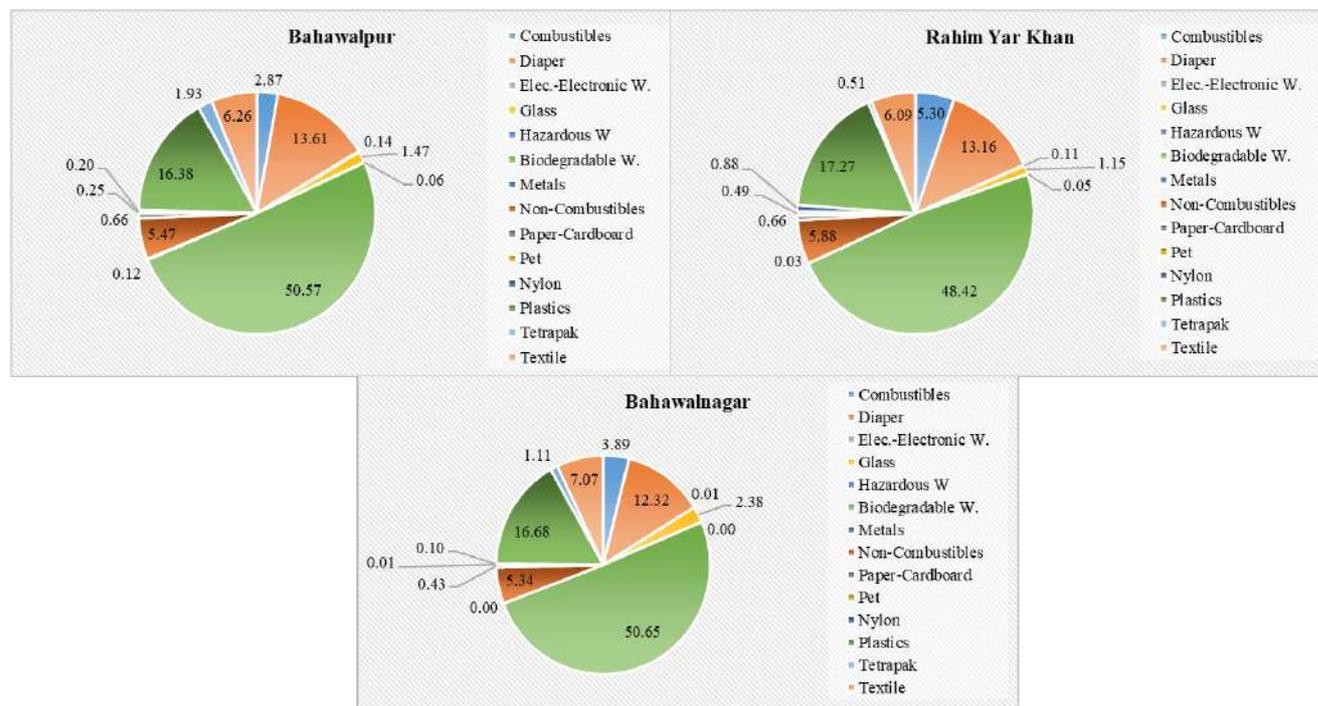


Figure 8-8. Graphical Representation of Waste Composition

This onsite waste characterization study was part of a broader project covering 41 districts of Punjab, where waste from tehsils of divisional headquarters was analyzed using the quarter-coning method. These samples were subjected to chemical analysis at SGS (an EPA-certified laboratory) to examine seasonal variations in waste composition between winter and summer. The seasonal waste composition study will be conducted in January and May, and its findings will be attached following physical characterization. The results of these studies will be crucial in understanding seasonal trends in waste generation and developing more efficient waste management strategies across Punjab.

### 8.2.4 Primary and Secondary Waste Collection

In the districts of the Bahawalpur Division, waste collection faces numerous challenges due to varying levels of urbanization, infrastructure, and public awareness.

In Bahawalpur, as a major city, the municipal corporation manages door-to-door waste collection and secondary transportation from community bins to designated transfer stations or landfill sites. However, industrial and hazardous waste disposal remains a concern, and inefficiencies persist due to the high volume of commercial and bulk waste.

Bahawalnagar has relatively better infrastructure for both primary and secondary waste collection, with waste efficiently transported to central disposal sites. Yet, challenges such as informal dumping and difficult access to remote areas hinder smooth operations.

In rural districts like Rahim Yar Khan, waste collection services are more limited. Local councils primarily handle waste collection, but scattered populations and unsuitable roads often slow down the process. Before outsourcing of SWM services under Suthra Punjab Program, MC/TMAs were responsible for provision of solid waste management services but now after inception of outsourcing services BWMC is operational in all urban and rural tehsils of this division but mobilizing local contractors to collect, transport and dispose waste as per standard SOPs' defined in contracts. Secondary waste transportation in these districts faces delays due to inadequate equipment and poorly optimized routes. But new machinery will be added in all tehsils under the Suthra Punjab Program to improve waste collection and transportation services. Details of current machinery and machinery which will be added under the Suthra Punjab Program are highlighted in the respective section.

Despite these challenges, efforts are being made to improve public awareness, increase service efficiency, and promote sustainable waste disposal practices across the Bahawalpur Division.

**Table 8-8. Waste Management Assets of Primary and Secondary collection (Current Machinery available with Local Government/WMC)**

DISTRICTS	TEHSILS	LOADER RICKSHA WS	COMPACTO R (7M3)	DUMPERS (5M3)	TRACTO R LOADER	FRONT END LOADER	MEC HAN ICA L SWE EPE R	TRACTO R TROLLE Y	RICKSHA W WASHER	CHAIN ARM ROLL	MINI TIPPER
BAHAWALPUR	Khairpur Tamewali	1	0	0	1	0	0	2	0	0	0
	Yazman	0	0	0	1	0	0	2	0	0	2
	Ahmad Pur East	2	2	0	0	2	0	5	0	0	5
	Hasilpur	1	0	0	1	0	0	2	0	0	0
	Bahawalpur Suddar	0	0	0	1	0	0	2	0	0	0
	Bahawalpur	7	3	0	2	0	2	9	0	2	9
	Bahawalnagar Tehsil	0	0	0	0	1	0	4	0	0	4
BAHAWALNAGAR	Chishtian	6	0	0	0	0	0	1	0	0	2
	Fort Abbas	3	0	0	0	0	0	5	0	0	0
	Haroonabad	4	0	0	0	0	0	1	0	0	0
	Minchan Abad	3	5	0	3	4	2	10	0	2	0

RAHIM YAR KHAN												
	Rahim Yar Khan Tehsil	11	0	0	1	0	0	5	0	0	0	0
	Sadiq Abad	0	0	0	2	2	0	4	0	2	0	0
	Khan Pur	9	0	0	0	1	0	5	0	0	0	0
	Liaquat Pur	0	8	5	0	2	0	10	1	2	20	0

Table 8-9. Waste Management Assets of Primary and Secondary collection (Additional Machinery will be Deployed by Local Contractor)

DISTRICTS	TEHSILS	LOAD ER RICKS HAWS	COMP ACTOR (7 M <sup>3</sup> )	DUMP ERS (5M <sup>3</sup> )	TRACT OR LOADE R	DUMPE RS (10M <sup>3</sup> )	FRONT END LOADE R	MECH ANICA L SWEEP ER(MS)	TRACTOR TROLLEY( 2M <sup>3</sup> )	RICKSHA W WASHER	CHAIN ARM ROLL (2.5 M <sup>3</sup> )	MINI TIPPE R	DUMP ERS (20M <sup>3</sup> )
BAHAWALPUR	Khairpur Tamewali	28	2	2	3	5	0	1	5	1	0	3	
	Yazman	74	2	3	9	13	1	1	15	1	0	2	
	Ahmad Pur East	117	5	8	16	20	1	1	22	1	7	13	
	Hasilpur	39	4	5	4	7	2	1	7	1	4	10	
	Bahawalpur	14	4	7	0	0	2	1	3	0	6	8	2
BAHAWALNAGAR	Bahawalnagar Tehsil	76	5	5	10	13	1	1	13	1	4	7	
	Chishtian	45	2	4	7	9	1	1	11	1	0	2	
	Fort Abbas	51	5	5	7	9	2	1	7	1	4	10	

	Haroonabad	60	3	5	8	11	2	1	14	1	0	5
	Minchan Abad	143	9	15	9	21	1	0	30	1	12	34
<b>RAHIM YAR KHAN</b>	Rahimyar Khan Tehsil	125	8	8	17	23	3	1	26	1	8	18
	Sadiq Abad	102	7	7	12	17	0	1	19	1	5	16
	Khan Pur	125	2	3	18	23	0	1	26	1	0	4
	Liaquat Pur	80	3	0	10	15	0	0	11	1	4	5

**Table 8-10. Current and Additional HR for the Bahawalpur Division.**

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
<b>BAHAWALPUR</b>	Khairpur Tamewali	37	167
	Yazman	25	398
	Ahmad Pur East	179	701
	Hasilpur	82	320
	Bahawalpur Suddar	12	446
		810	
	Bahawalpur		331
<b>BAHAWALNAGAR</b>	Bahawalnagarar Tehsil	197	488
	Chishtian	68	515

<b>RAHIM YAR KHAN</b>	Fort Abbas	33	300
	Haroonabad	106	363
	Minchan Abad	22	385
	Rahimyar Khan Tehsil	341	989
	Sadiq Abad	198	767
	Khan Pur	230	534
	Liaquat Pur	136	535

### 8.2.5 Waste Transfer and Disposal

Waste transfer and disposal in the Bahawalpur Division face challenges related to infrastructure, logistics, and capacity, particularly in Bahawalpur, Bahawalnagar, and Rahim Yar Khan. In Bahawalpur, waste transfer involves moving collected waste from primary and secondary collection points to landfill/dumpsite sites or designated treatment facilities, but inefficient segregation often leads to mixed waste, complicating disposal and recycling efforts. The existing disposal sites are frequently overburdened, requiring improvements in waste management practices for environmentally safe disposal. Bahawalnagar follows a similar model, but logistical challenges, such as delays in waste transport to central disposal sites, hinder efficiency. Rahim Yar Khan, with its dispersed rural settlements, struggles with inefficient waste transfer due to poor road infrastructure, limited waste collection vehicles, and inadequate waste segregation at the source. The lack of waste processing facilities means that organic and non-organic waste is mixed, making disposal more challenging.



Figure 8-9. Map of Dump sites and Proximity to Airport in Bahawalpur Division

Additionally, most waste in the division is sent to landfills without significant recycling or treatment, leading to environmental concerns. To improve waste transfer and disposal efficiency, the Bahawalpur Division requires investment in modern waste transfer vehicles, better road networks, more efficient segregation at collection points, and the establishment of waste processing facilities, such as recycling centers. Ensuring that waste is disposed of in an environmentally safe and efficient manner remains a critical challenge for the region.

Table 8-11. Waste Disposal System in the Bahawalpur Division

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
Bahawalpur	01	300	93,600	2016	Over exhausted
Bahawalnagar	01 purposed	326	118,990	2025	2029
Rahim Yar Khan	01	130	47450	2017	04-2025

### 8.2.6 Existing SWM Infrastructure

The Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management (SWM) infrastructure in the Bahawalpur Division, covering Bahawalpur, Bahawalnagar, and Rahim Yar Khan districts, shows moderate development focusing on urban areas. Key facilities such as collection points, transfer stations, and dump sites are present, particularly

concentrated around major towns and main transportation routes. Rahim Yar Khan appears to have the most extensive network, while Bahawalnagar and Bahawalpur have a relatively limited spread of infrastructure.



Figure 8-10. Existing Infrastructure of BWMC

However, rural and peripheral areas across all three districts remain underserved, and the reliance on open dumping persists due to the absence of sanitary landfills and advanced waste treatment facilities. Overall, the system requires expansion and upgrading for more comprehensive and sustainable waste management.

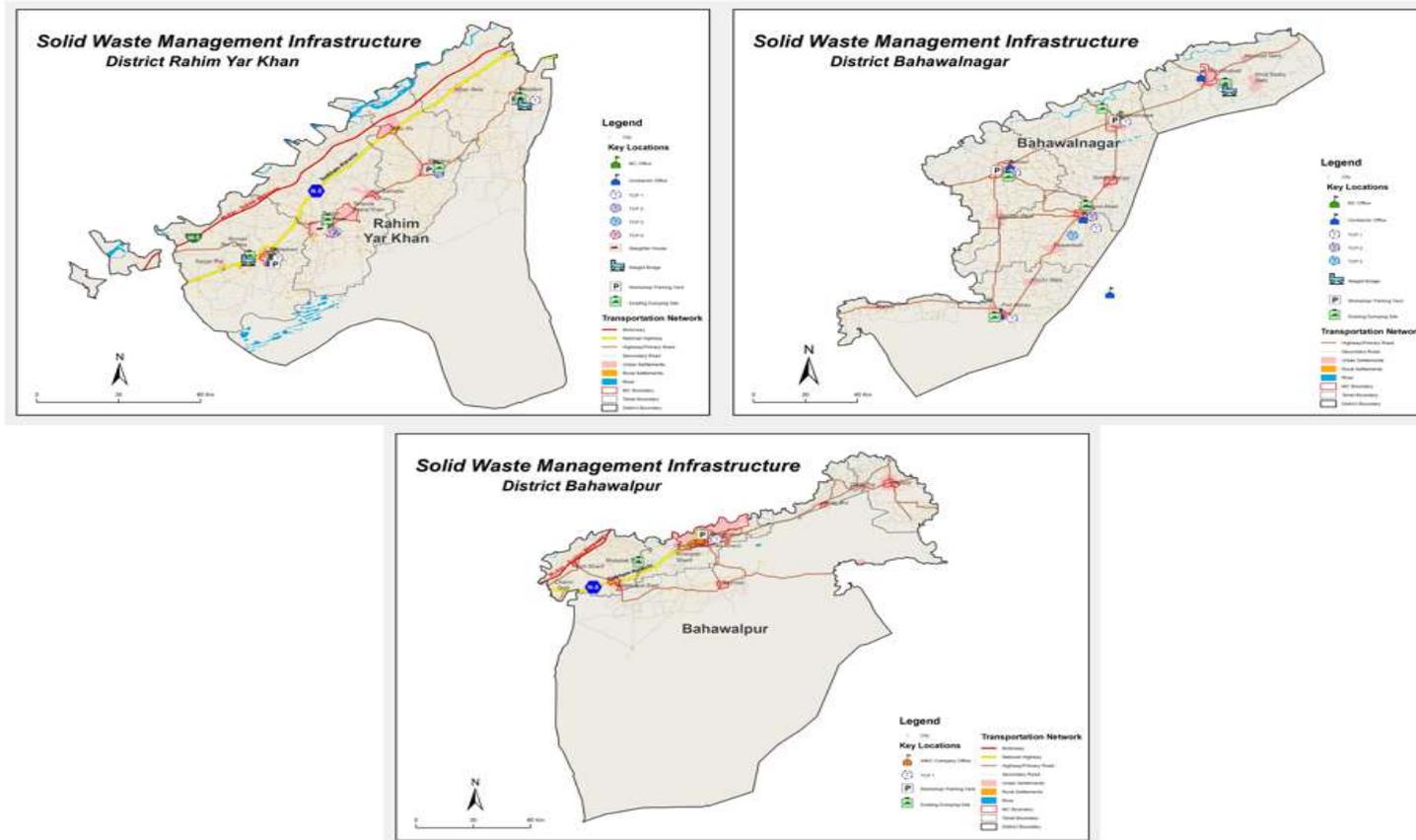


Figure 8-11. SWM Infrastructure of Bahawalpur Division

### 8.2.7 Waste Collection Efficiency (WCE)

The waste collection efficiency across the Bahawalpur Division is notably low, highlighting significant challenges in solid waste management. Bahawalnagar leads slightly with a collection efficiency of 37%, followed by Bahawalpur at 34%, while Rahim Yar Khan lags with only 17% despite having the highest daily waste generation of 2065 tons. This data indicates that a large portion of waste remains uncollected across all three districts, contributing to environmental and public health risks. The low efficiency is likely due to limited infrastructure, inadequate manpower, and insufficient coverage in rural and peri-urban areas. To improve, the division needs targeted investment in expanding waste collection fleets, workforce, and community-level waste segregation and disposal systems.

**Table 8-12. District-Wise Waste Collection Efficiencies before Inception of Contractors Under Suthra Punjab Program**

DISTRICTS	WASTE GENERATION- T/D	WASTE COLLECTION- T/D	COLLECTION EFFICIENCY (CE) IN % BEFORE OUTSOURCING	COLLECTION EFFICIENCY (CE) IN % AFTER OUTSOURCING
BAHAWALPUR	1157	399	34	
BAHAWALNAGAR	1361	503	37	>70%
RAHIMYAR KHAN	2065	358	17	

### 8.2.8 Scavenging Activities

Scavenging activities in the Bahawalpur Division are same as defined in pervious divisional profiles. The informal sector is associated with such types of activities and has an informal contribution to the GDP of the Punjab Province. From door step till disposal usually it is carried out by the scavengers who are working independently or for some private company who hired scavengers on daily wages to collect recyclables. BWMC doesn't have any data about this activity in whole division because they are not registered and doesn't have any count in any study conduct previously. There is need formalise this informal sector because they are providing support to improve waste collection services in the urban and rural areas but informally. influenced by socio-economic and environmental conditions, particularly in rural and less-developed areas



Figure 8-12. Informal Scavenging at the Bahawalpur Division

### 8.2.9 Fuel Allocation to SWM Fleet

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systems. It directly impacts the efficiency, cost, and sustainability of SWM operations. The annual fuel consumption for Solid Waste Management (SWM) machinery in the Bahawalpur Division shows significant variations across districts and tehsils. Bahawalpur District has the highest annual diesel consumption, reaching approximately 221 million liters, with the highest usage in Bahawalpur city. Petrol consumption in this district is relatively lower, at around 1 million liters, primarily used in smaller vehicles.

Bahawalnagar District follows with an annual diesel consumption of 168 million liters, with Bahawalnagar Tehsil having the highest share. Petrol consumption is 4.2 million liters, largely used in Fort Abbas, Haroonabad, and Minchan Abad. Rahim Yar Khan District has the highest fuel consumption overall, with 232 million liters of diesel and 5.8 million liters of petrol annually, mainly due to the extensive waste collection operations in Rahim Yar Khan and Sadiqabad tehsils. These figures reflect the operational scale of waste management and fuel dependency in different regions.

Table 8-13. Existing Machinery Fuel Consumption of the Bahawalpur Division

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRES PER DAY (DUMPSITE)
BAHAWALPUR	Khairpur Tamewali	3	210	30
	Yazman	8	210	30
	Ahmad Pur East	27	550	0
	Hasilpur	3	210	30
	Bahawalpur	83	1222	75
<b>TOTAL</b>		<b>125</b>	<b>2402</b>	<b>165</b>
BAHAWALNAGER	Bahawalnagar Tehsil	125	2402	165

	Chishtian	60	990	60
	Fort Abbas	17	410	0
	Haroonabad	28	90	0
	Minchan Abad	10	450	0
	<b>TOTAL</b>	<b>239</b>	<b>4342</b>	<b>225</b>
<b>RAHIM YAR KHAN</b>	Rahimyar Khan Tehsil	13	90	0
	Sadiq Abad	126	2030	60
	Khan Pur	10	1337	90
	Liaquat Pur	35	480	30
	<b>TOTAL</b>	<b>29</b>	<b>500</b>	<b>0</b>

### 8.2.10 Budget Allocation

Effective budget allocation is crucial for the success of Solid Waste Management (SWM) systems, ensuring sufficient planning, implementation, and maintenance resources. In November 2023<sup>72</sup>, the Asian Development Bank (ADB) approved a \$180 million loan for the 'Developing Resilient Environments and Advancing Municipal Services in Punjab Project,' aiming to benefit approximately 1.5 million people by enhancing water supply in other regions of the Punjab, and the solid waste management system in Bahawalpur. In Bahawalpur, the project includes procuring waste collection equipment, expanding service coverage, constructing a recycling facility, and establishing a floodproof landfill. Additionally, the existing dump site will be rehabilitated, and personal protective equipment will be provided for informal sector workers.

Subsequently, in March 2024, the Punjab government finalized a plan to outsource solid waste management operations in the Bahawalpur Division. This initiative encompasses the installation of a waste segregation plant for recycling and emphasizes community involvement through monitoring teams to assess the performance of government institutions in both urban and rural areas.

Notably, within the Bahawalpur Division, only the Rahim Yar Khan district has disclosed its SWM budget details for the fiscal year 2023–2024. The district's financial allocations include:

**Table 8-14. Budget Allocation of BWMC**

Development Budget (Liabilities)	PKR 51.391 million
Non-Development Budget	PKR 1622.659 million
Operational and Maintenance Costs (Annual)	PKR 97.817 million
Salaries for SWM Staff (Management and Office)	PKR 381.88 million

<sup>72</sup><https://www.app.com.pk/business/adb-approves-180-mln-for-water-supply-improvement-solid-waste-management>

### 8.2.11 Fruit Mandi and Slaughter House

In Bahawalpur Division, waste management in fruit and vegetable markets and slaughterhouses presents significant challenges. The Yazman Fruit & Vegetable Market, a key hub for fresh produce trade, lacks detailed data on waste generation and management practices, underscoring the need for effective strategies to handle organic waste and maintain hygiene. Historically, Bahawalpur's primary slaughterhouse has faced infrastructural deficiencies, leading many butchers to opt for private slaughtering, raising hygiene concerns. Efforts to construct a modern slaughterhouse were initiated with over Rs170 million<sup>73</sup> sanctioned around 2017, but by 2019, these funds remained unutilized due to administrative delays. Addressing these issues requires targeted investments and the implementation of efficient waste disposal practices to safeguard public health and environmental integrity.

The following table summarizes the current status of waste generation and management in fruit and vegetable markets and slaughterhouses across the districts of the Bahawalpur Division:

**Table 8-15. Details of the Fruit & Vegetable Market and The Slaughter House in the Bahawalpur Division**

DISTRICT	FACILITY TYPE	TOTAL FACILITIES	DAILY WASTE GENERATION( TONS/DAY)	COLLECTION EFFICIENCY (%)	COLLECTION/TRANSPORT MECHANISM	ANIMALS SLAUGHTERED PER DAY	LARGE & SMALL ANIMALS SLAUGHTERED
RAHIM YAR KHAN	Fruit & Vegetable Market	1	10	20	Weekly 4 trolleys	N/A	N/A
	Slaughter house	1	1.860 tons	Not specified	Not specified	155	155 Large & 400 Small
BAHAWALPUR	Fruit & Vegetable Market	1	10 tons/day	Good	Arm Roll container	N/A	N/A
	Slaughter house	1	2 tons	100%	Arm Roll container	20–25	15 Large & 10 Small
BAHAWALNAGAR	Fruit & Vegetable Market	1	N/A	Not specified	Weekly 4 trolleys	N/A	N/A
	Slaughter house	1	0.5 tons	Not specified	Not specified	Not specified	Not specified

<sup>73</sup> <https://www.dawn.com/news/1482311>-(BAHAWALPUR: The government funds to the tune of over Rs170 million meant for the establishment of a modern slaughterhouse lapsed owing to alleged negligence of the Municipal Corporation officials.)



**Figure 8-13. Fruit Mandi and Slaughter House in Bahawalpur Division**

### **8.2.12 Special Events Resource Induction**

Special events like Eid ul-Adha pose unique challenges for waste management, especially in urban areas. The slaughtering of animals during Eid ul-Adha generates large amounts of organic waste, including animal remains, blood, and offal. Without proper handling, this waste can cause serious health, environmental, and aesthetic issues. Efficient management of this waste requires advanced planning, additional resources, and enhanced coordination among municipal authorities, private contractors, and communities.

In the Bahawalpur Division, each district adopts specific strategies to manage the increased waste during Eid ul-Adha:

**Table 8-16. Deployment of Resources on Special Events for Waste Management in the Bahawalpur Division**

DISTRICT	COLLECTION POINTS	DISPOSAL ARRANGEMENTS	ADDITIONAL RESOURCES (HUMAN & MECHANICAL)
BAHAWALPUR	15	Containers placed near slaughterhouses	100 workers, 25 rented loader rickshaws; distribution of 100,000 free waste bags; establishment of 34 Eid camps; deployment of 90 vehicles for waste collection
RAHIM YAR KHAN	Not specified	Not specified	4 loaders, 8 tractor trolleys, 20 loader rickshaws
BAHAWALNAGAR	15	Not specified	No additional resources reported



**Figure 8-14. Deployment of Extra Resources by Bahawalpur Waste Management Company**

## 9 CHAPTER: DERA GHAZI KHAN DIVISION

### 9.1 Divisional Profile

Dera Ghazi Khan Division, located in southwestern Punjab, comprises six districts: Dera Ghazi Khan, Rajanpur, Muzaffargarh, Layyah, Taunsa, and Kot Addu. The region features diverse geography—from the Suleiman Mountains to fertile plains and desert areas—and serves as a key agricultural and trade hub, producing major crops like wheat, cotton, and sugarcane. It is also rich in mineral resources and reflects a blend of Balochi, Saraiki, and Punjabi cultures.

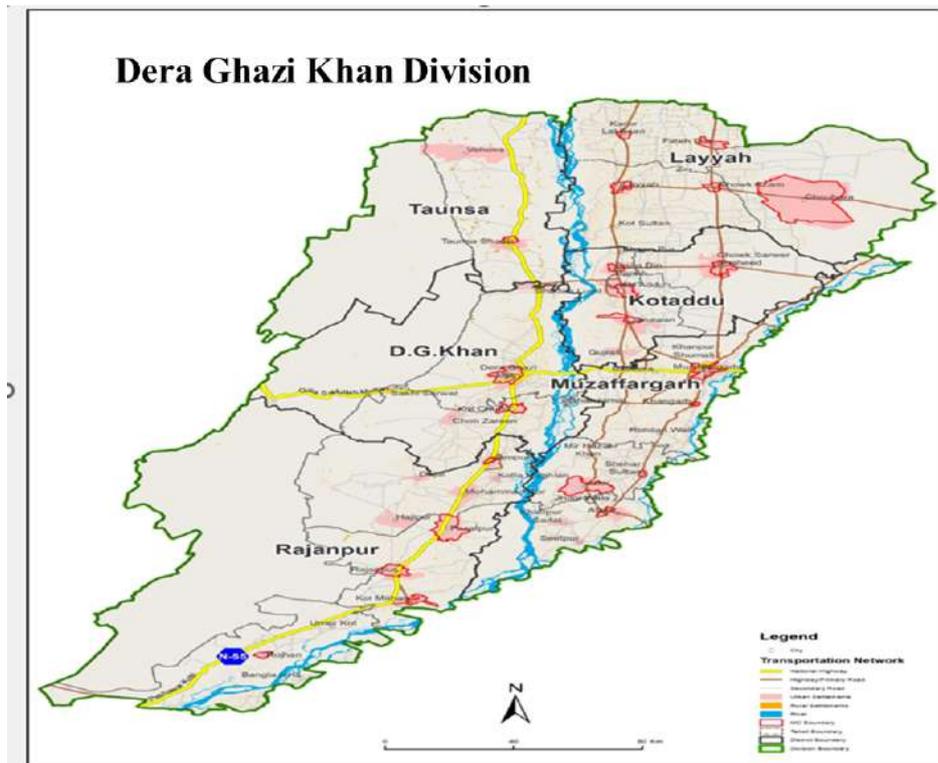


Figure 9-1. SWM Operational Jurisdiction Map of DG Khan Division

Table 9-1. Districts in DG Khan Division.  
DISTRICTS IN DG KHAN DIVISION

1	Dera Ghazi Khan
2	Layyah
3	Rajanpur
4	Taunsa
5	Kot Addu
6	Muzaffargarh

Despite its strategic location and resource potential, the division faces significant challenges including poor infrastructure, water scarcity, flood risks, poverty, and limited healthcare and education facilities. These issues hinder sustainable development, highlighting the need for targeted investment and planning to unlock the region’s full potential.

### 9.1.1 Administrative Setup

The administrative setup of Dera Ghazi Khan Division functions under the supervision of the Local Government & Community Development (LG&CD) Department of the Government of Punjab. At the divisional level, the Commissioner acts as the chief administrative authority, responsible for coordinating governance, development initiatives, and public service delivery across the division. The Commissioner oversees the work of Deputy Commissioners in each of the six districts: Dera Ghazi Khan, Rajanpur, Muzaffargarh, Layyah, Taunsa, and Kot Addu, ensuring policy implementation and law and order.

Local government institutions, including municipal committees, tehsil councils, and union councils, operate at various tiers and are pivotal in delivering basic services like healthcare, education, sanitation, and infrastructure development. These bodies work under the guidance of the LG&CD Department, promoting community participation, decentralized governance, and more responsive service delivery. This integrated administrative framework enables coordinated development and efficient governance across urban and rural areas of the division.

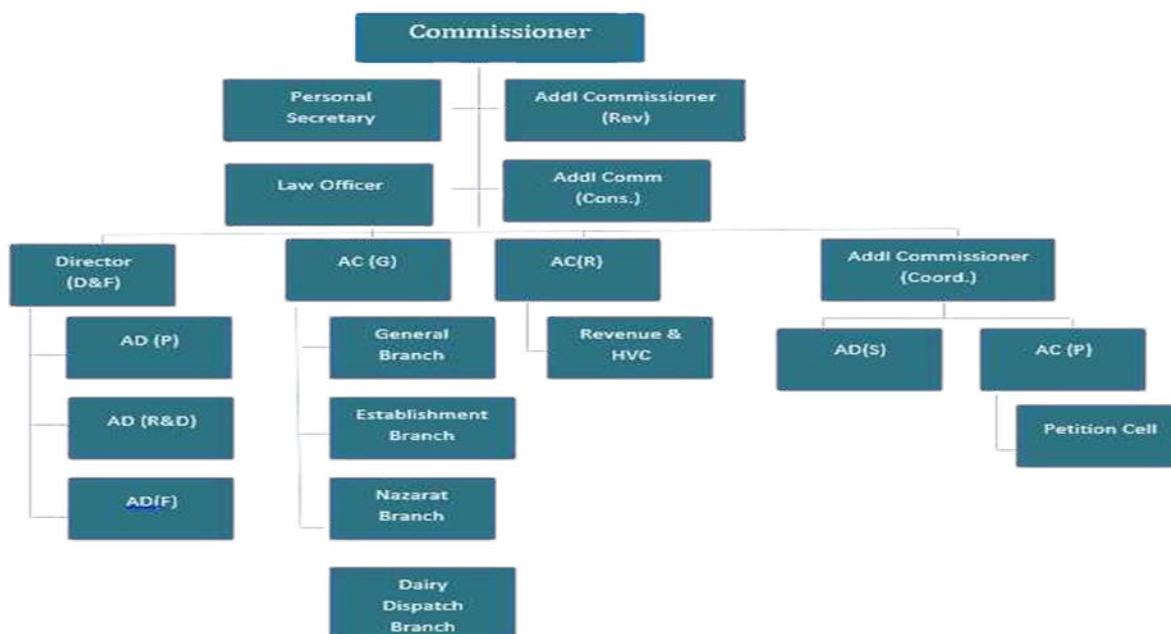


Figure 9-2. Administrative Setup of DG Khan Division<sup>74</sup>.

<sup>74</sup> <https://dgkhandivision.punjab.gov.pk/organogram>

### 9.1.2 Population Statistics

The Dera Ghazi Khan Division includes six districts: Dera Ghazi Khan, Layyah, Rajanpur, Taunsa, Kot Addu, and Muzaffargarh. Muzaffargarh is the largest district, with a population of 3.79 million. Dera Ghazi Khan Division, comprising six districts—Dera Ghazi Khan, Muzaffargarh, Rajanpur, Layyah, Kot Addu, and Taunsa—is witnessing steady population growth based on the 2023 baseline census. With a divisional average annual growth rate of 2.66%, the region reflects dynamic demographic shifts, largely in its rural communities. Muzaffargarh, the most populous district at 3.79 million, is growing at 2.49%, followed by Dera Ghazi Khan District with 2.50 million people and a 2.83% growth rate, indicating expanding urban centers and rural surroundings. Kot Addu, predominantly rural with 1.54 million residents, grows at 2.49%, showing steady but manageable increases.

Rajanpur, with 2.58 million people, has the highest growth rate of 2.99%, raising the need for enhanced public services and infrastructure. Layyah, at 2.14 million and growing at 2.4%, shows moderate but consistent rural expansion. Taunsa, the least populated district at 1.10 million, shares a growth rate of 2.83%, suggesting rising pressure on resources despite its smaller base. The overall demographic profile emphasizes the division’s predominantly rural nature, with emerging urbanization trends requiring balanced development planning.

**Table 9-2. Population statistics of DG Khan Division<sup>75</sup>.**

SR. NO	DISTRICT	RURAL POPULATION- 2025	URBAN POPULATION- 2025	TOTAL
1	Dera Ghazi Khan	1,758,275	742,578	2,500,853
2	Layyah	1,794,232	350,748	2,144,980
3	Rajanpur	1,784,332	797,182	2,581,514
4	Taunsa	921,423	186,042	1,107,465
5	Kot Addu	1,242,074	294,478	1,536,552
6	Muzaffargarh	2,988,654	801,351	3,790,005

<sup>75</sup> Primary Data Source LG&CDD, Government of Punjab

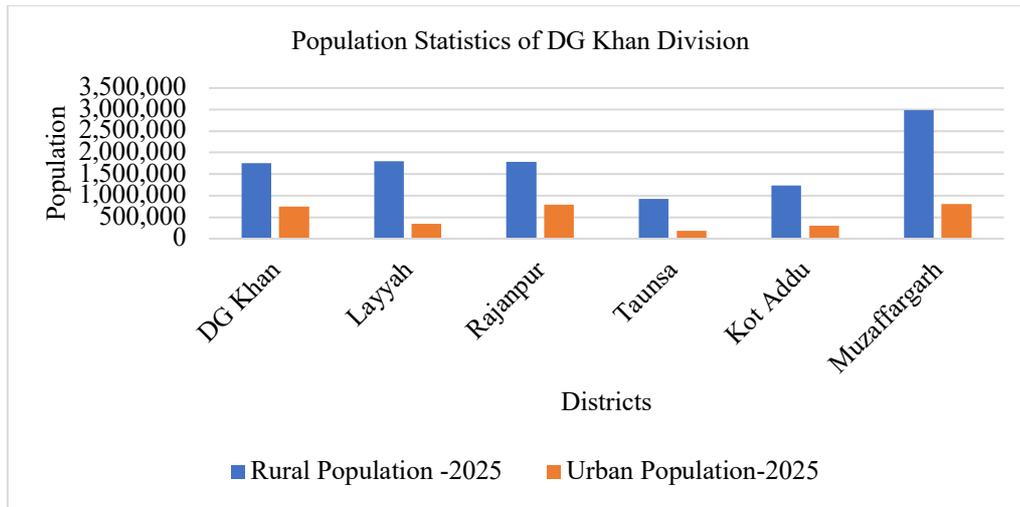


Figure 9-3. Graph of population statistics of DG Khan Division.

### 9.1.3 Demography of DG Khan

Dera Ghazi Khan (DG Khan) is a district in Punjab, Pakistan, with a diverse population consisting of various ethnic groups, primarily Baloch and Punjabi-speaking communities. The region has a mix of urban and rural settlements, with agriculture, trade, and small industries playing a crucial role in the local economy. The city of DG Khan serves as the administrative and commercial centre, with increasing urbanization and infrastructural development. The district has a relatively young population, with many engaged in farming, livestock, and labour-intensive occupations. Saraiki is the dominant language, followed by Balochi and Punjabi. The region experiences a hot desert climate, influencing its agricultural patterns and lifestyle.

Table 9-3. Demography of DG Khan.<sup>76</sup>

DISTRICT	AREA HECTARES	NO OF HOUSEHOLDS	NO OF ECONOMIC ENTITIES HIGH RISE	NO OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
DERA GHAZI KHAN	3,81,400	292,658	21	60,533	60,554
LAYYAH	6,28,900	341,131	8	77,270	77,278
RAJANPUR	1,231,800	347,578	2	55,061	55,063
TAUNSA	8,10,800	120,668	-	24,481	24,481

<sup>76</sup> Primary Data Source LG&CDD, Government of Punjab

<b>KOT ADDU</b>	3,47100	251,512	3	56,849	56,852
<b>MUZAFFARGARH</b>	4,77,800	552,926	7	93,893	93,900

#### 9.1.4 Land use area of DG Khan

The land utilization statistics for the districts of Dera Ghazi Khan Division, as per the Punjab Agriculture Statistics 2021 report, are shown in the table below:

Table 9-4. Land use area of DG Khan in hectares<sup>77</sup>

District	Reported Area (ha)	Cultivated Area (ha)	Un-Cultivated Area (ha)	Cropped Area (ha)
<b>Dera Ghazi Khan</b>	3,81,400	22,600	15,300	30,800
<b>Layyah</b>	6,28,900	49,100	13,800	49,200
<b>Rajanpur</b>	1,231,800	41,300	34,900	51,500
<b>Taunsa</b>	8,10,800	23,700	1,900	18,700
<b>Kot Addu</b>	347,100	16,000	19,500	26,300
<b>Muzaffargarh</b>	4,77,800	30,300	17,200	51,100

#### 9.1.5 Climatic conditions of DG Khan Division

The climatic conditions of the DG Khan Division are influenced by its geographical location in Punjab. The region experiences a subtropical climate characterized by hot summers, monsoon rains, and mild winters.

The Dera Ghazi Khan Division<sup>78</sup>, located in southwestern Punjab, features an arid to semi-arid climate with scorching summers, mild winters, and limited monsoon rainfall. Summer temperatures often exceed 44–46°C across districts like Dera Ghazi Khan, Taunsa, and Muzaffargarh, with Taunsa recording some of the highest temperatures in the region. Winters are relatively short and mild, with average temperatures ranging from 4°C to 12°C. The monsoon season, occurring from July to September, brings limited yet crucial rainfall, particularly for agricultural activities, though it often falls short of meeting water demands.

<sup>77</sup> <https://bos.punjab.gov.pk/system/files/FinalPASS2021.pdf>

<sup>78</sup> [https://dgkhandivision.punjab.gov.pk/division\\_climate](https://dgkhandivision.punjab.gov.pk/division_climate)

Each district in the division reflects similar climatic patterns, with variations based on geography. Layyah and Rajanpur experience extreme heat and moderate monsoon showers, while Muzaffargarh and Kot Addu rely heavily on irrigation from the Indus River due to minimal rainfall. Rajanpur’s proximity to the river offers both irrigation advantages and flood risks. Overall, the region’s climate, while supporting its agrarian economy, presents ongoing challenges such as drought, water scarcity, and occasional flooding, necessitating effective water resource management and sustainable agricultural practices.

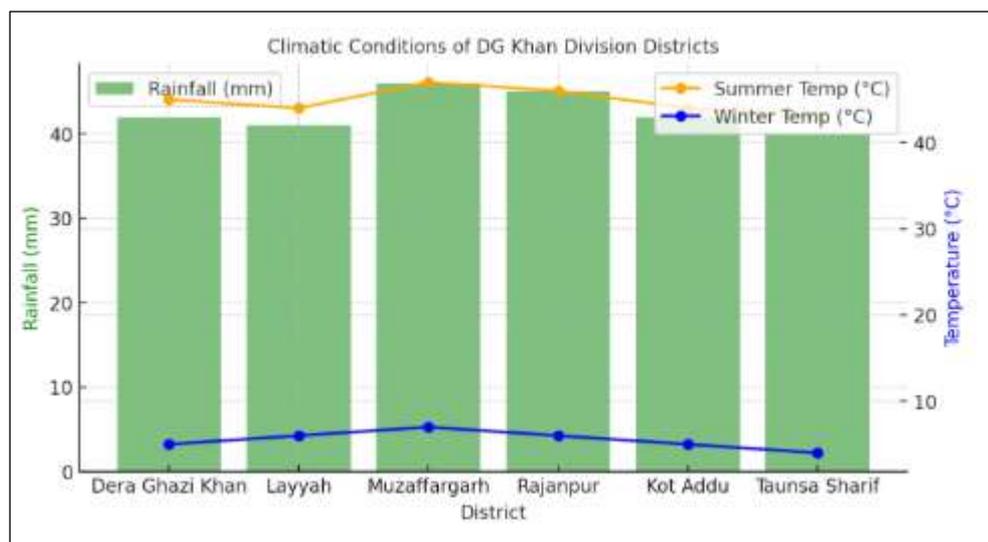


Figure 9-4. Graphical representation of the climatic conditions in DG Khan Division's districts<sup>79</sup>.

Table 9-5. Tabular representation of the climatic conditions in DG Khan Division's districts.

District	Average Summer Temperature	Average Winter Temperature	Average Annual Rainfall
Dera Ghazi Khan	≈46°C (115°F)	≈4°C (40°F)	Low
Layyah	≈46°C (115°F)	≈4°C (40°F)	Low
Muzaffargarh	≈46°C (115°F)	≈4°C (40°F)	Low
Rajanpur	≈46°C (115°F)	≈4°C (40°F)	Low
Kot Addu	≈46°C (115°F)	≈4°C (40°F)	Low
Taunsa Sharif	≈46°C (115°F)	≈4°C (40°F)	Low

<sup>79</sup> <https://www.pmd.gov.pk/en/>

## 9.2 Asset Mapping of Solid Waste Management Services

### 9.2.1 SWM Administrative setup

The Waste Management Company of DG Khan Division operates under the supervision of local municipal administrations with support from the Punjab government. The company follows a structured administrative framework, where a board of directors oversees policy-making and financial planning, while the Chief Executive Officer (CEO) manages overall operations.

The company's operations wing is responsible for waste collection, transportation, and disposal, ensuring efficient service delivery. The administration and HR departments handle workforce management, logistics, and financial matters. Additionally, the public relations team focuses on community awareness regarding waste segregation and cleanliness initiatives. The technical wing is actively engaged in recycling projects and waste-to-energy solutions to promote sustainable waste management.

In rural areas, Solid Waste Management (SWM) services were managed by the respective TMA/MC but after formalization of DGKhan Waste Management Company at divisional level, it is responsible to provide services in urban and rural areas of all tehsils of the respective districts come under this division. Under the Service and Asset Management Agreement (SAAMA), all SWM resources have been transferred from Municipal Committees (MCs) to the Waste Management Company, ensuring efficient utilization of assets and improved service delivery.

The company outsourced its waste collection, transportation and disposal services to private contractors, employs modern waste management equipment, and strictly follows environmental regulations. This integrated approach ensures effective waste management services across both urban and rural areas of DG Khan Division, promoting cleanliness, sustainability, and environmental conservation.

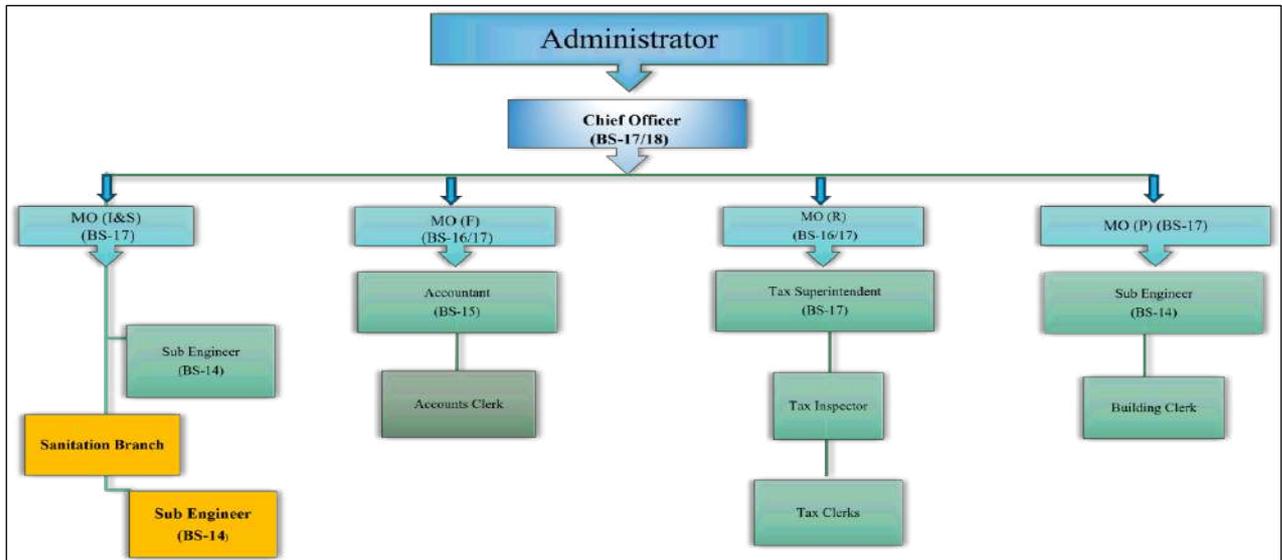


Figure 9-5. Administrative setup of DG Khan Waste Management Company.

### 9.2.2 Population and Waste Generation

DG Khan Division has a significant population that contributes to substantial waste generation, which is 4784 tons/day. Muzaffargarh is the most populous district, and the division comprises both urban and rural populations. Urban centers, including DG Khan, Kot Addu, and Taunsa, generate higher amounts of solid waste due to dense populations, commercial activities, and industrial operations, whereas rural areas produce comparatively less waste but often face challenges in proper waste disposal. Waste generation in the division is influenced by population growth, industrialization, and evolving consumption patterns, leading to increased municipal, industrial, and agricultural waste. Effective waste management systems are crucial to handling rising waste volumes, mitigating environmental pollution, and encouraging recycling and sustainable waste disposal practices.

The values of 0.45 kg/person/day for urban areas and 0.32 kg/person/day for rural areas are taken to calculate per capita waste generation. Urban areas produce more waste due to higher population density and commercial activity, while rural areas generate less, mostly organic waste. These values help in planning waste collection, resource allocation, and sustainable disposal.

Table 9-6. Tabular representation of Population and Waste Generation of all Tehsils of DG Khan Division<sup>80</sup>

SR. NO	DISTRICT	TEHSILS	AREA	POPULATION -2025	WG T/D 2025
1	Dera Ghazi Khan	Dera Ghazi Khan	Urban	577,713	260
			Rural	949,607	304
		Kot Chutta	Urban	164,864	74
			Rural	808,668	259
		Taunsa	Urban	186,042	84
			Rural	659,385	211
2	Taunsa	Vehova	Urban	–	–
			Rural	–	–
		Koh-e-Suleman	Urban	–	–
			Rural	262,038	84
		De-excluded area	Urban	–	14
			Rural	44,619	14
3	Rajanpur	Jampur	Urban	428,219	193
			Rural	696,916	223
		Rajanpur	Urban	352,622	159
			Rural	559,702	179
		Rojhan	Urban	16,341	7
			Rural	483,095	155
4	Layyah	Choubara	Urban	–	–
			Rural	256,274	82
		Karor Lal Esan	Urban	94,754	43
			Rural	623,201	199

<sup>80</sup> Primary Data Source- Projection of Population from census 2023

5	Muzaffargarh	Layyah	Urban	255,994	115		
			Rural	914,756	293		
		Alipur	Urban	282,692	127		
			Rural	578,213	185		
		Jatoi	Urban	241,124	109		
			Rural	677,434	217		
		Muzaffargarh	Urban	277,535	125		
			Rural	1,733,006	555		
		6	Kot Addu	Kot Addu	Urban	228,404	103
					Rural	875,799	280
Chowk Sarwar Shaheed	Urban			66,074	30		
	Rural			366,276	117		
<b>Total</b>			<b>13,661,370</b>	<b>4,784</b>			

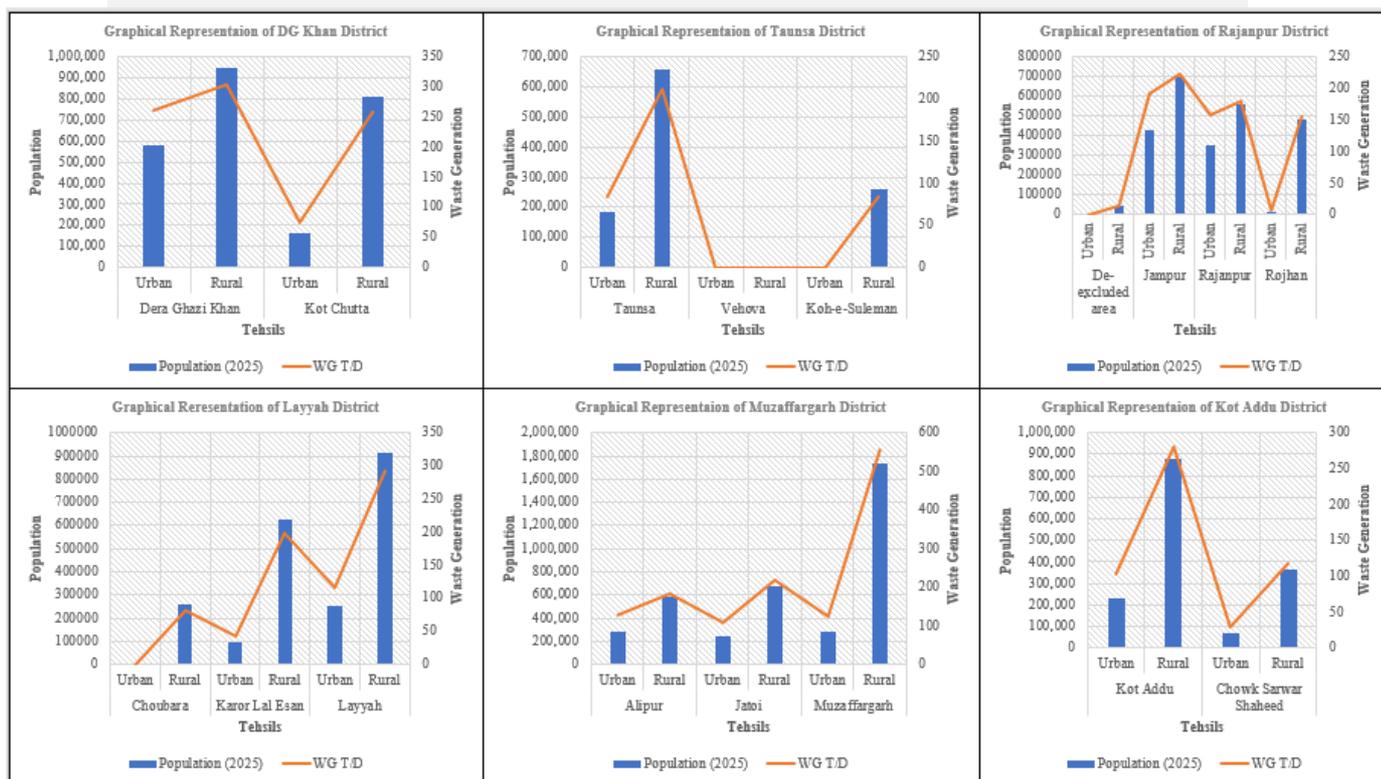


Figure 9-6. Graphical representation of population and Waste Generation of DG Khan Division

### 9.2.3 Waste Composition

The waste composition data for the districts in the DG Khan Division—, reveals that biodegradable waste constitutes the largest proportion across all areas, ranging from 42.94% to over 51.36%, highlighting the potential for composting and organic waste management. Diapers and plastics are also significant contributors, especially in DG Khan and Layyah, indicating a need for better disposable hygiene product management and plastic recycling systems Mechanical Sweeper. Textile waste maintains a moderate presence, while materials like PET, glass, tetra packs, and paper vary slightly across districts. Hazardous and electronic wastes are minimal but notable, underlining the importance of safe disposal system. Overall, the data emphasizes the dominance of organic and non-recyclable waste, calling for tailored waste segregation and recycling strategies in the division.



Figure 9-7. Pictorial Representative of Waste Characterization.

Table 9-7. Components Segregated from Waste in DG Khan Division<sup>81</sup>.

SR. NO.	PHYSICAL WASTE COMPOSITION	DG Khan Division					
		DG Khan	Layyah	Taunsa	Kot Addu	Rajanpur	Muzaffargarh
1	Combustibles	6.71	4.10	5.49	6.01	8.59	6.77
2	Diaper	16.42	16.99	11.30	12.34	11.08	13.52
3	Elec.-Electronic W.	0.08	0.01	0.02	0.00	0.23	0.11
4	Glass	1.04	1.12	1.85	1.91	1.46	1.90
5	Hazardous W	0.01	0.00	0.02	0.22	0.02	0.06
6	Biodegradable W.	42.94	45.08	50.44	50.16	49.91	51.36

<sup>81</sup> Primary Data Source of Local Government of Punjab

7	Metals	0.35	0.00	0.06	0.01	0.02	0.74
8	Non-Combustibles	8.12	6.28	4.38	4.37	3.21	6.24
9	Paper-Cardboard	0.83	1.08	0.67	1.58	1.89	1.30
10	Pet	0.11	0.00	0.01	0.93	0.32	0.20
11	Nylon	0.39	0.19	0.78	0.68	0.99	0.15
12	Plastics	14.06	16.54	15.68	14.65	12.88	10.67
13	Tetrapak	1.46	1.19	0.14	0.77	0.50	0.77
14	Textile	7.47	7.43	9.15	6.36	8.92	6.22
	<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

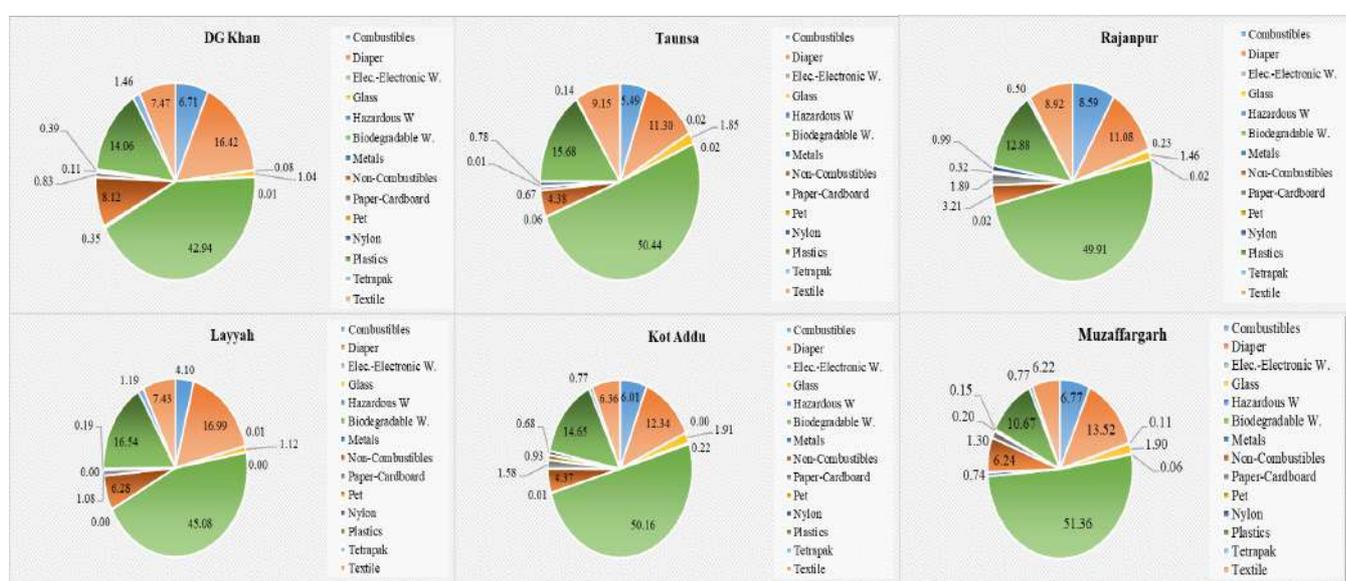


Figure 9-8. Graphical Representation of Waste Composition Breakdown in DG Khan Division.

### 9.2.4 Primary and Secondary Waste Collection

In the District of DG Khan Division, Waste collection faces challenges due to differences in urbanization, infrastructure, and public awareness. In Dera Ghazi Khan and Kot Addu, the municipal authorities manage door-to-door (DtD) waste collection and secondary transportation from community bins to landfill sites. However, industrial and bulk waste disposal remains a concern due to rapid urban expansion and increased commercial activity. Taunsa Sharif and Rajanpur have relatively smaller urban centers, where waste is collected but faces inefficiencies due to limited resources and irregular waste disposal practices.

In rural districts like Layyah and Rajanpur, waste collection services are minimal, and local councils struggle with scattered populations and poor road infrastructure, leading to informal dumping. Waste segregation is rarely practiced, and secondary transportation is hindered by inadequate equipment and inefficient routes. To improve the system, efforts are underway to enhance public awareness, optimize collection routes, and promote sustainable waste management practices across the division. Despite these challenges, efforts are being made to improve public awareness, increase service efficiency, and promote sustainable waste disposal practices across the division.

**Table 9-8. Waste Management Assets of Primary and Secondary collection (Current Machinery available with Local Government, MC/TMA /WMC).**

<b>SR. NO.</b>	<b>DISTRICT</b>	<b>TEHSIL</b>	<b>LOADER RICKSHAWS</b>	<b>COMPACTOR (7M3)</b>	<b>TRACTOR LOADER</b>	<b>DUMPERS (10M3)</b>	<b>MECHANICAL SWEEPER</b>	<b>TRACTOR TROLLEY</b>	<b>CHAIN ARM ROLL</b>
<b>1</b>	Dera Ghazi Khan	DG Khan	29	3	12	5	4	28	1
		Kot Chutta	6	0	1	0	0	2	0
<b>2</b>	Layyah	Chaubara	1	0	0	0	0	1	1
		Karor Lal Esan	1	0	1	0	0	5	0
		Layyah	21	0	3	0	1	5	2
<b>3</b>	Rajanpur	Jampur	2	0	1	0	1	2	1
		Rajanpur	0	0	4	0	1	9	0
		Rojhan	0	0	0	0	0	2	0
		De-excluded area	-	-	-	-	-	-	-
<b>4</b>	Taunsa Sharif	Taunsa	9	0	1	0	1	3	0
		Kohe Suleiman	-	-	-	-	-	-	-
		Vehova	-	-	-	-	-	-	-
<b>5</b>	Kot Addu	Kot Addu	23	2	0	1	1	5	0

6	Muzaffar Garh	Chowk Sarwar Shaheed	6	0	1	0	1	1	0
		Alipur	0	0	1	0	0	1	0
		Jatoi	1	0	1	0	0	3	0
		Muzaffar Garh	2	0	0	0	1	7	0

Table 9-9. Waste Management Assets of Primary and Secondary collection (Additional Machinery will be Deployed by Local Contractors).

SR. NO.	DISTRICT	TEHSIL	LOADER RICKSHAWS	COMPACTOR (7M <sup>3</sup> )	TRACTOR LOADER	DUMPERS (10M <sup>3</sup> )	MECHANICAL SWEEPER	TRACTOR TROLLEY	CHAIN ARM ROLL
1	Dera Ghazi Khan	DG Khan	119	8	17	6	0	11	1
		Kot Chutta	104	3	15	7	1	19	1
2	Layyah	Chaubara	40	1	6	4	1	6	0
		Karor Lal Esan	103	2	12	6	1	11	1
		Layyah	148	5	18	9	1	23	0
3	Rajanpur	Jampur	2	0	1	0	1	2	1
		Rajanpur	0	0	4	0	1	9	0
		Rojhan	0	0	0	0	0	2	0
		De-excluded area	-	-	-	-	-	-	-

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4	Taunsa Sharif	Taunsa	9	0	1	0	1	3	0
		Kohe Suleiman	-	-	-	-	-	-	-
		Vehova	-	-	-	-	-	-	-
5	Kot Addu	Kot Addu	142	3	20	8	0	21	1
		Chowk Sarwar Shaheed	55	1	7	3	0	9	1
6	Muzaffargarh	Alipur	99	4	14	6	1	18	1
		Jatoi	119	5	16	6	1	19	1
		Muzaffargarh	289	6	34	14	1	37	1

Table 9-10. Current and Additional HR for DG Khan Division

SR. NO.	DISTRICT	TEHSIL	CURRENT HR	REQUIRED HR
1	Dera Ghazi Khan	Dera Ghazi Khan	238	941
		Kot Chutta	12	700
		Chaubara	10	270
2	Layyah	Karor Lal Esan	61	593
		Layyah	146	1006
3	Rajanpur	Jampur	90	871
		Rajanpur	198	646
		Rojhan	38	361

		De-excluded area	–	–
4	Taunsa Sharif	Taunsa	115	630
		Kohe Suleiman	–	–
		Vehova	–	–
		Kot Addu	174	945
5	Kot Addu	Chowk Sarwar	32	467
		Shaheed	–	–
		Alipur	72	620
6	Muzaffargarh	Jatoi	72	783
		Muzaffargarh	230	1608

### 9.2.5 Waste Transfer and Disposal

The Dera Ghazi Khan Division has established or proposed solid waste disposal sites across its six districts to manage increasing waste generation from urban and rural populations. These dumpsites serve as transfer and final disposal points for collected municipal solid waste, playing a critical role in maintaining environmental hygiene and supporting regional waste management systems.

Currently, Dera Ghazi Khan has one operational dumpsite, active since 2021, handling approximately 235 tons of waste daily, with an estimated annual disposal of 85,775 tons. Layyah and Taunsa have proposed dumpsites, each designed to handle 82 tons and 70 tons of waste per day, respectively. Layyah's site has been in limited operation since 2010, while Taunsa's records suggest an unusually high annual figure of 563,750 tons, likely due to reporting inconsistencies or combined sources. Rajanpur has one dumpsite established in 2014, disposing of about 34 tons daily.

Kot Addu’s site, initiated in 2024, manages around 70 tons daily, and Muzaffargarh operates a long-standing site since 2000, though its reported annual waste figure appears abnormally low (420 tons), possibly indicating underreporting or operational limitations. Collectively, these sites form the backbone of the division's waste disposal infrastructure, with each having a defined operational and closing timeline to guide long-term environmental planning.

Table 9-11. Disposal Points in the DG Khan Division

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
DERA GHAZI KHAN	01	235 t/D	85775 t/y	2021	2060
LAYYAH	01 purposed	82 t/D	29,930 t/y	2010	2035
RAJANPUR	01	34 t/D	12410 t/y	2014	2045
TAUNSA	01 purposed	70 t/D	563750 t/y	2000	2040
KOT ADDU	01	70 t/D	25550 t/y	2024	2034
MUZAFFARGARH	01	35 t/D	420 t/y	2000	2035

### 9.2.6 Existing Infrastructure

The Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management system in DG Khan Division due to uneven land, with DG Khan and Muzaffargarh having relatively better infrastructure, while Rajanpur and Taunsa lack basic systems. Open dumping is common, and no engineered landfills or recycling facilities exist. Proximity to rivers heightens the risk of environmental contamination, indicating an urgent need for system upgrades.

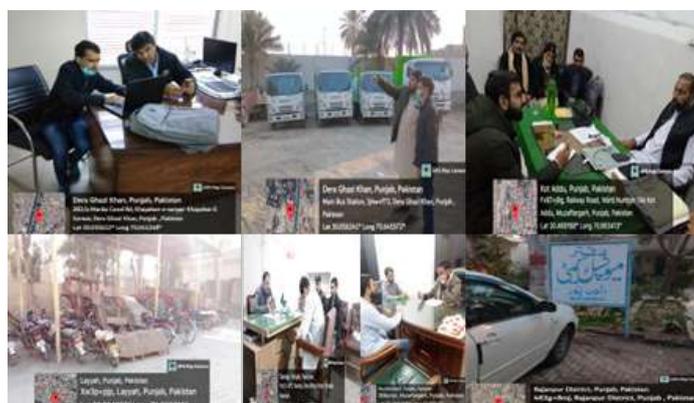


Figure 9-9. Existing Infrastructure of DGKWMC

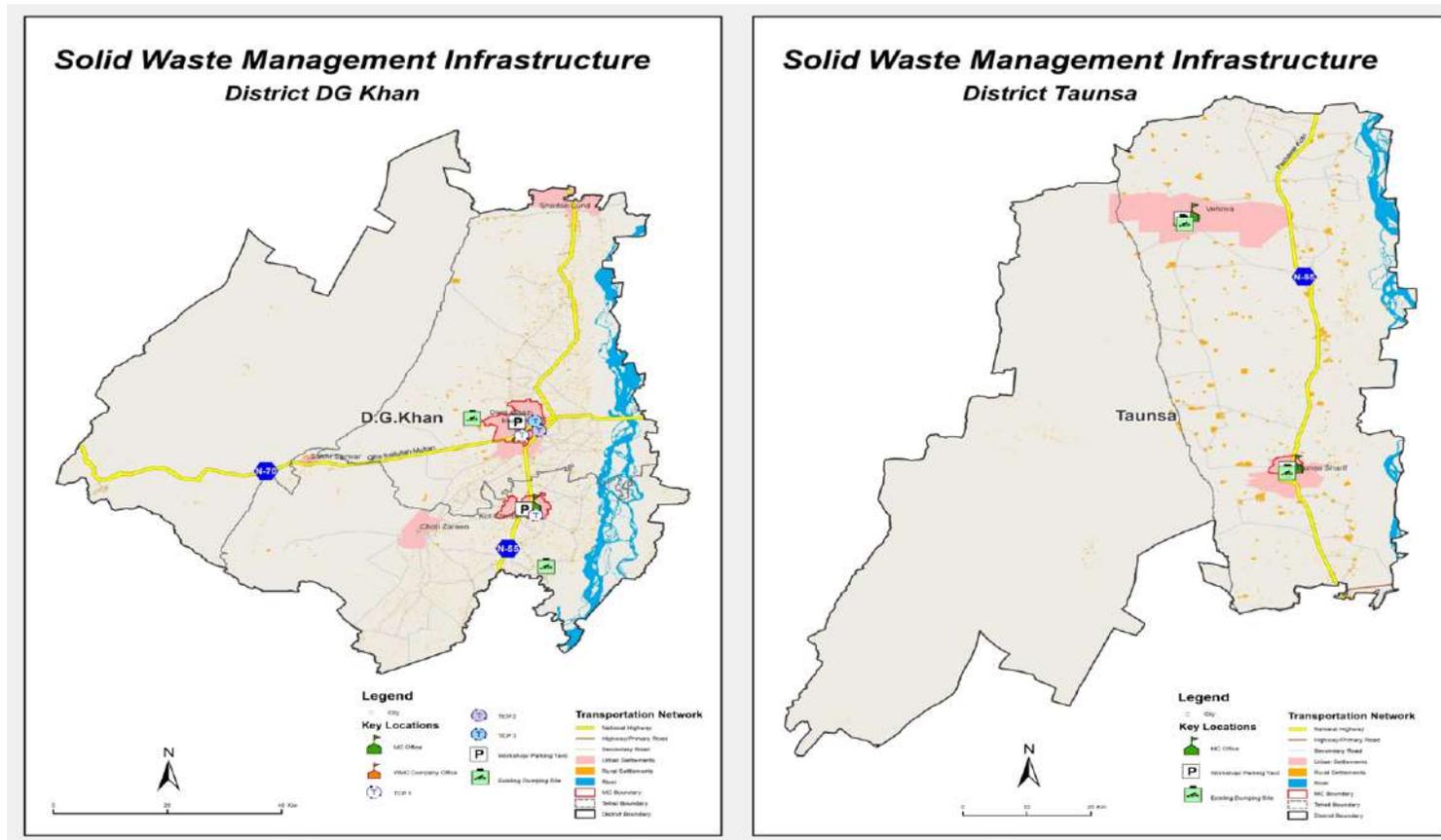


Figure 9-10. SWM Infrastructure of DG Khan and Taunsa District of DG Khan Division

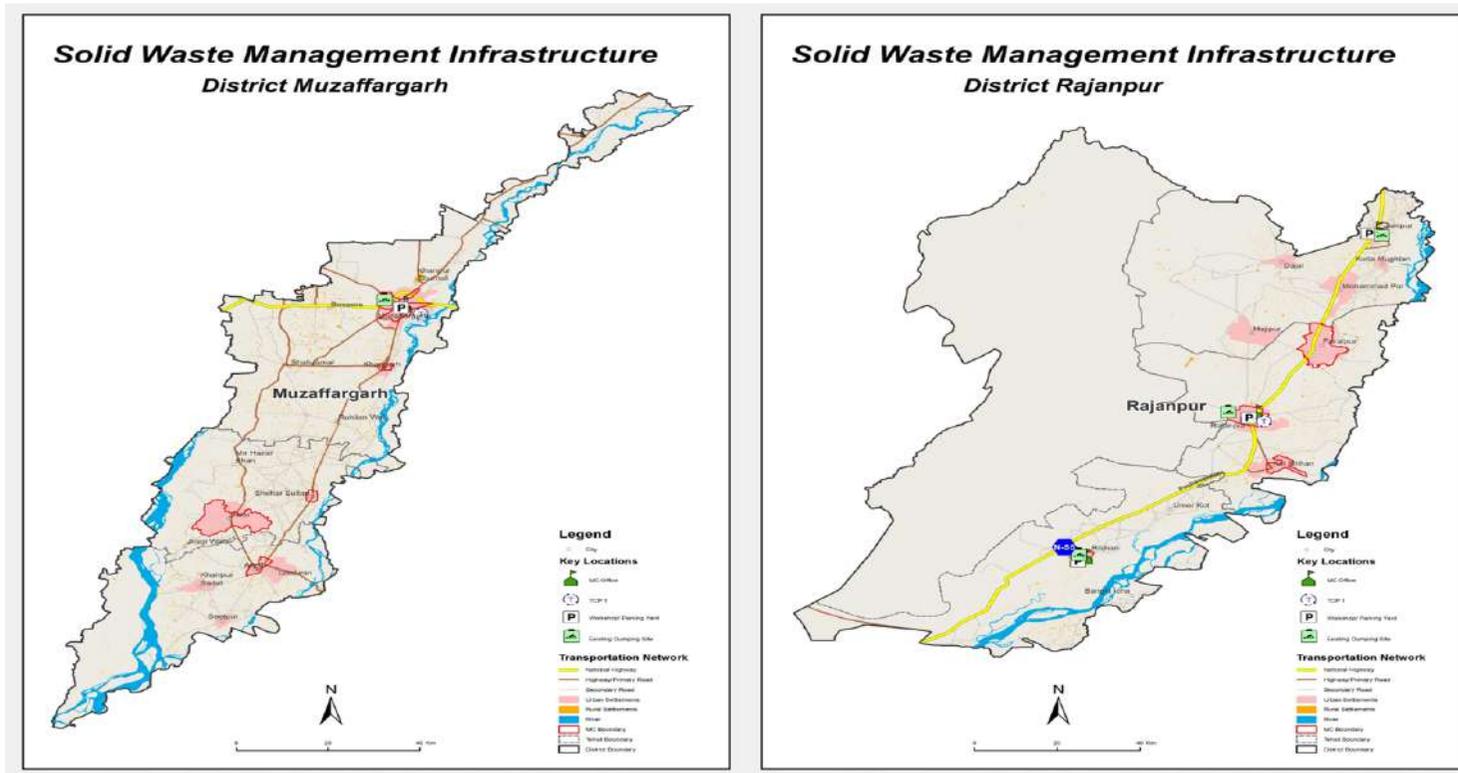


Figure 9-11. SWM Infrastructure of Muzaffargarh and Rajanpur District of DG Khan Division

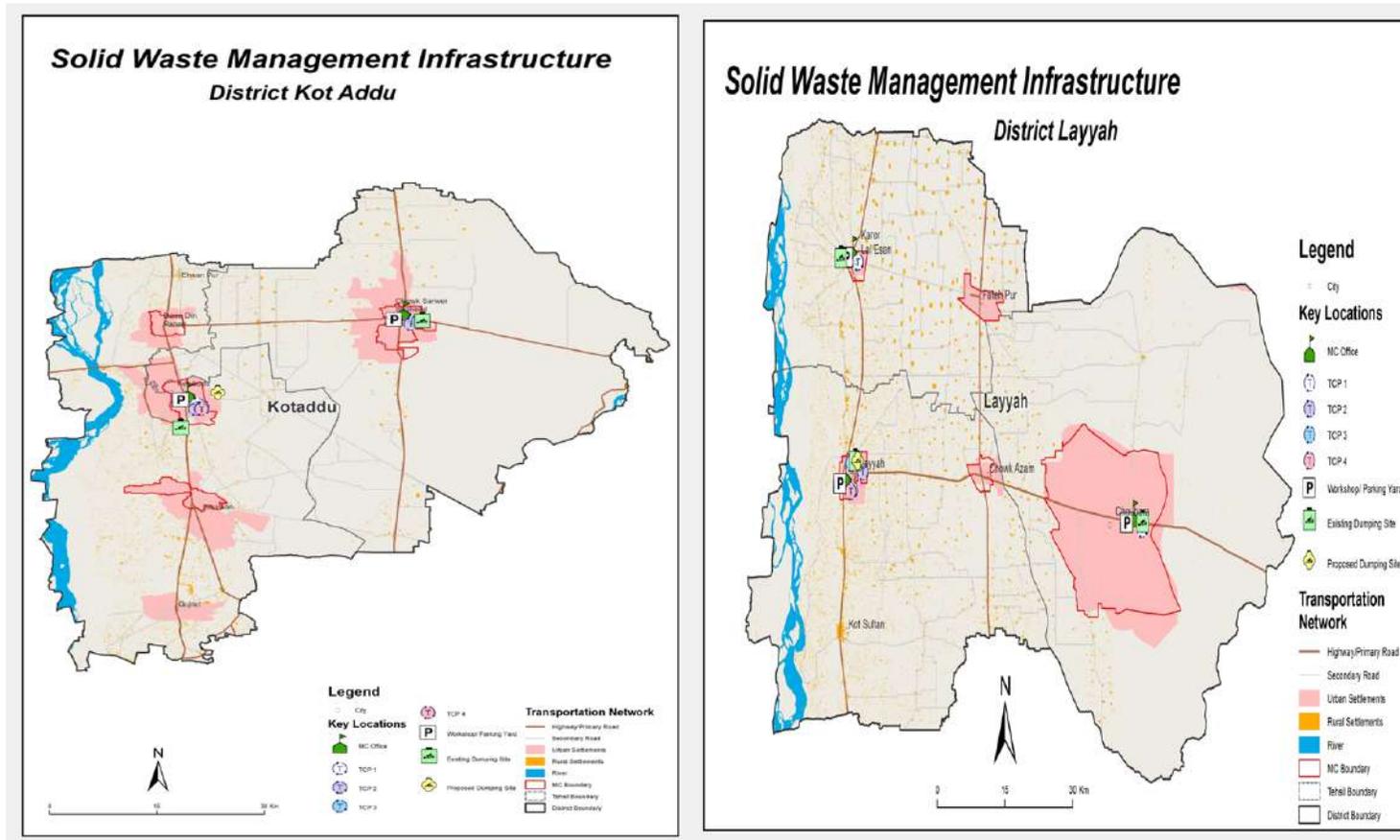


Figure 9-12. SWM Infrastructure of Kot Addu and Layyah District of DG Khan Division

### 9.2.7 Waste Collection Efficiency (WCE)

The collection efficiency of solid waste in Dera Ghazi Khan Division varies significantly across its six districts, reflecting disparities in waste management capacity and infrastructure. Collection efficiency is calculated by comparing the amount of waste collected per day to the total waste generated per day, highlighting the effectiveness of each district’s waste management system.

In 2025, Dera Ghazi Khan district showed the highest collection efficiency at 55%, collecting 489 tons out of 897 tons generated daily. Kot Addu followed with 33%, collecting 174 tons out of 530 tons. Layyah had a notably low efficiency of 25%, while Taunsa and Rajanpur performed even lower, at 18% and 15%, respectively. Muzaffargarh had the poorest performance, collecting only 107 tons out of 1,317 tons generated daily—an efficiency of just 8%. These figures underscore critical gaps in waste collection systems across the division, especially in rural and under-resourced districts, emphasising the urgent need for investment in equipment, manpower, and logistics to improve environmental sanitation and public health outcomes.

**Table 9-12. District-Wise Waste Collection Efficiencies before Inception of Contractors Under Suthra Punjab Program**

#### COLLECTION EFFICIENCIES-2025

DISTRICT	Dera Gazi Khan-t/D	Layyah-t/D	Rajanpur-t/D	Taunsa-t/D	Kot Addu-t/D	Muzaffargarh-t/D
TOTAL WASTE COLLECTION (T/D)	489	193	134	52	174	107
TOTAL WASTE GENERATION (T/D)	897	759	915	295	530	1317
COLLECTION EFFICIENCY (CE) (%) BEFORE OUTSOURCING	55%	25%	15%	18%	33%	8%
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>82</sup>					

### 9.2.8 Scavenging Activities

Scavenging activities, often referred to as informal waste picking, are prevalent in Dera Ghazi Khan (DG Khan) Division, particularly in urban centers like Dera Ghazi Khan city. These

<sup>82</sup> Current waste collection efficiency is obtained during discussion with WMC.

activities are typically carried out by individuals or groups who collect recyclable materials from waste to sell them to scrap dealers or recycling centers. While these workers play a crucial role in waste management, their activities often go unregulated, leading to various challenges. Informal waste pickers are integral to the waste management system in DG Khan Division. They often operate without formal recognition or support, which can lead to issues such as exposure to hazardous materials and lack of access to healthcare or social benefits. Their work is essential for recycling efforts but is not officially acknowledged or integrated into the formal waste management systems. DGkhan Waste Management company doesn't have any study with them or details regarding states/number of scavengers and amount of waste segregated through this activity, so they didn't provide any details about it. There is need to formalise this informal sector to take best advantage of this sector for improvement of solid waste management services in this division.



Figure 9-13. Scavenging Activities

### 9.2.9 Fuel Allocation

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systematically. It directly impacts the efficiency, cost, and sustainability of SWM operations. The fuel allocation for the solid waste management fleet across DG Khan Division varies significantly by district and tehsil, reflecting differences in operational scale and infrastructure. Dera Ghazi Khan district has the highest fuel consumption, with 112 litres of petrol and 2,580 litres of diesel used daily, including 540 litres specifically for dump site operations. Layyah follows with a total of 1,190 litres of diesel and 74 litres of petrol per day, while Rajanpur uses 1,380 litres of diesel and just 6 litres of petrol, indicating a diesel-heavy fleet. Taunsa, Kot Addu, and Muzaffargarh show moderate allocations, with daily diesel consumption ranging between 320–657 litres and petrol between 10–93 litres. Fuel usage for dump sites is generally low across most districts, except for DG Khan and Rajanpur. This data highlights a strong dependence on diesel-powered vehicles and a need for efficient fuel management to support waste collection and disposal operations across the division.

Table 9-13. Fuel Usage for the DG Khan Division

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRES PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRES PER DAY	DIESEL CONSUMPTION LITRE PER DAY (DUMPSITE)
DERA GHAZI KHAN	DERA GHAZI KHAN	93	2,370	510
	KOT CHUTTA	19	210	30
	DE-EXCLUDED AREA DG KHAN TEHSIL	-	-	-
	<b>TOTAL</b>	<b>112</b>	<b>2,580</b>	<b>540</b>
LAYYAH	CHAUBARA	3	110	-
	KAROR LAL ESAN	3	480	30
	LAYYAH	67	600	90
	<b>TOTAL</b>	<b>74</b>	<b>1,190</b>	<b>120</b>
RAJANPUR	JAMPUR	6	250	30
	RAJANPUR	-	950	120
	ROJHAN	-	180	-
	DE-EXCLUDED AREA RAJANPUR	-	-	-
	<b>TOTAL</b>	<b>6</b>	<b>1,380</b>	<b>150</b>
TAUNSA SHARIF	TAUNSA	29	320	30
	KOHE SULEIMAN	-	-	-
	VEHOVA	-	-	-
	<b>TOTAL</b>	<b>29</b>	<b>320</b>	<b>30</b>
KOT ADDU	KOT ADDU	74	517	20
	CHOWK SARWAR SHAHEED	19	140	30
	<b>TOTAL</b>	<b>93</b>	<b>657</b>	<b>50</b>
MUZAFFAR GARH	ALIPUR	-	120	30
	JATOI	3	300	30
	MUZAFFAR GARH	6	230	-
	<b>TOTAL</b>	<b>10</b>	<b>650</b>	<b>60</b>

### 9.2.10 Budget Allocation

Budget allocation plays a critical role in the success of Solid Waste Management (SWM) systems. Adequate financial resources are essential for the planning, implementation, and maintenance of an effective waste management system. The budget allocation for solid waste management in DG Khan Division is divided into development and non-development categories. Development funds are primarily directed toward infrastructure upgrades, including the procurement of waste collection vehicles, equipment, and the improvement of disposal sites. Non-development funds focus on operational expenses, such as salaries for sanitary workers, human resource management, fuel, and routine maintenance of the SWM fleet. While

some districts like DG Khan and Muzaffargarh receive relatively higher allocations due to larger populations and urbanisation, the overall budget across the division remains limited, affecting the efficiency and consistency of services, especially in under-resourced areas like Rajanpur and Taunsa. Details of the budget allocated to DG Khan Waste Management Company is stated below for the year 2024-2025 to execute company operations at the division level.

**Table 9-14. Budget Allocation of DGKWMC**

Overall Budget DG Khan WMC (year 2024-2025)	621 million PKR
Development Budget	140 million PKR
Non-Development Budget	581 million PKR
Operational & Maintenance cost/year	112.94 million PKR
Salaries of staff in SWM (Mgmt. & office)	415.7 million PKR

### 9.2.11 Fruit Mandi and Slaughter House

In Dera Ghazi Khan city, the regional slaughterhouse processes approximately 155 animals daily, comprising 104 small and 49 large animals. This operation generates about 5.48 tons of waste daily, with a reported collection efficiency of 100%, indicating effective waste management practices. In contrast, the fruit and vegetable markets within the city produce around 8 tons of organic waste daily, but only 65% of this waste is collected efficiently. The current waste transportation system involves four trolleys operating daily, which may not be sufficient to manage the daily waste output effectively. Enhancing the frequency of waste collection and improving transportation infrastructure could significantly improve waste management in these markets, thereby reducing environmental and public health risks associated with organic waste accumulation.

**Table 9-15. Details of Fruit Mandi and Slaughter House**

<b>Details of Fruit Mandi and Slaughter House</b>			
<b>FRUIT &amp; VEG MANDI</b>		<b>SLAUGHTERHOUSE</b>	
Total No	SELF	Total No.	1
Daily Waste Gen (T/D)	8	Daily Waste Gen (T/D)	5.48
Collection Efficiency %	65	Collection Efficiency	100%
Mode of Transportation of Waste	4 trolleys	No. of Animals Slaughtered per day	155
		Quantity of Large & Small animals	104 & 49



Figure 9-14. Fruit & Vegetable Mandi and Slaughter House

### 9.2.12 Special Events Resource Induction

Special events like Eid ul-Adha pose unique challenges for waste management, especially in urban areas. The slaughtering of animals during Eid ul-Adha generates large amounts of organic waste, including animal remains, blood, and offal. Without proper handling, this waste can cause serious health, environmental, and aesthetic issues. Efficient management of this waste requires **advanced planning, additional resources, and enhanced coordination** among municipal authorities, private contractors, and communities.

## 10 CHAPTER: SARGODHA DIVISION

### 10.1 Divisional Profile:

Sargodha Division is located in the Punjab province of Pakistan, recognized for its agricultural strength, historical significance, and evolving urban landscape. It comprises four districts: **Sargodha, Khushab, Mianwali, and Bhakkar**. The division showcases a dynamic mix of growing urban centres and vast rural areas rich in natural resources. Economically, Sargodha Division is a major contributor to Pakistan’s citrus industry, particularly kinnow oranges, earning it the title of the "Citrus Capital of Pakistan." Other key agricultural products include wheat, sugarcane, and rice. The region also has a strong livestock sector and is home to emerging agro-based and small-scale industries. Mianwali and Khushab, with their significant mineral resources and industrial potential, further enhance the division’s economic profile.



Figure 10-1. SWM Operational Jurisdiction Map of Sargodha Division

Tourism in Sargodha Division is shaped by its historical and natural attractions. The Sakesar mountain range in Soon Valley, Uchhali and Khabeki Lakes, and the scenic salt mines of Kalabagh draw nature enthusiasts, while historical sites like the tombs of Hazrat Sakhi Saiden Sherazi and other Sufi saints attract cultural and religious visitors. Balancing agricultural prosperity, industrial growth, and ecological conservation remains a key focus for sustainable development in the region.

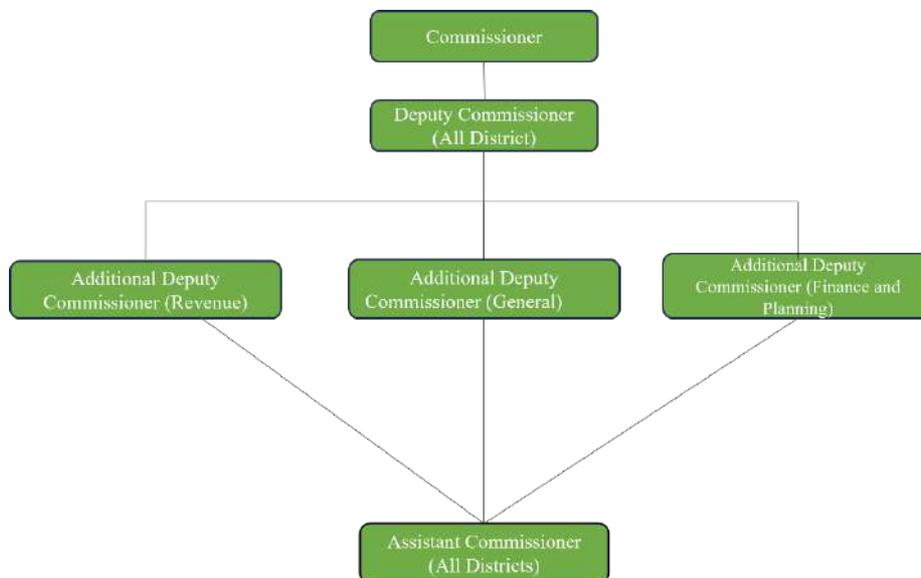
**Table 10-1. Districts of Sargodha Division.**

DISTRICTS IN SARGODHA DIVISION	
1	Sargodha
2	Khushab
3	Mianwali
4	Bhakkar

### 10.1.1 Administrative Setup

Sargodha Division operates under the administrative framework established by the Government of Punjab, Pakistan. The division is headed by a commissioner, who serves as the chief administrative officer responsible for overseeing governance, development projects, and public service delivery across the division. The Commissioner coordinates with Deputy Commissioners in all four districts **Sargodha, Khushab, Mianwali, and Bhakkar** ensures the effective implementation of government policies and maintaining law and order.

Key administrative functions, including health, education, municipal services, and infrastructure development, are managed by specialized departments and agencies under the supervision of the divisional and district administration. Local government institutions play a vital role in grassroots service delivery and community development, encouraging citizen participation in governance. This multi-tiered administrative structure ensures a coordinated approach to governance, fostering development, addressing public concerns, and promoting socio-economic progress throughout Sargodha Division.



**Figure 10-2. Administrative setup of Sargodha Division.**

### 10.1.2 Population Statistics

Based on the 2023 census as the baseline year, the Sargodha Division—comprising Sargodha, Bhakkar, Mianwali, and Khushab districts—has witnessed steady population growth. Sargodha District, the largest in the division, has a population of approximately 4.62 million, with 2.78 million rural and 1.85 million urban residents, and a growth rate of 2.7%. Bhakkar follows with 2.08 million people (1.69 million rural, 398,000 urban) and the highest growth rate in the division at 2.92%. Mianwali has a population of 1.89 million, predominantly rural (1.51 million), growing annually at 2.6%. Khushab, primarily rural with a population of 1.58 million (1.14 million rural, 443,532 urban), grows at a rate of 2.69%. The overall division growth rate is 2.72%, and future population projections can be calculated using this as the annual increase factor, aiding in regional planning and resource allocation.

Table 10-2. Population statistics of Sargodha Division.

Sr. No	District	Rural Population 2025	Urban Population 2025	Total
1	Sargodha	2778127	1,845,029	4,623,157
2	Khushab	1140089	443,532	1,583,621
3	Mianwali	1,511,414	374,622	1,886,035
4	Bhakkar	1685349	397,977	2,083,326

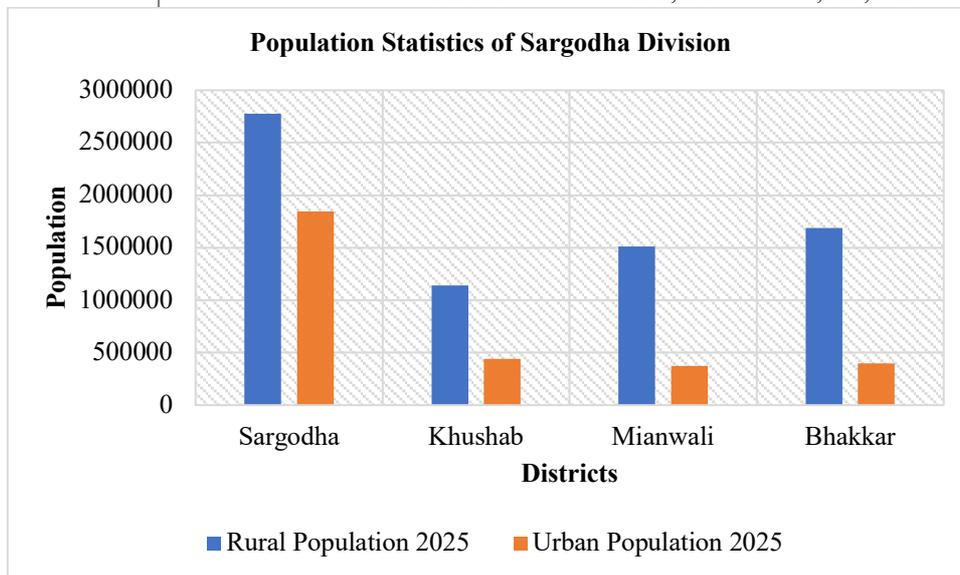


Figure 10-3. Graph of Population Statistics of Sargodha.

### 10.1.3 Demography of Sargodha

**Sargodha** spans 5,85600 hectares with 684,321 households and 142,770 economic entities, including 47 high-rise structures. **Khushab** covers 6,51100 hectares with 248,304 households and 37,768 economic entities. **Mianwali**, with an area of 5,84000 hectares, has 296,339 households and 39,023 economic entities. **Bhakkar**, the largest by area at 8,15300 hectares, has 313,311 households and 56,089 economic entities. The division reflects a dynamic blend of urban development and rural livelihoods, driving economic and cultural progress.

Table 10-3. Demography of Sargodha.<sup>83</sup>

SR. NO	DISTRICT	AREA HECTARES	NO OF HOUSEHOLDS	NO OF ECONOMIC ENTITIES HIGH RISE	NO OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
1	Sargodha	585600	684,321	47	142693	142770
2	Khushab	651100	248304	6	37762	37768
3	Mianwali	584000	296339	3	39020	39023
4	Bhakkar	815300	313311	3	56086	56089

### 10.1.4 Land use area

The land utilization statistics for these districts, as per the Punjab Agriculture Statistics 2021 report is shown in the tabulated form.

Table 10-4. Land use area of Sargodha in Hectares<sup>84</sup>.

DISTRICT	REPORTED AREA	CULTIVATED AREA	UN-CULTIVATED AREA	CROPPED AREA
SARGODHA	585600	428000	157600	358000
KHUSHAB	651100	312000	339100	275000
MIANWALI	584000	280000	304000	250000
BHAKKAR	815300	420000	395300	380000

### 10.1.5 Climatic conditions of Sargodha Division

Sargodha Division, located in Punjab, Pakistan, exhibits climatic conditions that significantly influence local agriculture and daily life. The division experiences a subtropical semi-arid climate, characterized by extreme heat during summers and mild winters. Summers in Sargodha<sup>85</sup> are intensely hot, with maximum temperatures reaching up to 50 °C (122 °F). Winters are moderately cold, with temperatures occasionally dropping to the freezing point.

<sup>83</sup> [Primary collect data from LG&CDD](#)

<sup>84</sup> <https://bos.punjab.gov.pk/system/files/FinalPASS2021.pdf>

<sup>85</sup> <https://en.climate-data.org/asia/pakistan/punjab/sargodha-2195/>

The average annual temperature is approximately 24.2 °C (75.5 °F), and the region receives about 707 mm (27.8 in) of rainfall annually.

Khushab experiences sweltering and muggy summers, with temperatures typically ranging from 5 °C to 40 °C. Winters are short, cool, and mostly clear. The temperature rarely falls below 3 °C or rises above 44 °C. Mianwali has an extreme climate, featuring long, hot summers and cold, dry winters. June is the hottest month, with average temperatures around 42 °C (108 °F), and the highest recorded temperature reaching 52 °C (125.6 °F). During winters, particularly in December and January, temperatures can drop to an average low of 3 °C to 4 °C (37 °F to 39 °F). Bhakkar<sup>86</sup> features a desert-like climate with minimal rainfall. The average annual temperature is 24.6 °C (76.3 °F), and the district receives approximately 213 mm (8.4 in) of rainfall each year. November is the driest month, with an average of 2 mm (0.08 in) of precipitation, while July is the wettest, averaging 57 mm (2.24 in).

Overall, Sargodha Division's climate is marked by high temperatures and low precipitation, with significant seasonal variations that impact agricultural practices and daily life.

## 10.2 Asset Mapping of Solid Waste Management Services

### 10.2.1 SWM Administrative setup

The Sargodha Waste Management Company (SWMC) is a public sector organization established under Section 42 of the Companies Ordinance 1984 to implement a transparent and sustainable waste management system in the Sargodha division. Governed by a Board of Directors, it operates through five specialized committees. The Chief Executive Officer, oversees daily operations and strategic initiatives. Key departments include Operations for waste collection, HR for workforce management, Finance for budgeting, Monitoring for compliance, and Technical Services for equipment maintenance. SWMC collaborates with municipal corporations and district councils to enhance sanitation services. It aims to establish a "zero-waste" zone under the Punjab Government's Clean City project, promoting environmental sustainability and public health.

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<sup>86</sup> [https://sargodhadivision.punjab.gov.pk/division\\_climate](https://sargodhadivision.punjab.gov.pk/division_climate)

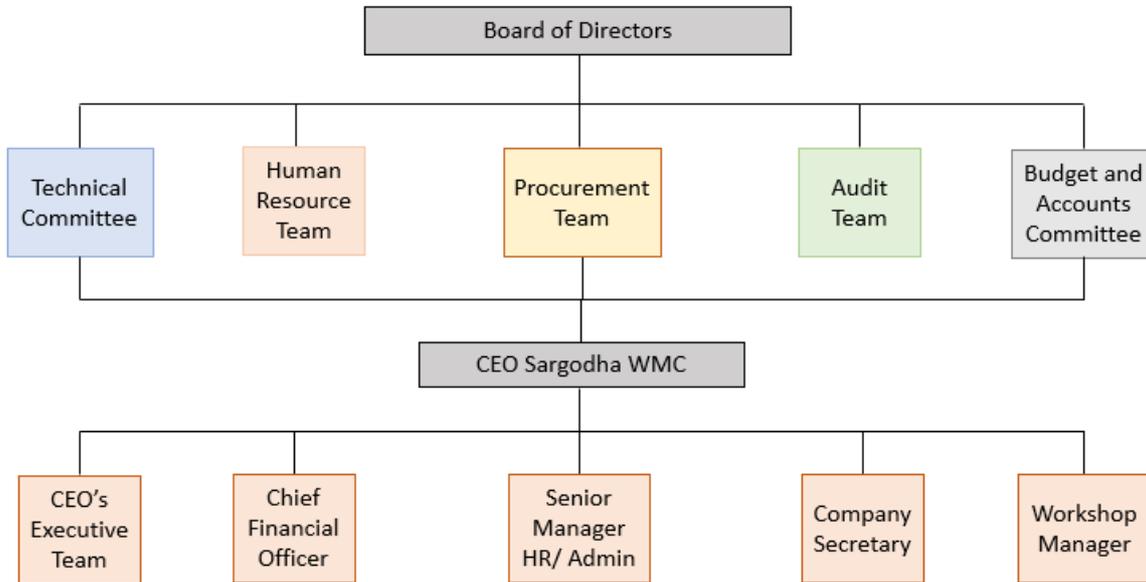


Figure 10-4. Administrative setup of Sargodha Waste Management Company<sup>87</sup>

### 10.2.2 Population and Waste Generation

The Sargodha Division, with its significant population, 3,655 tons per day generates substantial waste from urban and rural areas. Sargodha Tehsil produces the highest waste due to its dense population, commercial activities, and urbanization, while districts like Khushab, Mianwali, and Bhakkar contribute less but face waste disposal challenges. Population growth, industrialization, and changing lifestyles drive waste generation, increasing municipal, agricultural, and industrial waste. Efficient waste management is essential to prevent environmental pollution and promote recycling. Addressing these challenges requires coordinated efforts between local administrations, the Sargodha Waste Management Company, and community engagement.

Table 10-5. Tabular Representation of Population and Waste Generation of all Tehsils of Sargodha Division

SR. NO	DISTRICT	TEHSILS		POPULATION 2025	WG T/D 2025
1		Bhalwal	Urban	151834	68
			Rural	246707	79
		Bhera	Urban	137529	62
			Rural	279120	89

<sup>87</sup> [Sargodha Waste Management Company](#)

2	<b>SARGODHA</b>	Kotmomin	Urban	62728	28
			Rural	517234	166
		Sahiwal	Urban	100935	45
			Rural	331721	106
		Sargodha	Urban	1236861	557
			Rural	705399	226
	<b>KHUSHAB</b>	Shahpur	Urban	101212	46
			Rural	350787	112
		Sillanwali	Urban	53931	24
			Rural	347159	111
		Khushab	Urban	377128	170
			Rural	486845	156
3	<b>NOORPUR</b>	Noorpur	Urban	20209	9
			Rural	252135	81
	<b>MIANWALI</b>	Nowshera	Urban	20540	9
			Rural	134902	43
		Quaidabad	Urban	25656	12
			Rural	266207	85
4	<b>ISAKHEL</b>	Isakhel	Urban	98129	44
			Rural	330,256	106
	<b>PIPLAN</b>	Mianwali	Urban	168085	76
			Rural	793,641	254
	<b>BHAKKAR</b>	Piplan	Urban	108407	49
			Rural	387,516	124
Bhakkar		Urban	178915	81	
		Rural	679338	217	
Darya Khan		Urban	98883	44	
		Rural	344994	110	
<b>MANKERA</b>	Kalur Kot	Urban	56750	26	
		Rural	385236	123	
	Mankera	Urban	63,429	29	
	Rural	275781	88		
<b>TOTAL</b>				<b>10,176,139</b>	<b>3655</b>

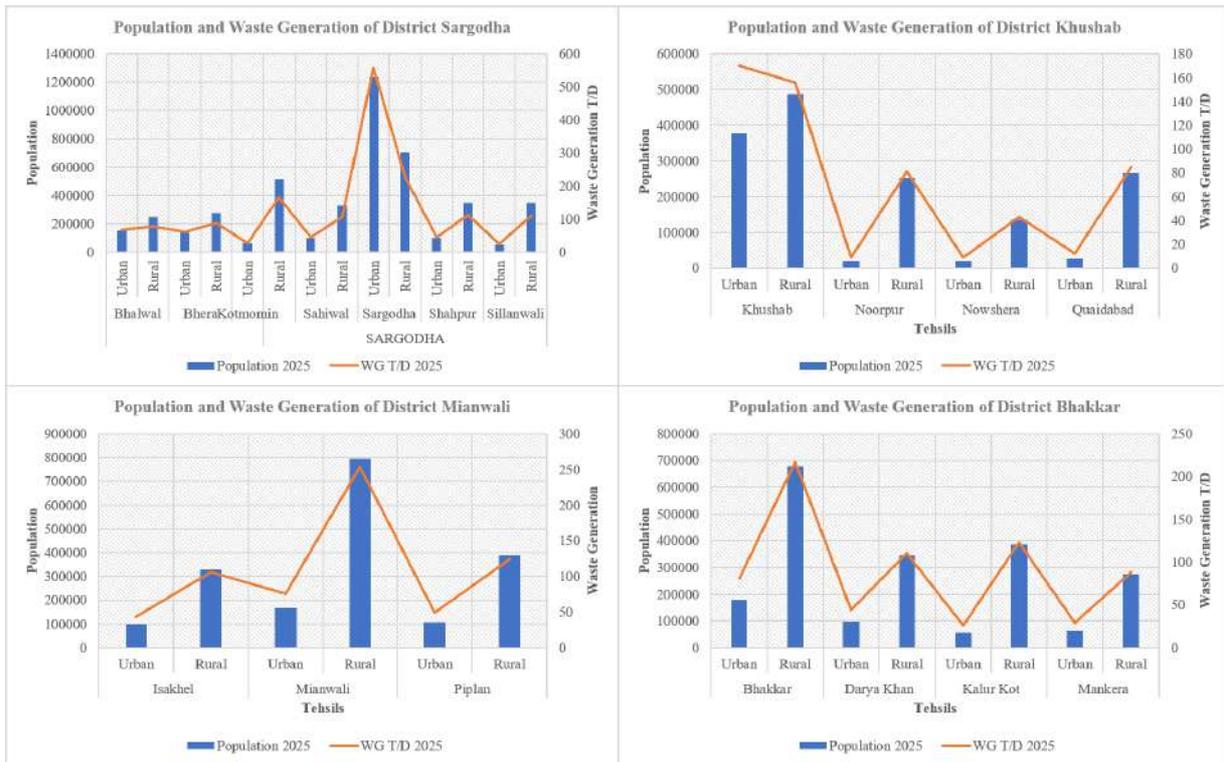


Figure 10-5. Graphical Representation of Population and Waste Generation of Sargodha Division.

### 10.2.3 Waste Composition

On-site waste characterization is performed as part of this project. Among the 41 districts of Punjab, a physical waste characterization study was conducted in the tehsils of divisional headquarters. Physical and chemical waste analysis (for both summer and winter) was carried out, with chemical samples sent to SGS Pvt. Ltd (an EPA-certified laboratory) to capture seasonal variations in waste generation.

A seasonal physical waste characterization study was conducted in 2025 across the Sargodha Division, covering the districts of Sargodha, Bhakkar, Khushab, and Mianwali, using the quarter-coning method to analyze municipal solid waste composition.



Figure 10-6. Waste Characterisation study in Sargodha Division.

The waste composition in Sargodha Division shows that biodegradable waste is the major component in all four districts, ranging from 51.99% to 56.59%, with Bhakkar recording the highest proportion. Plastics (13.67% to 14.83%) and diapers (11.23% to 14.82%) also constitute a significant share. Other components like glass, paper/cardboard, and textiles vary between 0.4% and 6.6%. Hazardous and electronic waste are present in negligible amounts. The data indicates a high organic content alongside a notable presence of non-biodegradables, highlighting the need for improved segregation and treatment strategies in the division.

Table 10-6. Tabular representation of Waste Characterization of Sargodha Division.

PHYSICAL WASTE COMPOSITION	SARGODHA	BHAKKAR	KHUSHAB	MIANWALI
COMBUSTIBLES	1.89	3.06	3.43	4.89
DIAPER	14.82	11.65	11.69	11.23
ELEC.-ELECTRONIC W.	0.02	0.02	0.04	0.02
GLASS	0.44	1.53	1.27	2.23
HAZARDOUS W	0.32	0.00	0.00	0.09
BIODEGRADABLE W.	56.35	56.59	51.99	55.59
METALS	0.02	0.12	0.09	0.07
NON-COMBUSTIBLES	2.83	1.59	1.97	1.83
PAPER-CARDBOARD	0.54	1.96	2.64	2.65
PET	0.31	0.00	0.02	0.01
NYLON	0.44	0.70	0.81	0.78
PLASTICS	14.65	14.58	14.83	13.67

<b>TETRAPAK</b>	0.50	0.85	0.42	0.40
<b>TEXTILE</b>	6.19	6.14	5.38	6.60
<b>TOTAL</b>	100.00	100.00	100.00	100.00

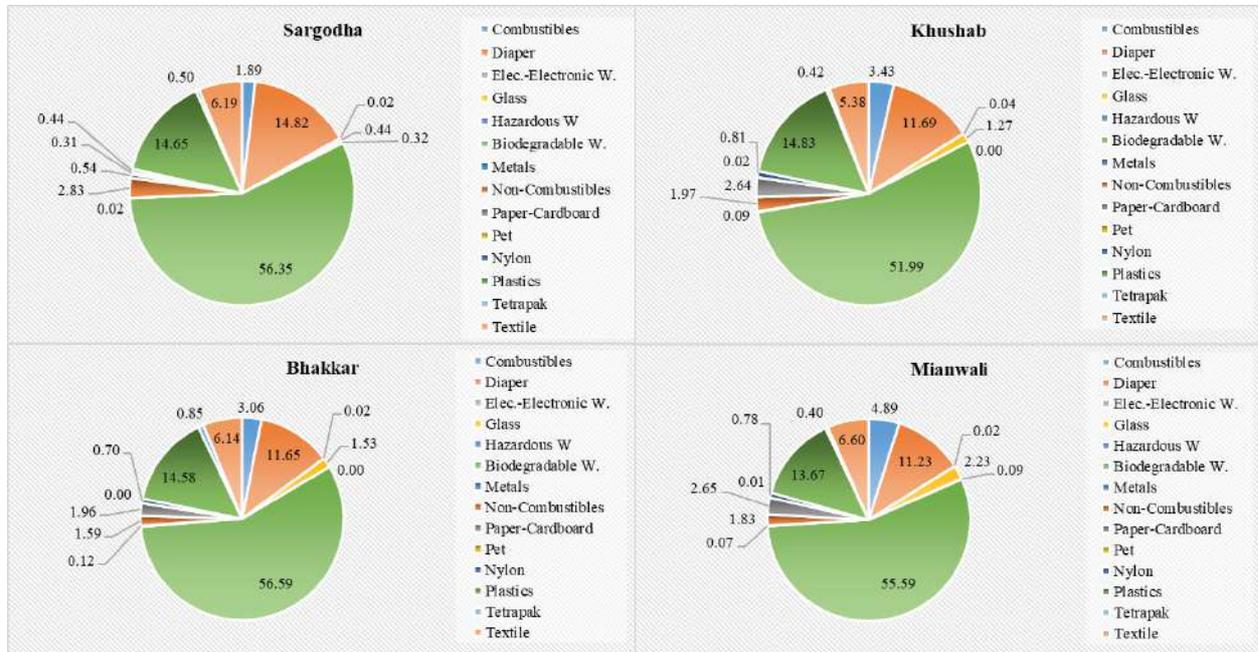


Figure 10-7. Graphical Representation of Waste Characterisation of Sargodha Division.

### 10.2.4 Primary and Secondary Waste Collection

In the districts of Sargodha Division, waste collection involves both primary and secondary processes, facing challenges due to differences in urbanization, infrastructure, and public awareness. **Primary collection** includes door-to-door & container based waste collection in urban areas, managed by the Sargodha Waste Management Company (SWMC), while rural areas rely on communal bins and manual collection by local councils. Secondary collection involves transporting waste from community bins and transfer stations to designated disposal sites. However, high commercial activity and construction waste contribute to illegal dumping. Khushab, Mianwali, and Bhakkar have moderate waste collection infrastructure, but rural landscapes and scattered settlements hinder efficient waste management, with informal dumping being a major issue. Limited road networks and inadequate equipment further slow waste collection in remote areas. Efforts are underway to improve waste management through awareness campaigns, infrastructure upgrades, and collaboration with private contractors, while modern equipment and optimized collection routes are key to ensuring sustainable waste disposal.

Table 10-7. Waste Management Assets of Primary and Secondary collection (current machinery).

DISTRICT	TEHSILS	DUMPERS (5M3)	TRACTOR LOADER	DUMPERS (10M3)	FRONT END LOADER	VACUUM SWEEPER	TRACTOR TROLLEY	CHAIN ARM ROLL
SARGODHA	Sargodha	10	4	1	1	1	8	1
	Bhera	2	4	-	2	-	4	-
	Kotmomin	-	2	-	1	-	4	-
	Bhalwal	-	2	-	1	-	4	-
	Shahpur	-	1	-	1	-	3	-
	Sahiwal	-	1	-	1	-	4	-
	Silanwali	-	2	-	1	-	4	-
KHUSHAB	Khushab	-	2	-	1	-	7	-
	Quaiabad	-	2	-	1	-	3	-
	Noushera	-	1	-	1	-	2	-
	Noorpur	-	1	-	1	-	3	-
MIANWALI	Mianwali	-	3	-	1	-	6	-
	Isakhel	-	2	-	1	-	6	-
	Piplan	-	1	-	1	-	6	-
BHAKKAR	Bhakkar	-	2	-	1	-	4	-
	Mankera	-	1	-	1	-	3	-
	Darya Khan	-	1	-	11	-	2	-
	Kallurkot	-	1	-	1	-	2	-

Table 10-8. Waste Management Assets of Primary and Secondary collection (additional machinery Under Suthra Punjab Program).

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7M3)	DUMPERS (5M3)	TRACTOR LOADER	DUMPERS (10M3)	FRONT END LOADER	VACUUM SWEEPER	MEC HANI CAL SWE EPER	DRAIN CLEANER	TRACT OR TROLLE Y	RICKSHAW WASHER	CHAIN ARM ROLL
SARGODHA	Sargodha	227	9	18	5	18	10	1	3	4	14	2	2
	Bhera	49	2	4	2	4	3	1	1	2	4	1	1
	Kotmomin	68	2	5	2	5	4	1	1	2	5	1	1
	Bhalwal	49	2	4	2	4	3	1	1	2	4	1	1
	Shahpur	54	2	4	2	4	4	1	1	2	4	1	1
	Sahiwal	52	2	4	2	4	3	1	1	2	4	1	1
	Silanwali	48	2	4	2	4	3	1	1	2	4	1	1
KHUSHAB	Khushab	103	4	8	4	8	5	1	2	2	8	1	1
	Quaiabad	35	1	3	2	3	2	1	1	2	3	1	1
	Noushera	20	1	2	2	2	2	1	1	1	2	1	1
	Noorpur	34	2	3	2	2	2	1	1	2	3	1	1
MIANWALI	Mianwali	115	6	9	4	9	6	1	2	2	8	1	1
	Isakhel	53	2	4	2	4	4	1	1	2	4	1	1
	Piplan	61	2	5	2	5	4	1	1	2	5	1	1
BHAKKAR	Bhakkar	102	6	8	4	8	6	1	2	2	8	1	1
	Mankera	40	1	3	2	3	3	1	1	2	3	1	1
	Darya Khan	54	2	4	2	4	3	1	1	2	4	1	1
	Kallurkot	53	2	4	2	4	3	1	1	2	4	1	1

**Table 10-9. Current and Additional HR**

<b>DISTRICTS</b>	<b>TEHSILS</b>	<b>CURRENT HR</b>	<b>ADDITIONAL HR</b>
<b>SARGODHA</b>	<b>Sargodha</b>	155	1450
	<b>Bhera</b>	20	280
	<b>Kotmomin</b>	35	355
	<b>Bhalwal</b>	35	280
	<b>Shahpur</b>	7	345
	<b>Sahiwal</b>	27	325
	<b>Silanwali</b>	35	315
<b>KHUSHAB</b>	<b>Khushab</b>	85	825
	<b>Quaiabad</b>	35	215
	<b>Noushera</b>	4	150
	<b>Noorpur</b>	10	240
<b>MIANWALI</b>	<b>Mianwali</b>	17	885
	<b>Isakhel</b>	7	505
	<b>Piplan</b>	10	545
<b>BHAKKAR</b>	<b>Bhakkar</b>	125	785
	<b>Mankera</b>	13	275
	<b>Darya Khan</b>	25	480
	<b>Kallurkot</b>	35	470

### 10.2.5 Waste Transfer and Disposal

Waste transfer and disposal in the Sargodha Division face significant challenges due to infrastructure limitations, logistics, and varying levels of urbanization. **Sargodha** has a structured waste transfer system managed by the Sargodha Waste Management Company (SWMC), where waste is collected from designated points and transported to disposal sites. However, inefficient segregation leads to mixed waste disposal, complicating recycling efforts.

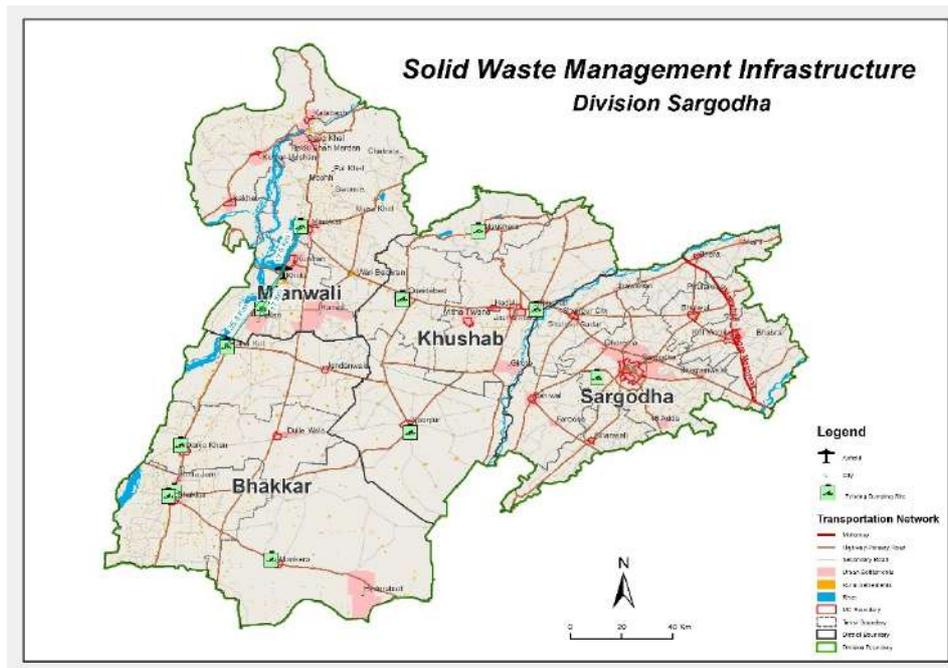


Figure 10-8. Map of Dumpsites in Sargodha Division

Overburdened landfill sites and illegal dumping of construction and hazardous waste further strain operations. **Khushab, Mianwali, and Bhakkar** struggle with waste transfer due to large rural landscapes, limited road networks, and inadequate waste processing facilities. Delays in transportation and inefficient disposal methods worsen waste accumulation. The absence of modern recycling and treatment facilities results in ineffective waste management. Efforts are being made to enhance waste processing infrastructure, improve vehicle fleets, and promote waste segregation, ensuring more sustainable waste disposal practices across the division.

Table 10-10. Dumpsite Information.

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS)	ANNUAL WASTE DISPOSAL (TONS)	OPERATIONAL SINCE (YEAR)	CLOSING YEAR (TENTATIVE)
SARGODHA	01	450 t/D	164,250 t/y	2016	2045
KHUSHAB	01	24-25 t/D	9125 t/y	10-15 years	Not Decided
MIANWALI	01	20 t/D	7300 t/y	1901	Not Decided
BHAKKAR	01	-	-	20-25 years	Not decided

### 10.2.6 Existing Infrastructure

The Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management infrastructure in Sargodha Division, with Sargodha having the most developed network due to urban centrality, while Bhakkar and Mianwali have limited coverage, especially in rural areas. Connectivity via highways and roads enables access, but natural barriers like rivers impact service reach in Mianwali. The infrastructure mainly serves urban hubs, indicating a need for improved planning in underserved regions.



Figure 10-9. Existing Infrastructure of Sargodha WMC



### 10.2.7 Waste Collection Efficiency (WCE)

The waste management system in Sargodha Division varies between urban and rural areas due to differences in infrastructure, resource allocation, and population density. **Sargodha** City, managed by the Sargodha Waste Management Company (SWMC), benefits from regular waste collection, transfer stations, and landfill sites. However, high waste generation strains resources, leading to challenges like illegal dumping. **Khushab, Mianwali, and Bhakkar** have moderate waste management systems, but rural areas lack proper waste collection infrastructure, relying on open dumping. Scattered settlements and inadequate waste collection vehicles further complicate operations. The absence of formal transfer stations and modern recycling facilities hampers efficiency. Addressing these challenges requires improved infrastructure, better waste segregation, and enhanced waste disposal facilities across the division.

**Table 10-11. District-Wise Waste Collection Efficiencies before Inception of Contractors Under Suthra Punjab Program**

COLLECTION EFFICIENCIES				
DISTRICT	Sargodha	Khushab	Mianwali	Bhakkar
TOTAL WASTE COLLECTION (T/D)	389	135	162	99
TOTAL WASTE GENERATION (T/D)	1719	564	652	718
COLLECTION EFFICIENCY (CE) (%) BEFORE OUTSOURCING	24%	28%	28%	15%
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>88</sup>			

### 10.2.8 Scavenging Activities

Sargodha Waste Management Company doesn't conduct any studies on this informal sector and doesn't have any data about it. However, this sector provides significant informal support to the formal waste management sector by segregating recyclables from municipal waste containers, transfer stations, and disposal stations, which increases the lifespan of waste disposal stations.

<sup>88</sup> Current waste collection efficiency is obtained during discussion with WMC.



Figure 10-11. Scavenging Activities.

### 10.2.9 Fuel Allocation

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systems. It directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the amount of fuel issued and utilized by each operational vehicle

Table 10-12. Annual Fuel Allocation of machinery.

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRE PER DAY-BAU	TOTAL FUEL (DIESEL) CONSUMPTION LITRE PER DAY-BAU	DIESEL CONSUMPTION PER LITRE (DUMPSITE)-BAU
SARGODHA	Sargodha	-	1,100	290
	Bhera	-	610	150
	Kotmomin	-	470	60
	Bhalwal	-	470	60
	Shahpur	-	350	30
	Sahiwal	-	440	30
	Silanwali	-	470	60
<b>TOTAL</b>		-	<b>3,910</b>	<b>680</b>
KHUSHAB	Khushab	-	482	62
	Quaidabad	-	380	60
	Noushera	-	260	30
	Noorpur	-	350	30
<b>TOTAL</b>		-	<b>1,472</b>	<b>182</b>
MIANWALI	Mianwali	-	680	90
	Isa Khel	-	650	60
	Piplan	-	620	30
<b>TOTAL</b>		-	<b>1,950</b>	<b>180</b>
BHAKKAR	Bhakkar	-	470	60
	Mankera	-	350	30
	Darya Khan	-	760	30
	Kallarkut	-	260	30

TOTAL | - 1,840 150

### 10.2.10 Budget Allocation

In the absence of detailed financial data from Sargodha Waste Management Company, a standard SWM budget includes **development costs** (for equipment like mechanical sweepers, vehicles, and infrastructure) and **non-development costs** (for salaries, fuel, maintenance, and training). Effective budget allocation ensures smooth waste collection, transportation, and disposal operations, supports public awareness efforts, and strengthens enforcement of regulations—ultimately improving the overall efficiency and sustainability of the system.

Table 10-13. Budget Allocation of SWMC

Financial Details - MC Sargodha (FY 2023-24)			
Sr. No.	Description	Value	Unit
1	Development Budget	0	Rupees
2	Non-Development Budget	1,720,192,961	Rupees
3	Operational & Maintenance Cost per year	160,500,000	Rupees
4	Salaries of Staff (Management + Office)	26,876,349	Rupees
5	User Charges	0	Rupees
6	Revenue From User Charges	0	Rupees

### 10.2.11 Fruit Mandi and Slaughter House

In Sargodha Division, waste management data related to fruit and vegetable mandis and slaughterhouses is only available for Sargodha District. At the same time, no such information has been provided for the remaining districts by the Sargodha Waste Management Company. In Sargodha city, the fruit and vegetable mandi is located in the Cantonment area and is managed by the Market Committee; however, specific figures for daily waste generation and collection efficiency are not reported. The district has one functional slaughterhouse, processing 130 small and 30 large animals daily. Based on estimated waste generation rates—7.5 kg for small animals and 96 kg for large animals—the slaughterhouse produces approximately 3.855 tons of waste per day, with a reported collection efficiency of 100%. Despite this efficiency, the absence of data from other districts in the division limits a comprehensive understanding of regional waste management practices and highlights the need for improved reporting and coordination.

Table 10-14. Details of Fruit Mandi and Slaughter House

Details of Fruit Mandi and Slaughter House			
FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Total	Mandi is located in Cantt, while waste is managed by the Market Committee	Total No.	1

		Total Animals	130+30
Daily Waste Gen (T/D)		Daily Waste Gen (T/D)	3.855
Collection Efficiency %		Collection Efficiency %	100
Collection/Transport Mechanism		Collection/Transport Mechanism	
<b>Note: Small animals@7.5kg &amp; Large animals@96kg, soo (130*7.5+30*96)/1000</b>			

### 10.2.12 Special Events Resource Induction

Special events like Eid ul-Adha pose unique challenges for waste management, especially in urban areas. The slaughtering of animals during Eid ul-Adha generates large amounts of organic waste, including animal remains, blood, and offal. Without proper handling, this waste can cause serious health, environmental, and aesthetic issues. Efficient management of this waste requires **advanced planning, additional resources, and enhanced coordination** among municipal authorities, private contractors, and communities.

## 11 CHAPTER: SAHIWAL DIVISION

### 11.1 Divisional Profile:

Sahiwal Division, established in 1988, is an administrative region located in east-central Punjab, Pakistan, encompassing the Sahiwal, Okara, and Pakpattan districts. Strategically positioned along the N-5 National Highway, it is approximately midway between Lahore and Multan. The division shares borders with Faisalabad Division to the west, Lahore Division to the north, Bahawalpur Division and India to the east, and Multan Division to the south. Geographically, it lies between the floodplains of the Ravi River to the west and the Sutlej River to the east, with the dry Khushak Bias channel acting as a natural boundary between Sahiwal and Pakpattan. According to the 2023 census, the population of Sahiwal Division was around 7.38 million. One of its most significant historical landmarks is Harappa, an ancient city of the Indus Valley Civilization situated approximately 29 kilometers southwest of Sahiwal city.

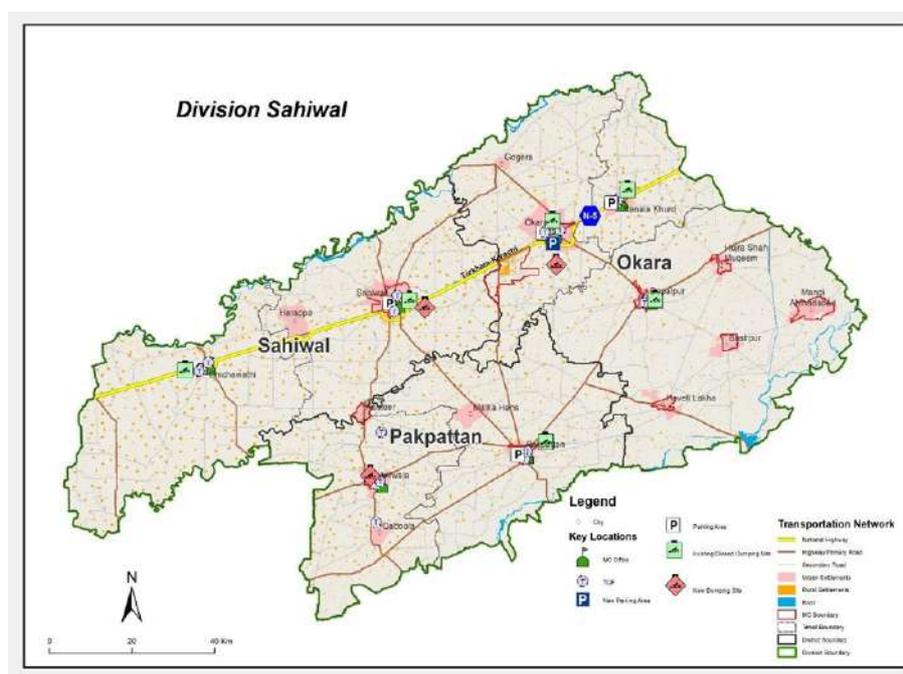


Figure 11-1. SWM Operational Jurisdiction of Sahiwal Division

Table 11-1. Districts in Sahiwal Division

DISTRICTS IN THE SAHIWAL DIVISION	
1	Sahiwal District
2	Okara District
3	Pakpattan District

The division holds great agricultural importance, particularly in dairy farming and the cultivation of wheat and sugarcane. It is home to the renowned Sahiwal cattle breed, known worldwide for its high milk production and adaptability to local climatic conditions. The region consists of both urban and rural settlements, with Sahiwal city serving as the divisional

headquarters and a developing commercial center. Culturally, Sahiwal Division has a rich heritage, shaped by Punjabi traditions, Sufi influences, and agrarian communities. Okara is a key hub for livestock farming, while Pakpattan is famous for the shrine of the revered Sufi saint Baba Farid. Despite its economic and historical significance, the division faces challenges related to water management, waste disposal, and urban expansion, necessitating sustainable development initiatives.

### 11.1.1 Administrative Setup

Sahiwal Division functions under the administrative framework of Punjab, Pakistan, with a Divisional Commissioner overseeing governance, development projects, and inter-district coordination. The division is further divided into three districts: Sahiwal, Okara, and Pakpattan, each managed by a Deputy Commissioner (DC) responsible for district-level administration, revenue collection, and law enforcement coordination.

Law and order in the division are maintained by the Regional Police Officer (RPO), with District Police Officers (DPOs) handling security and policing at the district level. The local governance structure includes municipal corporations, district councils, and town committees, which manage urban planning, infrastructure, and public services. Additionally, various provincial departments, such as health, education, and agriculture, operate within the division, ensuring service delivery and policy implementation in coordination with district administrations.

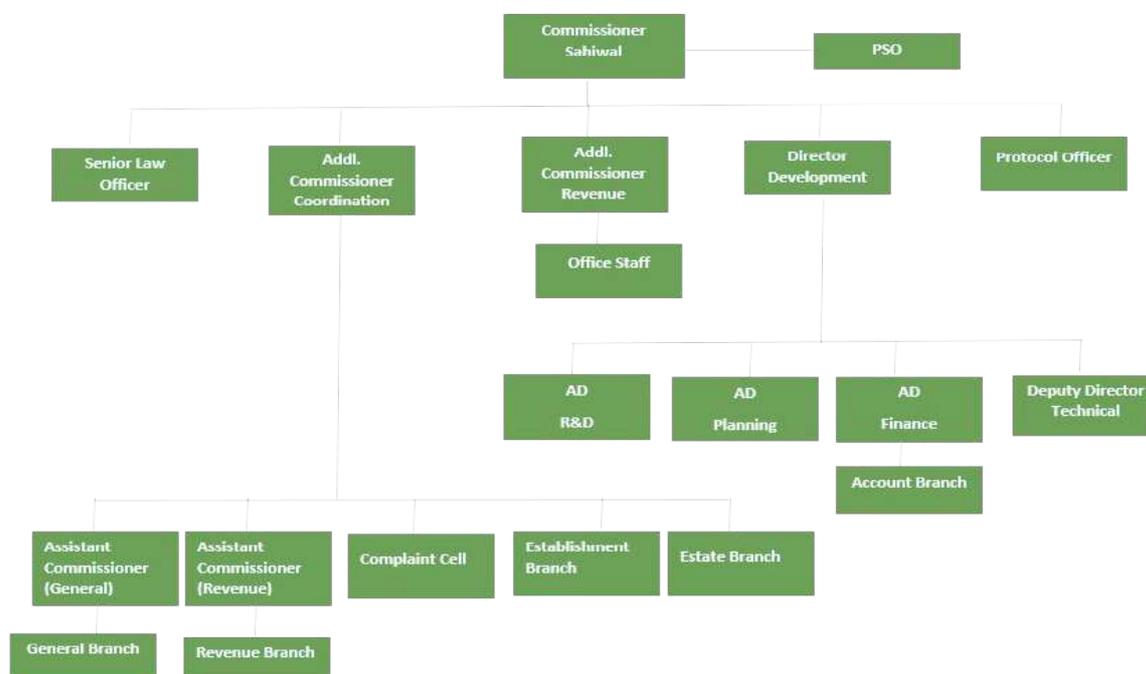


Figure 11-2. Administrative setup of the Sahiwal Division<sup>89</sup>

<sup>89</sup> <https://sahiwaldivision.punjab.gov.pk/organogram>

### 11.1.2 Population Statistics

The population statistics provided for the Sahiwal Division in 2025 are projections based on the annual growth rates derived from the 2023 census. According to the 2023 census, the total population of Sahiwal Division—which includes the districts of Sahiwal, Okara, and Pakpattan—was approximately 9 million. Using this as the base year, projected annual growth rates were applied: 2.48% for the overall division, 2.45% for Okara District, 2.67% for Pakpattan District, and 2.31% for Sahiwal District. Based on these rates, the projected population in 2025 is estimated to be 3,032,228 for Sahiwal District, 3,707,480 for Okara District, and 2,267,570 for Pakpattan District. These figures reflect a steady increase in population due to both natural growth and rural-to-urban migration. The division remains predominantly rural, but urban areas are expected to expand rapidly as migration trends continue. Okara remains the most populous district, while Pakpattan, despite having the smallest population, shows the highest growth rate. These projections highlight the growing need for strategic urban planning, sustainable infrastructure development, and effective public service delivery to accommodate the rising population and ensure balanced regional development across the Sahiwal Division.

Table 11-2. Population statistics of Sahiwal Division-2025

SR. NO	DISTRICTS	URBAN POPULATION-2025	RURAL POPULATION-2025	TOTAL POPULATION 2025
1	Sahiwal	863223	2169607	3032830
2	Okara	1333767	2373713	3707480
3	Pakpattan	558547	1709023	2267570

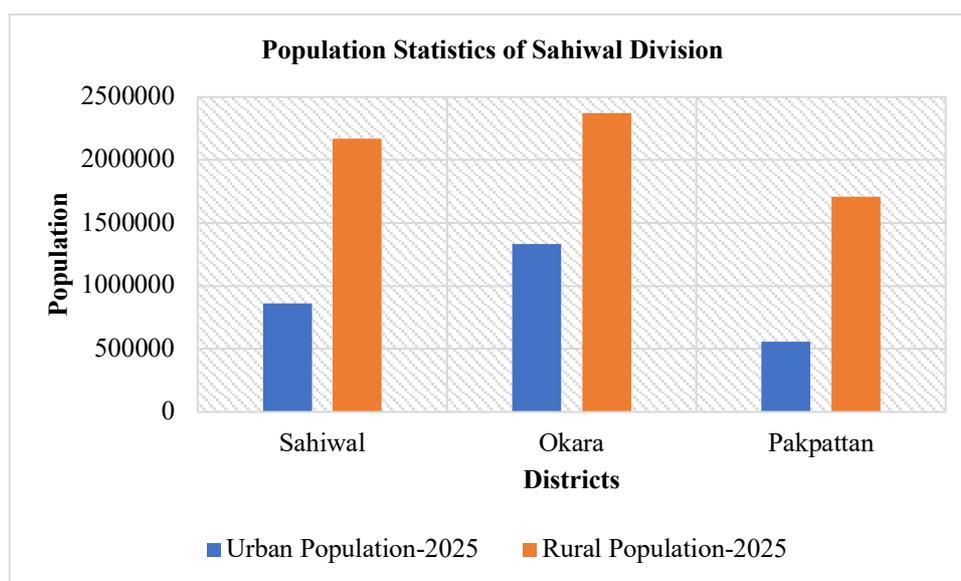


Figure 11-3. Sahiwal Division Graph of Population Statistics

### 11.1.3 Demography of Sahiwal

Sahiwal Division, situated in Punjab, Pakistan, covers a total area of 1,030,200 hectares, with 11,57,359 households distributed across its tehsils. The region is characterized by a mix of agricultural and urban settlements, contributing to its economic and demographic dynamics. With a well-established rural and urban infrastructure, the division plays a crucial role in the province's agricultural output and industrial activities. The steady growth in population and households reflects ongoing urbanization and development, necessitating efficient resource management and planning for sustainable progress.

Table 11-3. Demography of the Sahiwal Division

TEHSILS	AREA HECTARES	NO OF HOUSEHOLDS	NO OF ECONOMIC ENTITIES HIGH RISE	NO OF ECONOMIC ENTITIES NORMAL STRUCTURE	TOTAL ECONOMIC ENTITIES
SAHIWAL	3,20100	446,749	16	71,882	71,898
OKARA	4,37700	549,724	32	97,216	97,248
PAKPATTAN	2,72400	160,886	7	60,005	60,012

### 11.1.4 Land use area of Sahiwal Division:

The land use distribution of the Sahiwal Division has been compiled based on data collected from the Municipal Committee (MC) office of Sahiwal. The division's land use is primarily residential (59%), with one district having as high as 77% residential area. Commercial spaces (8%) and educational institutions (8%) also hold a significant share, reflecting urban development and public services. Industrial areas (3%), open spaces (9%), and public buildings (5%) indicate the region's infrastructural layout. Smaller portions of land are allocated for graveyards (2%), parks (2%), and health facilities (1%), while religious buildings and other mixed-use areas form minor percentages of the total land use.

Table 11-4. Land Use Area of Sahiwal Division<sup>90</sup>

Sr. No.	LANDUSE	SAHIWAL LAND USE IN %	OKARA LAND USE IN %	PAKPATTAN LAND USE IN %	SAHIWAL DIVISION LAND USE AREA IN %
1	COMMERCIAL	5.3	11	6	8
2	COMMERCIAL CUM RESIDENTIAL	3.6	-	-	1
3	EDUCATIONAL CUM RESIDENTIAL	0.1	-	-	0
4	EDUCATIONAL INSTITUTION	15.5	4	3	8
5	GRAVEYARD	2	1	2	2
6	HEALTH	0.7	1	1	1
7	HEALTH CUM RESIDENTIAL	0	-	-	0

<sup>90</sup> Primary Data Source Sahiwal Waste Management Company

8	INDUSTRY	2.1	4	4	3
9	OPEN AREA	5.8	18	3	9
10	PARK	0.9	4	2	2
11	PLAY GROUND	0.4	3	-	1
12	PUBLIC BUILDING	13.7	-	-	5
13	RECREATIONAL	0	-	-	0
14	RELIGIOUS BUILDING	0.7	1	2	1
15	RESIDENTIAL	49.4	52	77	59
	Total	100	100	100	100

### 11.1.5 Climatic conditions of Sahiwal Division

Sahiwal Division experiences a hot, semi-arid climate with significant temperature fluctuations, dry winters, and a monsoon-influenced summer. The average monthly temperatures range from 14°C in January to a peak of 37°C in June, while high temperatures can reach up to 43°C in summer months. Winters are mild, with lows around 9°C in January and highs around 21°C<sup>91</sup>.

- **Sahiwal District:** Sahiwal experiences extreme summer temperatures, peaking at 43°C in June, and cooler winters, with average lows of 9–11°C. The wettest months are July and August, with rainfall reaching up to 105 mm in July. The total annual rainfall is approximately 393 mm, mostly during the monsoon season, with 11 rainy days in July being the highest monthly count.
- **Okara District:** Okara follows a similar pattern, with high summer temperatures and a peak average of 37°C in June. Rainfall is lower compared to Pakpattan, but the monsoon season in July and August still brings substantial precipitation, contributing to an estimated annual rainfall of around 300 mm. Winters are cool but generally dry.
- **Pakpattan District:** Pakpattan also experiences scorching summers, with temperatures often exceeding 40°C from May to July. Due to its slightly higher rainfall, especially during the monsoon, total annual precipitation is estimated at around 450 mm. Like the other districts, it has long sunshine hours year-round, with over 300 hours in most months and peak values in October and December<sup>92</sup>.

<sup>91</sup> [https://weatherspark.com/y/107702/Average-Weather-in-Sahiwal-Pakistan-Year-Round#google\\_vignette](https://weatherspark.com/y/107702/Average-Weather-in-Sahiwal-Pakistan-Year-Round#google_vignette)

<sup>92</sup> <https://www.weatherapi.com/history/q/sahiwal-1929922>

Table 11-5. Climatic Conditions of Sahiwal Division – 2024 (District-wise)

DISTRICT	TEMPERATURE RANGE-MINIMUM (°C)	TEMPERATURE RANGE-MAXIMUM (°C)	HOTTEST MONTHS	COLDEST MONTHS	AVERAGE ANNUAL RAINFALL-(MM)	RAINY DAYS (ANNUALLY)
SAHIWAL	5°C	50°C	May-July	Dec – Jan	300	~48 days
PAKPATTAN	5°C	44°C	May-July	Dec – Jan	215	~50 days
OKARA	3°C	45°C	May-July	Dec – Jan	185	~48 days

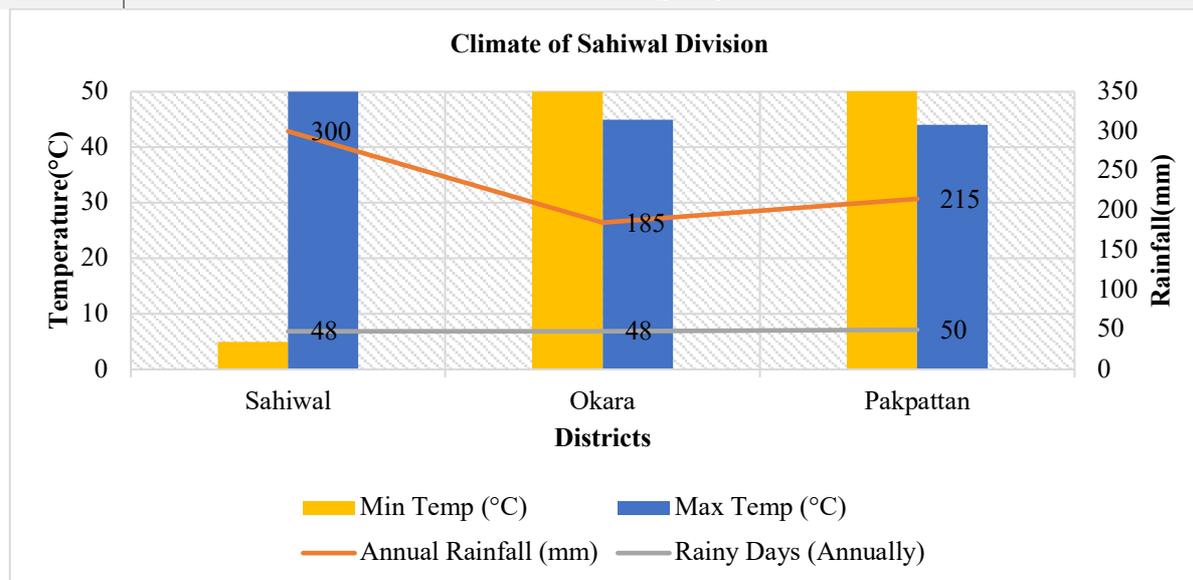


Figure 11-4. Graphical Representation of climatic conditions of Sahiwal Division

## 11.2 Asset Mapping of Solid Waste Management Services

### 11.2.1 SWM Administrative Setup:

At start of year 2024, The Solid Waste Management (SWM) system in the Sahiwal Division operates under an administrative structure led by an Administrator, followed by a Chief Officer (BS-17/18) who oversees various municipal operations. The system comprises various departments, each responsible for distinct tasks. The Municipal Officer (Infrastructure & Services) (BS-17) supervises sub-engineers and oversees the sanitation branch responsible for waste collection and disposal. The Municipal Officer (Finance) (BS-16/17) manages financial matters, assisted by an accountant and clerical staff. The Municipal Officer (Regulation) (BS-16/17) handles taxation and revenue collection with the support of tax officials. The Municipal Officer (Planning) (BS-17) is responsible for infrastructure development, assisted by sub-engineers and clerks. To enhance waste management efficiency, Sahiwal Water and Sanitation Services Company (SWSSC) has been formulated in 2024, function of this company is the provision of water and sanitation including solid waste management services to the citizen of the Sahiwal Division. Chief Executive officer is the head of the company, and other departments like SWM operations, Planning, Admin & HR, Procurement and Finance have

their own heads i.e., General Managers of respective division. This company independently manages door-to-door waste collection, street cleaning, waste disposal, recycling initiatives, and public awareness campaigns, ensuring better environmental sustainability and service delivery in the Sahiwal division. The following chart shows the existing solid waste management structure followed in MC & other District Levels of the Sahiwal Division

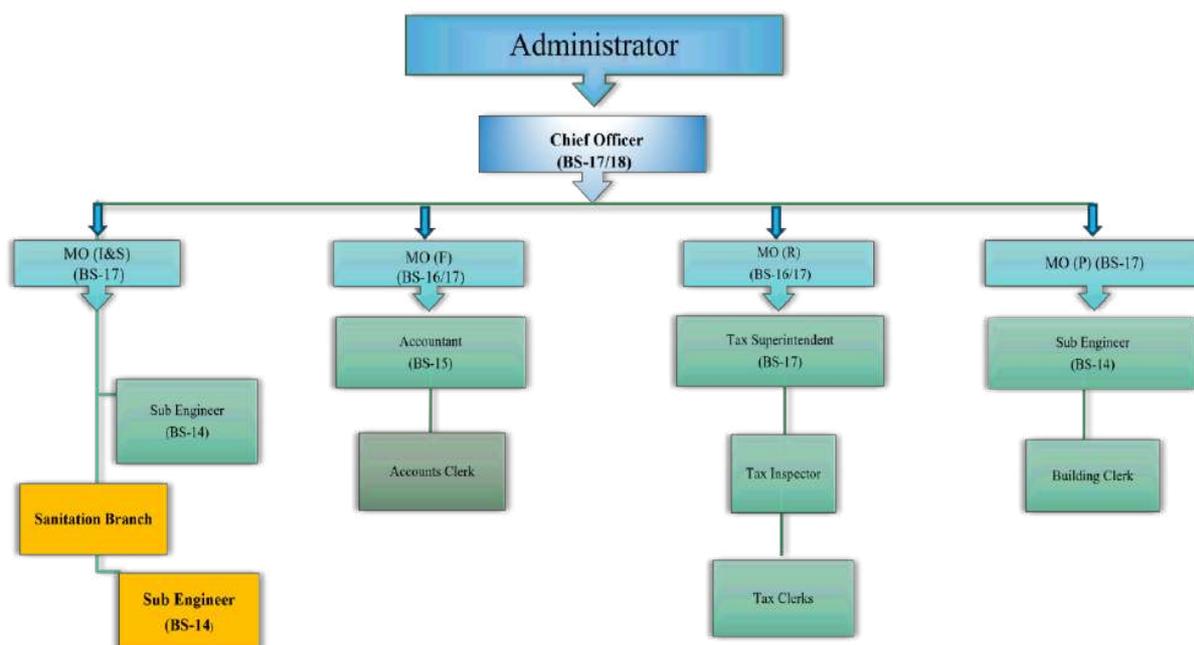


Figure 11-5. Administrative Setup of Sahiwal Division SWM Company

### 11.2.2 Population and Waste Generation:

Sahiwal Division, 3238 tons per Day generates a significant amount of waste due to its growing population and urban expansion. Urban areas, including Sahiwal, Chichawatni, Okara, Depalpur, Renala Khurd, Pakpattan, and Arifwala, produce higher amounts of solid waste due to dense populations, commercial activities, and increasing urbanization. Rural areas, while generating comparatively less waste, face challenges in effective waste collection and disposal. Waste generation in the division is estimated based on per capita values of 0.45 kg/person/day in urban areas and 0.32 kg/person/day in rural areas. With a total urban population of over 2.7 million, urban waste generation is approximately 1,487 tons per day, while rural areas with a population of over 5.2 million generate around 1,793 tons per day.

The rising waste levels demand efficient waste management systems to mitigate environmental pollution and promote sustainable disposal practices. To address these challenges, the Sahiwal Solid Waste Management Company (SSWMC) has been established to oversee waste collection, transportation, and disposal in the division. This company ensures systematic waste handling, focusing on urban cleanliness, landfill management, recycling initiatives, and public awareness programs. By implementing structured waste management strategies, SSWMC

plays a crucial role in maintaining environmental sustainability and improving sanitation services across the Sahiwal Division.

**Table 11-6. Tabular Representation of Population and Waste Generation of all Tehsils of Sahiwal Division**

SR. NO.	DISTRICTS	TEHSILS	AREA	POPULATION- 2025	WASTE GENERATION
					TON/DAY
1	Sahiwal	Sahiwal	Urban	744500	335
			Rural	1085104	347
		Chichawatni	Urban	118723	53
			Rural	1084502	347
2	Okara	Okara	Urban	701097	315
			Rural	770225	246
		Depalpur	Urban	509837	229
			Rural	1165366	373
3	Pakpattan	Renala Khurd	Urban	122833	55
			Rural	438122	140
		Pakpattan	Urban	300397	135
			Rural	902951	289
TOTAL	TOTAL	Urban	258150	116	
		Rural	806072	258	
				<b>9,007,879</b>	<b>3238</b>

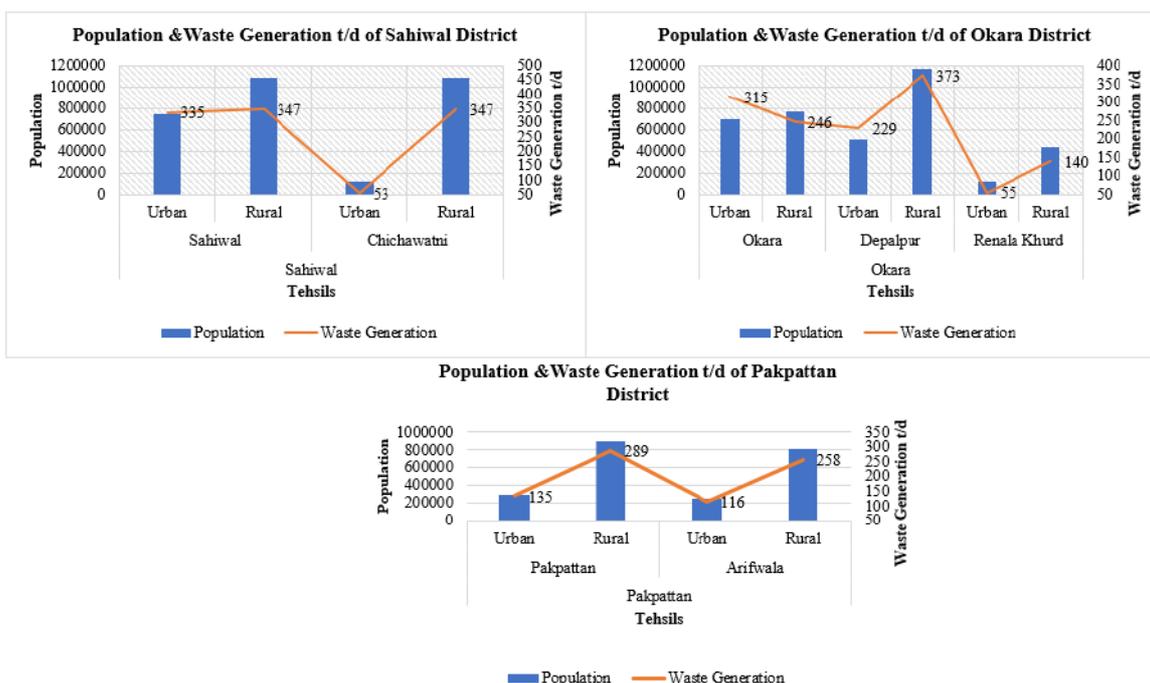


Figure 11-6. Graphical representation of the population and Waste Generation of Sahiwal Division

### 11.2.3 Waste Composition:

As part of the ongoing waste management project in Punjab, onsite waste characterization was carried out in the Sahiwal Division to evaluate the physical composition of waste and its environmental implications, particularly regarding greenhouse gas (GHG) emissions. Among the 41 districts of Punjab, detailed surveys were conducted in the tehsils of Sahiwal, Okara, and Pakpattan, using the quarter-coning method during both summer and winter seasons. Samples were analyzed by SGS, an EPA-certified laboratory, to determine the chemical characteristics of the waste.



Figure 11-7. Physical Waste Characterization in the Sahiwal Division

The seasonal, Physical waste Characterization results revealed that biodegradable waste was the most dominant component, comprising 61.16% to 73.52% in Pakpattan, indicating a high concentration of organic and food-related waste across all districts. Plastic waste, including general plastic and PET, was the second most prevalent, especially in Sahiwal. Diaper waste also made up a significant portion, particularly in urbanized areas like Okara and Sahiwal suggesting a strong link to lifestyle and consumption habits. Other categories such as textiles, glass, tetra packs, paper, and metals were found in smaller quantities, while hazardous waste, e-waste, nylon, combustible and non-combustible materials collectively contributed a minor share. This comprehensive characterization, considering commercial and residential areas across socio-economic levels, serves as a foundation for designing targeted waste management, recycling, and climate resilience strategies in the Sahiwal Division. The waste components table mentioned below

Table 11-7. Average Waste Characterization of Sahiwal Division

PHYSICAL WASTE COMPOSITION	DISTRICT WISE WASTE COMPOSITION IN %		
	Sahiwal	Okara	Pakpattan
COMBUSTIBLES	0.84	0.43	0.26
DIAPER	12.02	19.32	9.83
ELEC.-ELECTRONIC W.	0.03	0.03	0.05
GLASS	0.42	0.73	1.84
HAZARDOUS W	0.22	0.17	0.03
BIODEGRADABLE W.	61.16	61.71	73.52

METALS	0.04	0.06	0.25
NON-COMBUSTIBLES	1.27	2.37	0.74
PAPER-CARDBOARD	1.10	1.83	1.91
PET	0.19	0.04	0.11
NYLON	0.13	0.24	0.20
PLASTICS	17.84	9.98	8.79
TETRAPAK	0.10	0.07	0.04
TEXTILE	4.64	3.02	2.43
<b>TOTAL</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

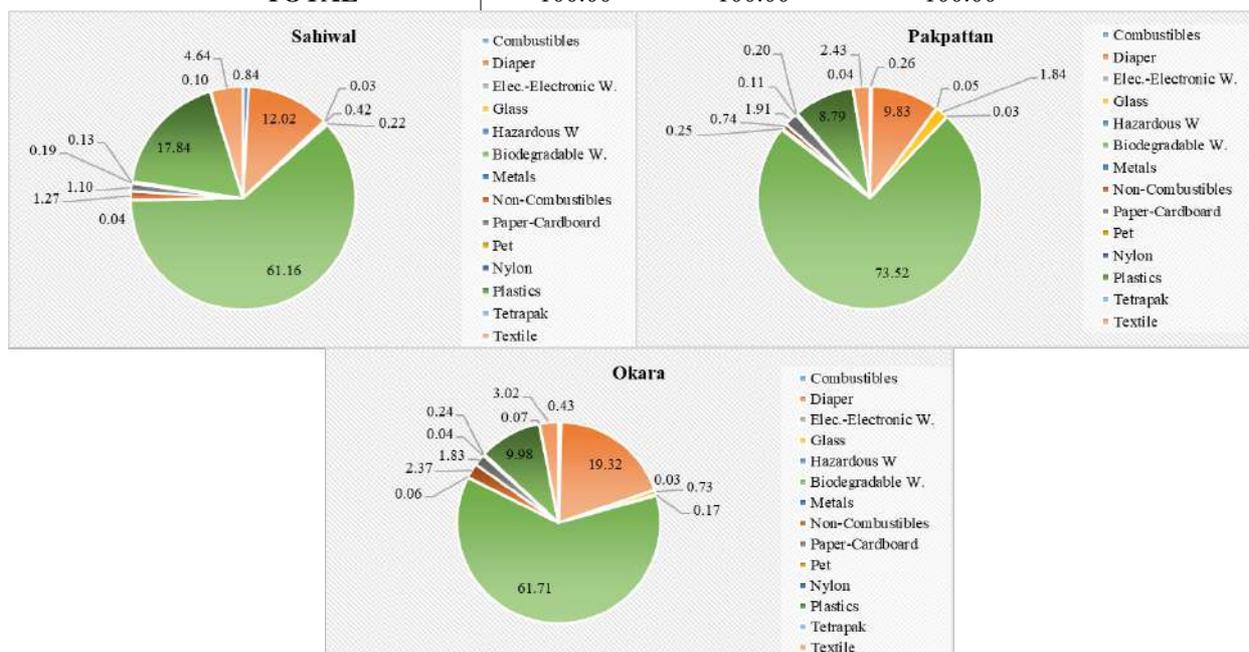


Figure 11-8. Graphical Representation of Waste Composition Breakdown in the Sahiwal Division

### 11.2.4 Primary and Secondary Waste Collection

In the Sahiwal Division, waste collection is managed by the Sahiwal Waste Management Company (SWMC), ensuring environmental sustainability and public cleanliness. Under Suthra Punjab Program Waste collection, transportation and disposal services are outsourced by the company to local contractors in all tehsils of the Sahiwal division and company role is now on monitoring side of the contractors. Primary waste collection involves door-to-door and container-based collection of waste from households, and markets in the form of hand carts, mini dumpers and rickshaws (Under Suthra Punjab Program). Trained collection staff, equipped with designated vehicles, gather waste from residential and commercial areas, preventing litter accumulation. The municipal committees oversee waste collection in rural areas, while SWMC manages operations in urban centers like Sahiwal, Okara, Pakpattan, and their respective tehsils.

After primary collection, the waste is transported to secondary collection points, such as community bins and transfer stations, where it is temporarily stored before final disposal. Segregation, treatment and disposal facility which is first government sector facility

constructed by the urban unit has started its operation in July 2023- December 2024 and handed over to Sahiwal Municipality in December 2024. Sahiwal Municipality in duration of 1.5 year provided around 35-40tons/day waste to run daily segregation & compost practices at STD plant to the Urban Unit. Then after segregation, waste which is not suitable for compost and recycling is transported to final dumpsite. The efficiency of secondary collection depends on the timely removal of waste from transfer stations/STD plant to avoid overflows and environmental hazards. Proper waste segregation and disposal methods are crucial to improving waste management efficiency and reducing environmental and public health impacts.

The division is continuously upgrading its waste management infrastructure, incorporating modern techniques and additional machinery to manage increasing waste volumes. The available waste collection machinery in tehsils like Sahiwal, Okara, Pakpattan, Chichawatni, Renala Khurd, Depalpur, and Arifwala includes loader rickshaws, compactors, dumpers, tractor loaders, vacuum sweepers, and drain cleaners, ensuring an efficient and structured waste management system.

Table 11-8. Existing Resources of Sahiwal Division (By LG, MC/TMA/WMC)

CURRENT MACHINERY AVAILABLE FOR TEHSILS	LOADER RICKSHAWS	COMPACTOR (7M3)	DUMPERS (5M3)	TRACTOR LOADER	DUMPERS (10M3)	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER	TRACTOR TROLLEY	CHAIN ARM ROLL
CHICHA WATNI	3	2	0	2	0	1	1	0	4	1
SAHIWAL	0	6	0	3	2	2	0	1	15	7
DEPALPUR	3	0	10	6	0	0	0	0	9	1
OKARA	1	7	0	2	2	2	3	0	16	0
RENALA KHURD	0	0	1	2	0	2	0	0	1	0
ARIFWALA	0	0	0	2	0	0	0	0	4	0
PAKPATTAN	2	0	0	3	0	5	0	0	9	0

Table 11-9. Additional Machinery Required for Sahiwal Division (Under Suthra Punjab Program)

DISTRICTS	TEHSILS	LOADER RICKSHAWS	COMPACTOR (7M3)	DUMPERS (5M3)	TRACTOR LOADER	DUMPERS (10M3)	FRONT END LOADER	VACUUM SWEEPER	MECHANICAL SWEEPER	DRAIN CLEANER	TRACTOR TROLLEY	CHAIN ARM ROLL
SAHIWAL	Chichawatni	120	3	15	20	20	3	2	3	3	10	2
	Sahiwal	177	8	17	17	18	5	3	5	5	15	0
	Depalpur	195	10	20	25	23	6	5	0	7	19	3
OKARA	Okara	160	12	17	19	17	5	2	0	5	15	2
	Renala Khurd	110	6	9	10	15	2	1	0	1	8	1
PAKPATTAN	Arifwala	105	9	7	12	13	3	1	0	1	10	1
	Pakpattan	140	10	14	15	17	4	1	0	1	12	1

**Table 11-10. Additional & Current HR of Sahiwal Division**

DISTRICTS	TEHSILS	CURRENT HR	ADDITIONAL HR REQUIRED
SAHIWAL	Chichawatni	133	835
	Sahiwal	413	1425
	Depalpur	240	1840
OKARA	Okara	470	1370
	Renala Khurd	38	552
PAKPATTAN	Arifwala	183	560
	Pakpattan	245	780

### 11.2.5 Waste Transfer and Disposal

The solid waste management system in Sahiwal Division, comprising the districts of Sahiwal, Okara, and Pakpattan, involves waste collection from residential, commercial, and other urban sources both in urban and rural areas, followed by transportation to designated dumpsites for disposal. According to official data, each district maintains a primary dumpsite.



**Figure 11-9. Dumpsites or Waste Disposal Points in the Sahiwal Division**

**Sahiwal District**, generating 340 tons of waste per day (124,100 tons annually), has had a single dumpsite operational since 2006, which is expected to close around 2024–2025. Notably, Sahiwal Water and Sanitation Services Company (SWSSC) oversees municipal waste collection and disposal operations in Sahiwal division.

**Okara District**, with a daily waste generation of 411 tons (150,015 tons annually), established its dumpsite in 2024, with operations projected to continue until 2030.

**Pakpattan**, the smallest in terms of waste volume, manages 123 tons/day (44,895 tons/year) at a dumpsite that began operations in 2020 and is tentatively scheduled for closure by 2025.

Table 11-11. Dumpsite Information.

DISTRICTS	NO. OF DUMPSITES	AVG DAILY WASTE DISPOSAL (TONS/DAY)	ANNUAL WASTE DISPOSAL (TONS/YEAR)	OPERATIONAL SINCE	CLOSING YEAR (TENTATIVE)
				(Year)	
SAHIWAL	1	340	1,24,100	2006	2024 to~2025
OKARA	1	411	1,50,015	2024	2030
PAKPATTAN	1	123	44,895	2020	2025



Figure 11-10. Map of Dump sites in Sahiwal Division

While each district has at least one official dumpsite, unregulated dumping, short lifespans of existing sites, and a lack of integrated landfill infrastructure pose challenges for sustainable waste management. The establishment of the MRF under SWMC in Sahiwal is a significant step toward improved recycling and resource recovery. However, expanding such facilities and operational capacities to Okara and Pakpattan, along with developing engineered landfills and waste transfer stations, remains essential to promote efficient, environmentally safe, and long-term waste disposal across the division.

### 11.2.6 Existing SWM Infrastructure:

Sahiwal Waste Management Company in Sahiwal District is responsible for waste management operations within its boundaries under the Suthra Punjab CM Initiative for managing solid waste in urban and rural areas. The existing waste collection, transportation,

and disposal system faces significant challenges, with waste being indiscriminately dumped at designated sites without proper environmental safeguards, both in urban and rural areas.

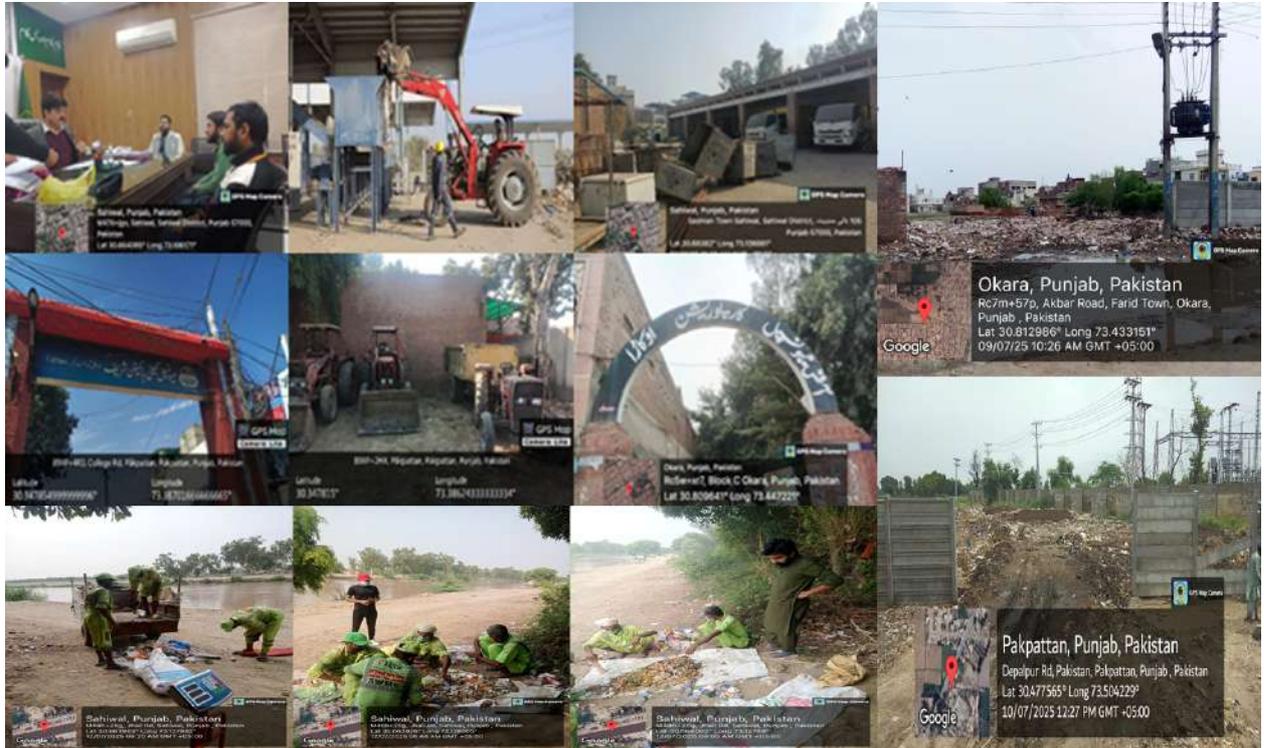


Figure 11-11. Existing Infrastructure of Sahiwal WMC

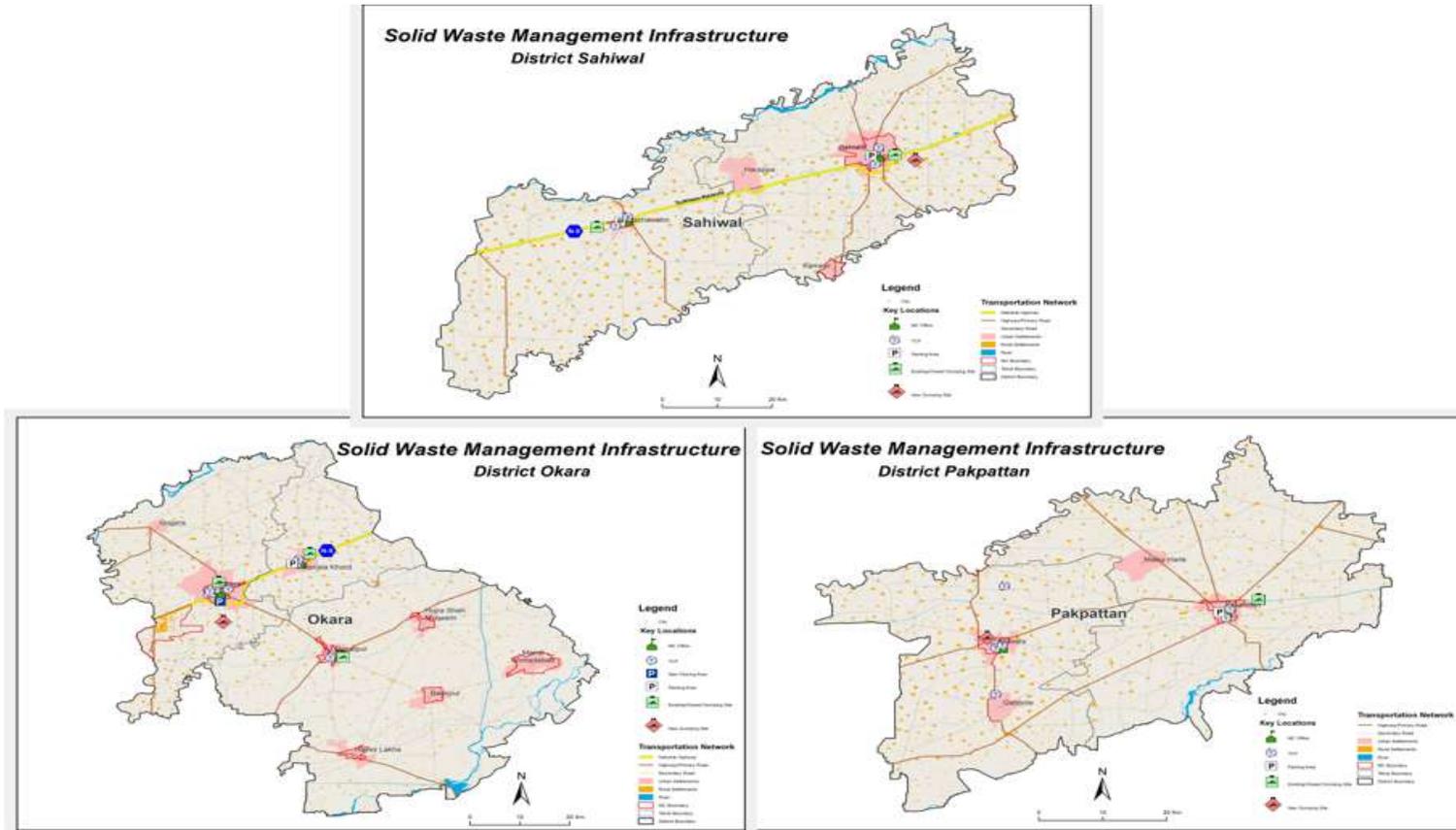


Figure 11-12. SWM Infrastructure of Sahiwal Division

The Field visits and consultative sessions with WMC and Municipal Corporation were organised to assess the solid waste management infrastructure (SWM) infrastructure in Sahiwal Division, comprising the districts of Sahiwal, Okara, and Pakpattan, is in a phase of gradual development, with Sahiwal District leading in modernization and systemization. Under PICIIP, Sahiwal has upgraded its Waste collection and transportation machinery & development of Sanitary landfill site is under process. Sahiwal is the only district which has established advanced facilities including a Segregation, Treatment and Disposal (STD) facility after Lahore compost plant, temporary waste collection points, vehicle parking yards, and municipal committee (MC) offices, creating a more structured and efficient waste management framework. In contrast, Okara and Pakpattan districts continue to operate through traditional waste management practices with limited infrastructure, primarily involving basic dumpsites and fewer logistical facilities. While all three districts possess the foundational elements necessary for waste collection and disposal, the comprehensive and integrated setup in Sahiwal highlights its central role in SWM for the division and underscores the pressing need for similar advancements in Okara and Pakpattan to ensure consistent and sustainable waste management across the region.

### 11.2.7 Waste Collection Efficiencies (WCE)

The Waste Management system in Sahiwal Division is currently functional in urban centers of each tehsil, while rural areas remain underserved, lacking essential waste management infrastructure and assets. Waste collection efficiency is directly linked to the availability of resources such as fleet size and equipment in each tehsil. As a result, tehsils with better infrastructure particularly district headquarters exhibit relatively higher collection efficiencies.

- **Sahiwal District** collects around 340 tons/day of waste against an estimated urban waste generation of 1,083 tons/day, leading to a collection efficiency of 31%. Despite having better infrastructure, a large volume of waste remains uncollected, indicating a need for system upgrades and expanded coverage.
  - **Okara District** generates 1,360 tons/day of urban waste and collects approximately 411 tons/day, reflecting a 30% collection efficiency. Although comparable to Sahiwal, Okara also faces challenges due to infrastructure limitations and service gaps in peripheral areas.
  - **Pakpattan District** shows the lowest efficiency, collecting only 123 tons/day out of 798 tons/day of waste generated, resulting in a collection efficiency of just 15%. This highlights critical deficiencies in equipment availability, manpower, and overall service delivery.
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**Table 11-12. District-Wise Waste Collection Efficiencies Before Inception of Contractors Under Suthra Punjab Program**

TEHSIL	SAHIWAL	OKARA	PAKPATTAN
TOTAL WASTE COLLECTION (T/D)	340	411	123
TOTAL WASTE GENERATION (T/D)	1083	1360	798
COLLECTION EFFICIENCY (CE) (%) BEFORE OUTSOURCING	31	30	15
COLLECTION EFFICIENCY (%) AFTER OUTSOURCING	More than 70% waste collection efficiency under contractual arrangements between WMC and Contractors <sup>93</sup>		

### 11.2.8 Scavenging Activities

Scavenging in the Sahiwal Division, which consists of the districts of Sahiwal, Okara, and Pakpattan, is largely driven by poverty, limited employment opportunities, and the lack of a fully developed formal waste management system, especially in rural and underserved areas. Vulnerable populations, including women and children, often resort to informal waste picking as a means of survival, subjecting themselves to hazardous and unhygienic environments. Seasonal challenges such as extreme heat or monsoon-related disruptions further exacerbate economic difficulties, increasing dependence on this unsafe livelihood. Although informal scavenging contributes to resource recovery and recycling, it comes at a significant cost to health and human dignity. To address this issue, the Sahiwal Division requires improved waste management infrastructure, the establishment of a framework to get this informal waste management activities formalized that will be beneficial for municipality to manage solid waste in the whole division and to improve formal waste segregation activities to be a part of circular economy instead of linear economy. Initiatives such as vocational training, the promotion of small-scale recycling enterprises, and community-level awareness campaigns can help transition scavengers toward safer, more stable, and sustainable sources of livelihood.

<sup>93</sup> Current waste collection efficiency is obtained during discussion with WMC.



Figure 11-13. Scavenging in the Sahiwal Division

### 11.2.9 Fuel Allocation

Fuel allocation for the Solid Waste Management (SWM) fleet is a critical operational aspect of waste management systems. It directly impacts the efficiency, cost, and sustainability of SWM operations. Below is the fuel issued daily and utilized by each operational vehicle in liters/day,

Table 11-13. Fuel Consumption of Sialkot SWM-Fleet

DISTRICT	TEHSILS	TOTAL FUEL (PETROL) CONSUMPTION LITRE PER DAY	TOTAL FUEL (DIESEL) CONSUMPTION LITRE PER DAY	DIESEL CONSUMPTION LITRE PER DAY (DUMPSITE)
SAHIWAL	Sahiwal	-	1,590	210
	Chichawatni	10	427	110
	<b>TOTAL</b>	<b>10</b>	<b>2,017</b>	<b>110</b>
OKARA	Okara	3	1,553	200
	Depalpur	10	850	330
	Renala Khurd	-	110	175
<b>TOTAL</b>		<b>13</b>	<b>2,513</b>	<b>705</b>
PAKPATTAN	Pakpattan	3	425	-
	Arifwala	-	380	60
	<b>TOTAL</b>	<b>3</b>	<b>805</b>	<b>60</b>

### 11.2.10 Budget Allocation

Budget allocation plays a vital role in the effectiveness of Solid Waste Management (SWM) system in the Sahiwal Division, which includes the districts. Sufficient financial resources are

necessary for the proper planning, execution, and ongoing management of waste-related services. In Sahiwal Division, the SWM budget is typically divided into development and non-development components. The development budget is directed toward long-term infrastructure projects such as the establishment of landfill sites, procurement of modern waste collection equipment, and improvement of recycling facilities. Meanwhile, the non-development budget supports routine operational needs, including staff salaries, fuel, equipment maintenance, and payments to private contractors. A lack of adequate funding in either category often results in poor waste collection, unsanitary conditions, and environmental degradation. To ensure an efficient and sustainable waste management system, there is a pressing need for improved budgeting practices and consistent financial support across all three districts of the division.

**Table 11-14. Budget Allocation of Sahiwal WMC**

**Financial Details - MC Sahiwal (FY 2023-24)**

Sr. No.	Description	Value	Unit
1	Development Budget	4 M	Rupees
2	Non-Development Budget	0	Rupees
3	Operational & Maintenance Cost per year	139.61 M	Rupees
4	Salaries of Staff (Management + Office)	291.3 M	Rupees
5	User Charges	0	Rupees
6	Revenue From User Charges	0	Rupees

### 11.2.11 Fruit Mandi and Slaughter House

In Sahiwal city, waste management from key sources such as the fruit and vegetable mandi and the slaughterhouse plays a crucial role in maintaining urban cleanliness. The division has one main fruit and vegetable mandi, generating around 5 tons of waste per day, which is equally managed by the Municipal Committee and the Market Committee; however, the collection efficiency for this facility is not clearly documented, indicating a possible gap in waste monitoring or systematic collection. In contrast, the slaughterhouse operates with higher efficiency, handling the slaughter of 70 small and 30 large animals daily, resulting in approximately 6.805 tons of waste per day. This facility achieves 100% collection efficiency, suggesting effective waste handling and transportation practices. These figures highlight the need to improve collection mechanisms in the mandi while sustaining the efficiency of the slaughterhouse, both of which are essential for strengthening overall solid waste management in the division.

**Table 11-15. Details of Fruit Mandi and Slaughter House**

Details of Fruit Mandi and Slaughter House			
FRUIT & VEG MANDI		SLAUGHTERHOUSE	
Total No	1	Total No.	1
Waste Handled by MC(T/D)	5	Total Animals	70+30

Handled by Market Committee (T/D)	5	Daily Waste Gen (T/D)	6.805
Collection Efficiency %	-	Collection Efficiency %	100
Collection/Transport Mechanism	-	Collection/Transport Mechanism	
<b>Note: Small animals@7.5kg &amp; Large animals@96kg, soo (70*7.5+30*96)/1000</b>			

### 11.2.12 Special Events Resource Induction

During special events, particularly religious festivals like Eid ul-Adha, the Sahiwal Division experiences a significant increase in waste generation due to animal sacrifices and related activities. To manage this surge, municipal authorities establish additional waste collection points across various tehsils. For instance, during Eid ul-Adha, numerous temporary collection sites are set up to facilitate efficient waste disposal. However, challenges persist, including the limited number of designated disposal sites and the insufficient allocation of additional human and mechanical resources to handle the increased workload.

In contrast, some districts within the division deploy extra machinery and personnel during such events to ensure effective waste management. Nevertheless, the lack of comprehensive data on resource allocation highlights the need for improved planning and transparency. Implementing a well-structured waste management strategy during peak occasions, which includes adequate resource allocation and public awareness campaigns, is crucial for maintaining hygiene and environmental standards in the Sahiwal Division.

## 12 CHAPTER: GAPS IDENTIFICATION IN SWM SYSTEM OF PUNJAB

Punjab is managing its waste management system with ten waste management companies operating at the divisional level, and after the outsourcing of the solid waste management system under the Suthra Punjab Program initiative, except Lahore city, the sprawl of waste management companies is now being expanded to the rural and urban tehsils of Punjab.

A component of solid waste management in the project data analysis, research and planning

Support by the urban unit was carried by the solid waste management team of the urban unit in which all tehsils under 41 districts of Punjab was covered for asset mapping of existing solid waste management infrastructure, including offices, parking yards, dumpsites, transfer stations, which were being operated by the municipal corporations and waste management companies in perspective areas.

The transition phase of outsourcing was also being carried out during this tenure, in which the new induction of human resources, machinery, and deployment of infrastructure temporary collection points, disposal sites, offices in urban and rural areas was in process by contractors in the early months of 2025 and role of waste management companies is now more on monitoring side of the contractors' cleanliness services provision as per standard KPIs written in their contracts.

Stated below are the potential issues/gaps finding out during the field survey and analysis of the current services that need to be rectified for the improvement of waste management services:

- **Inconsistent Collection efficiency:**

Analysis of current operational performance indicates that major urban centers previously managed by divisional-level waste management companies—such as Lahore, Rawalpindi, Multan, Faisalabad, and Gujranwala—have achieved waste collection efficiencies exceeding 75% within city limits. In contrast, collection efficiency drops significantly in rural and urban areas of the same districts, often falling below 50%. As a result, the overall collection efficiency at the district level remains below 50% in some districts like Rawalpindi, highlighting a clear urban-rural disparity in service delivery.

With the implementation of the Suthra Punjab Program, it is anticipated that both waste collection and transportation efficiency will improve significantly. This improvement is expected following the mobilization and deployment of waste collection and transportation resources by local contractors, as per the terms of their service agreements. These contractors

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are also accountable for the maintenance of Transfer Collection Points (TCPs) and waste disposal stations.

- **Inadequate Waste Management Infrastructure and Gaps in Contactors Performance.**

As of the initial months of the current year, observations from field operations indicate that most contractors have gradually begun assuming responsibility for solid waste management across various tehsils within the districts. However, full operationalization remains pending in several areas due to significant constraints. A key challenge has been the delayed procurement of machinery, which has not yet reached the required operational capacity. In addition, contractors are currently operating with an insufficient number of trained personnel, particularly in relation to the available machinery, thereby limiting service efficiency.

Field assessments have also highlighted a critical shortfall in the deployment of sanitary workers, whose numbers remain inadequate to meet the needs of comprehensive waste collection and management at the tehsil level.

Contractors are contractually obligated to establish and maintain Transfer Collection Points (TCPs) in accordance with standard operating procedures (SOPs). However, performance in this area has been suboptimal. A primary barrier has been the difficulty in acquiring suitable land, especially within urban centers, where availability is limited or contested. These land acquisition challenges are significantly hampering the timely development of TCPs, leading to disruptions in waste collection cycles and haulage operations.

- **Poor conditions of Fruit Markets and Slaughter Houses:**

The waste generated by the fruit markets and slaughterhouses is collected through the conventional method and transferred to open dumpsites, which cause decomposition and high levels of emissions, which can be a catalytic factor for climate change and greenhouse gases. Due to ongoing transition phase of waste management services in this waste can be Punjab most of the companies don't have data regarding vegetable and fruit markets as well as slaughter house waste generation from all tehsils of respective districts. Usually, WMC's are not managing this type of waste except few and they have their own solid waste management system. Although such type of waste should be document properly to design compost and other suitable projects by the municipality which will be beneficial for soil health and the environment as well.

- **Transition phase of Outsourcing services:**

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Many tehsils are facing tense issues in the handing over and taking over procedures due to communication and coordination failures, which are decreasing the performance of service providers in the respective tehsils. This also includes the resistance by the municipal corporation to accepting the new system on their premises.

- **Open Dumping and Weighbridge Malafide:**

Field observations from over 30% of the districts reveal that contractors continue to use previously established open dumping sites for waste disposal, contrary to their contractual obligation to develop and operate new dumpsites in compliance with environmental safety protocols. This practice poses significant risks to public health and the environment and reflects a gap in enforcement and monitoring of disposal standards. Most of the dump sites and transfer stations don't have electricity and other basic infrastructure like a boundary wall, protection of ground soil layers to safe ground water contamination from leachate percolation, etc.

Furthermore, the current payment model—based on tonnage of waste collected—has led to unintended consequences. It was noted that some contractors are including construction and demolition (C&D) waste in their haulage to artificially increase the weight recorded at weighbridges. This practice not only distorts performance data but also undermines the integrity of the waste management system by mixing non-municipal waste with regular household and commercial waste streams.

- **Lack of a Holistic policy framework:**

Efforts remain fragmented without a unified approach to segregate, recycle, compost, and implement waste-to-energy initiatives. Climate adaptation and circular economy principles are required to be integrated into local solid waste management plans.

- **Lack of Focus on Community Awareness and Behavioural Change Campaigns**

Punjab's solid waste management system lacks focus on community awareness and behavioral change, which hinders effective implementation. Public knowledge about proper waste segregation and disposal is limited, leading to low citizen participation. Cultural norms often tolerate littering and open dumping. Existing awareness campaigns are weak, irregular, and not community-focused. This results in poor waste segregation, overburdened landfills, and environmental hazards. Addressing this gap through sustained education, behavioral nudges, and community engagement is essential for long-term SWM success.

- **Absence of Solid Waste Management Rules, Regulations and Act**

The absence of a solid waste management strategy, rules, and regulations in Pakistan leads to uncontrolled dumping, environmental pollution, and health hazards. It results in inefficient

waste collection and recycling systems, worsening urban sanitation problems. Lack of enforcement further aggravates the issue, causing public nuisance and groundwater contamination.

### **12.1 Areas of Improvement and Holistic Enhancement of SWM In Punjab:**

Solid waste management in Punjab requires multidimensional improvements to achieve efficiency, sustainability, and resilience against environmental challenges. A primary area of focus is enhancing the waste collection and transportation system, particularly in rural and urban areas where coverage and frequency are inadequate. The transportation mechanisms also need modernization, utilizing GPS-enabled fleets and optimized routes to reduce inefficiencies and fuel consumption.

The machinery utilized across various divisions is not only outdated (means already above its operational life i.e., not more than 7 years) but also inadequate, calling for a comprehensive standardization and equitable distribution, particularly in tehsils that grapple with significant waste generation. This scenario is further exacerbated by a critical shortage of human resources—especially sanitary workers and drivers—which urgently needs to be addressed through formal recruitment processes, thorough training programs, and the implementation of biometric attendance systems. Capacity building gap exists in all waste management companies as well as at side of contractors this area is need to be focused to improve capacity of the existing and newly hired solid waste management professionals through capacity building exercises designed for different departments like procurement, operations, finance, sanitary workers, and health and occupational safety etc.

Moreover, the waste produced in vibrant fruit mandis and bustling slaughterhouses lacks organized disposal or composting solutions, leading to dangerous health and environmental hazards that loom large over our communities.

As we transition from government-led initiatives to contractor-based services, we often witness operational shortcomings stemming from poor coordination and insufficient oversight. This reality underscores the pressing need for robust contractual standard operating procedures and diligent third-party audits to ensure accountability and effectiveness. The rampant issue of open dumping poses a severe threat due to the glaring absence of engineered landfills and recovery centers. This practice endangers our natural resources and becomes a source of GHG emission.

Due to the lack of coordinated rules, regulations, and strategies on solid waste management at both the provincial and federal levels, waste management companies are operating independently, resulting in various challenges that contribute to inefficiencies and low-level service delivery. In conclusion, there is a need to develop a solid waste management strategy at provincial level, which serves as a guideline for all services providers and must embrace a holistic and climate-responsive framework. It should seamlessly integrate recycling efforts,

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raise public awareness, and uphold the principles of a circular economy. Such an approach is crucial for promoting long-term environmental stewardship and aligning with the nation's broader development goals.



## ANNEXURES



**Annex-1(A): Questionnaire for Existing Solid Waste Management Services and Resources**

<b>SWM Questionnaire</b>		
<b>Sr #</b>	<b>Required data</b>	<b>Remarks</b>
<b>1)</b>	<b>General information</b>	
	Name of District/City/Tehsil	
	Location (Coordinates)	
	<b>i. DEMOGRAPHICS</b>	
	<b>Total Population (Urban Rural)</b>	
	Union Council (Urban Rural)	
	No. of Zones/Wards	
	Per Capita Waste Generation (kg/d)	a) Urban b) Rural
	Waste Generation (Urban) (Tons/day)	
	Waste Generation (Rural) (Tons/day)	
	Total Waste Generation (Urban + Rural) (Tons/day)	
	What is your area's total municipal solid waste generation rate (tons/day)?	
	<b>ii. Waste Container/ bins</b>	
	Container Size (Volumetric capacity)	a) Small: b) Large: c) Dust bins:
Geo-Tagged Images of Containers		
<b>2)</b>	<b>Workshops (No. &amp; Locations)</b>	a) Coordinates: b) Area: c) Available Human Resources
<b>3)</b>	<b>Parking Yards (No. &amp; Locations)</b>	a) Coordinates: b) Area available (Acres) c) Scavenging in place (Yes, No) d) Infrastructure (Parking Shads): (Yes, No)
<b>4)</b>	<b>Waste Storage / Secondary Collection</b>	
	No. of Transfer Stations (TS) / Temporary Collection Points (TCP)/ Enclosures	
	GPS Coordinates	
	Geo-tagged Images	
	Open Heaps, Plots (No. & coordinates)	
<b>5)</b>	<b>Waste Characterization Study</b>	
	Have you conducted a waste characterization study in the past?	
	Percentage of organic waste	
	Percentage of Inorganic waste	

	Which category of waste has high streams?		
6)	<b>Scavenging Activities</b>		
	Points of Scavenging (at Dumpsites/Transfer Stations)	GPS Coordinates: Geo-tagged Images:	
	Any Waste Treatment Facility (Compost, W-t-E, etc.)	GPS coordinates Images:	
7)	<b>Waste Disposal</b>		
	Number of official dumping sites		
	Location with Coordinates		
	Operational Since (year)		
	Site Closure Year (Actual/projected)		
	Daily MSW received at dump sites (t/d)		
	Annual Disposal Estimation (Tons)		
	Estimated Quantity of Waste Disposed of over operational years (Tons)		
	Number of unofficial dumping sites		
	Please describe any existing waste treatment facilities (e.g., composting, waste-to-energy/MRF)		
	Location with coordinates		
	Proposed places for Dumpsites/ Transfer stations (TS) with coordinates/ Available area, & Ownership of Land	1. 2. 3.	
	Average Incidents reported of Fire/ Burning of Waste	a) Monthly b) Yearly	
8)	Percentage of total collected waste that is burned at landfills or dumpsites		
9)	Percentage of waste disposed of at landfills that is burned at landfills or dumpsites		
10)	Percentage of uncollected waste that is burned in the open by residents living inside formal collection areas		
11)	Percentage of uncollected waste that is burned in the open by residents living outside formal collection areas		
12)	<b>Transportation</b>		
	What is the average distance traveled by waste collection vehicles to disposal sites?		
13)	<b>Mechanical Sweeping</b>	<b>Road name and Length</b>	<b>Sides being swept on routine</b>
	Primary Roads (Road name and Length)	1.	1.

		2.	2.
		3.	3.
	Secondary roads (Road name and Length)	1.	1.
		2.	2.
		3.	3.
<b>14)</b>	<b>Hospital Details</b>		
	<b>Hospital Name</b>	<b>Hospital Type (Govt. or Private)</b>	<b>No of Beds</b>
	<b>Location/ Area</b>	<b>Coordinates</b>	<b>Incineration %</b>
	15)		
<b>16)</b>	<b>Financial Details</b>		
	Development Budget		
	Non-development budget		
	Operational and Maintenance costs/ year		
	Salaries of staff in SWM (Mgmt. + Office)		
	User Charges /fees/fines		
	Revenue from User charges/fees/fines		
<b>17)</b>	<b>Private Sector Participation In SWM</b>		
	Any Private Sector Involved? (if yes, then please explain briefly, along with areas covered)		
<b>18)</b>	<b>SWM during Festivals (especially on Eid-ul-Adha)</b>		
	No. of Collection points		
	Disposal arrangements		
	Extra Resources (HR + Mechanical)		
<b>19)</b>	<b>Details of Fruit Mandi and Slaughter House</b>		
	<b>FRUIT &amp; VEG MANDI</b>		<b>SLAUGHTERHOUSE</b>
	Total No		Total No.
	Daily Waste Gen (T)		Daily Waste Gen (T)
	Collection Efficiency		Collection Efficiency
	Collection/Transport Mechanism		Collection/Transport Mechanism
			No. Number of Animals Slaughtered per Day
			Quantity of Large & Small animals
	20)		
21)	Type of waste		
22)	Any MRF or treatment facility		
<b>23)</b>	<b>Resource Recovery</b>		
	How much MSW is sorted by the formal sector for recovery? (T/d)		

	How much MSW is sorted by the informal sector for recovery? (T/D)							
	Any MRF Facility Available?							
24)	<b>Existing Mechanical Resource</b>							
Machinery Name	Machine Type	Volumetric Capacity (m <sup>3</sup> )	No. of Trips/day	Fuel type (Diesel/HSD/Petrol)	Avg distance travelled to dumpsite (Km)	Mileage per liter (per trip)	Average fuel consumption/Trip	
							City	Dumpsite
25)	<b>Existing Human Resource (Office &amp; Field Staff)</b>							
Sr. No	Position			No's	Employment status (Reg/D. W)			
26)	<b>Organogram (Attachment)</b>							

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**Annex-1(B): Solid Waste Management Performance Matrix for Service Providers**

<b>Problem</b>	<b>Very Serious</b>	<b>Serious</b>	<b>Not So Serious</b>	<b>No Problem</b>
1. Do you think that the door-to-door municipal waste collection system issue is:				
2. Lack of authority to make a financial and administrative decision				
3. Lack of financial resources				
4. Lack of trained personnel				
5. Lack of vehicles				
6. Lack of equipment				
7. Old vehicle/equipment frequently breaks down				
8. Difficult to obtain spare parts				
9. Lack of capability to maintain/repair vehicle/equipment				
10. No standardization of vehicle/equipment				
11. No proper institutional set-up for solid waste management service				
12. Lack of legislation				
13. Lack of enforcement measures and capability				
14. Lack of planning (short, medium, and long-term plans)				
15. Rapid urbanization outstrips service capacity				
16. Uncontrolled proliferation of squatter settlements				
17. Difficult to locate and acquire a landfill site				
18. Difficult to obtain cover material				
19. Poor cooperation by Government agencies				

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20. Poor public cooperation				
21. Uncontrolled use of packaging material				
22. Poor response to waste minimization (reuse/recycling)				
23. Lack of qualified private contractors				
24. Difficult to control contractual service				
25. Lack of control on hazardous waste				
26. Others				

\*Note: The survey form can be amended according to the situation or for further betterment.

#### Generalized Asset Condition Assessment Framework

Rating	Asset Condition	Description
<b>A</b>	<b>Excellent</b>	No noticeable defects. Some aging or wear may be visible
<b>B</b>	<b>Good</b>	Only minor deterioration or defects are evident
<b>C</b>	<b>Fair</b>	Some deterioration or defects are evident, but function is not significantly affected
<b>D</b>	<b>Poor</b>	Serious deterioration in at least some portion of the structure. Function is inadequate
<b>F</b>	<b>Failing</b>	No longer functional. General failure or complete failure of a major structural component

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## Annex-1 (C): Consumer Satisfaction & Perception Survey

Name of the Participant: \_\_\_\_\_

Contact Number: \_\_\_\_\_

Family Members: \_\_\_\_\_

<b>Problem</b>	<b>Bad (1)</b>	<b>Satisfactory (2)</b>	<b>Good (3)</b>	<b>Excellent (4)</b>
1. What is the SWM service quality in the Area?				
2. What is the street sweeping condition in your area?				
3. What is the condition of waste collection in your area?				
4. What is the condition of waste collection vehicles entering your area?				
5. How is the condition of your area's Mechanical/Manual sweeping of main roads?				
6. Are you paying for SWM services? 7. How much are you paying for the services of solid waste? (If yes)	Yes. No Amount in PKR/Month: _____ Area of plot: _____ Commercial shops charges: _____			
8. Are you willing to pay more if services will be improved in your area?	Yes. No If Yes then how much: _____			
9. Are you aware about the recycling practices of Solid Waste?	Yes. No			
10. Are you involved in SWM recycling Activities?	Yes. No If Yes then at which level: <input type="checkbox"/> Household <input type="checkbox"/> Community <input type="checkbox"/> Commercial			

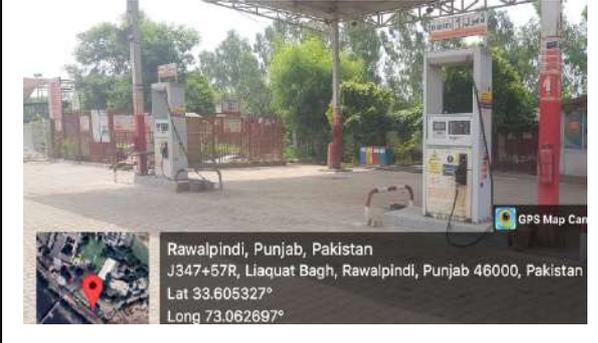
11. Do you want waste sorting and recycling activities in your area?	Yes. No
12. Are you aware that waste recycling activities can reduce GHG emissions or save the Environment?	Yes. No



**ANNEXURE-2**

**Survey Photo Log**

**RAWALPINDI DIVISION**

<b>Rawalpindi District</b>	
<b>Rawalpindi Tehsil</b>	
<b>MC/WMC Office</b>	<b>Parking Yards</b>
 <p>Rawalpindi, Punjab, Pakistan Iran Road, Rawalpindi, Punjab, Pakistan Lat 33.639273, Long 73.078174 12/26/2024 11:42 AM GMT+05:00 Note: Captured by GPS Map Camera</p>	 <p>Rawalpindi, Punjab, Pakistan J346+9X6, Liaquat Bagh, Rawalpindi, Punjab 46000, Pakistan Lat 33.605444° Long 73.062498°</p>
<b>Workshop</b>	<b>Temporary Collection Points/Transfer Station</b>
 <p>Rawalpindi, Punjab, Pakistan J346+8MR, Liaquat Bagh, Rawalpindi, Punjab 46000, Pakistan Lat 33.605912° Long 73.061676°</p>	 <p>Rawalpindi, Punjab, Pakistan J347+57R, Liaquat Bagh, Rawalpindi, Punjab 46000, Pakistan Lat 33.605207° Long 73.062768°</p>
<b>Petrol/Diesel Station</b>	<b>Fleet Office</b>
 <p>Rawalpindi, Punjab, Pakistan J347+57R, Liaquat Bagh, Rawalpindi, Punjab 46000, Pakistan Lat 33.605327° Long 73.062697°</p>	 <p>Rawalpindi, Punjab, Pakistan J346+9X6, Liaquat Bagh, Rawalpindi, Punjab 46000, Pakistan Lat 33.605444° Long 73.062226°</p>

## Waste Characterization



## Kahuta Tehsil

### MC/WMC Office



### Parking Yards



### Workshops



### Temporary Collection Points (TCPs)



## TCPs



## Kellar Saidan Tehsil

### MC/WMC Office



### Parking Yards



### Workshops



### Temporary Collection Points (TCPs)



## Gujar Khan Tehsil

### MC/WMC Office



### Parking Yards



### Temporary Collection Points (TCPs)/Transfer Station (TS)



## Kotli Sattian Tehsil

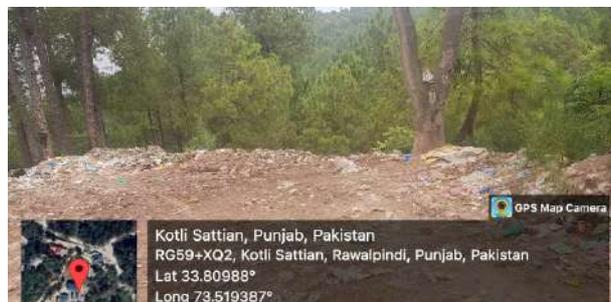
### MC/WMC Office



### Parking Yards/Workshop



### Temporary Collection Points (TCPs)



**Attock District**

**Attock Tehsil**

**Temporary Collection Points (TCP)/  
Transfer Station**

**Dumpsites**



**MC/WMC Office/ Parking Yards**

**Waste Characterization**



**Fateh Jang Tehsil**

**MC/WMC Office**

**Parking Yards**



Unofficial Dumping Sites	TCPs
 <p>Fateh Jang, Punjab, Pakistan            Unnamed Road, Attock, Punjab, Pakistan            Lat 33.530278°            Long 72.663247°</p>	 <p>Fateh Jang, Punjab, Pakistan            HJ8R+VW2, Railway Station Rd, Fateh Jang, Attock, Punjab, Pakistan            Lat 33.567091°            Long 72.642096°</p>

**Hassan Abdal Tehsil**

MC/WMC Office	Parking Yards
 <p>Hassan Abdal, Punjab, Pakistan            RM8P+VX3, Islam Shaheed Rd, Hassan Abdal, Attock, Punjab, Pakistan            Lat 33.81712°            Long 72.687195°</p>	 <p>Hassan Abdal, Khyber Pakhtunkhwa, Pakistan            Hassan Abdal Bus Stand, Hassan Abdal, Attock, Khyber Pakhtunkhwa, Pakistan            Lat 33.817072°            Long 72.686706°</p>

Workshop	Temporary Collection Points (TCP)
 <p>Hassan Abdal, Khyber Pakhtunkhwa, Pakistan            Hassan Abdal Bus Stand, Hassan Abdal, Attock, Khyber Pakhtunkhwa, Pakistan            Lat 33.816697°            Long 72.686784°</p>	 <p>Hassan Abdal, Punjab, Pakistan            Bafahad Road, Hassan Abdal, Attock, Punjab, Pakistan            Lat 33.839506°            Long 72.700588°</p>

**Dumping Sites**

 <p>Hassan Abdal, Punjab, Pakistan            Bafahad Road, Hassan Abdal, Attock, Punjab, Pakistan            Lat 33.838524°            Long 72.700423°</p>
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### Hazro Tehsil

#### MC/WMC Office



#### Parking Yards/Workshop



### Temporary Collection Points (TCP)

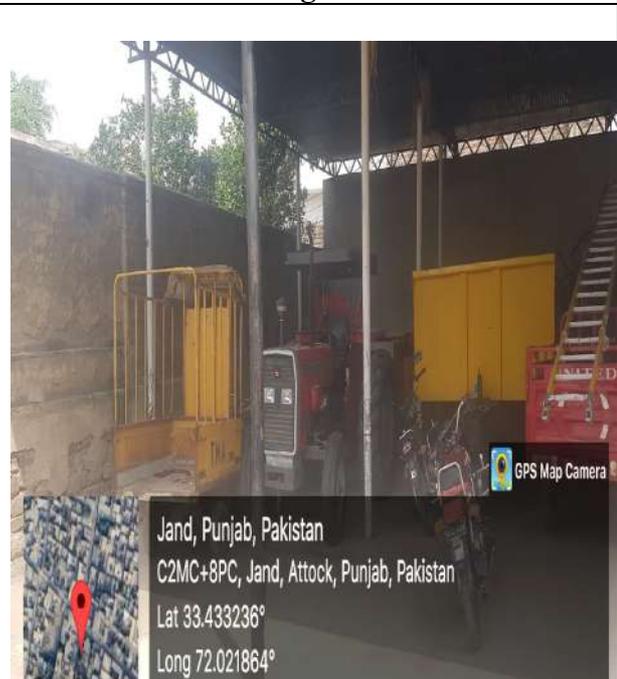


### Jand Tehsil

#### MC/WMC Office



#### Parking Yards



Workshops	Unofficial Dumping Sites
 <p>Jand, Punjab, Pakistan C2MC+8PC, Jand, Attock, Punjab, Pakistan Lat 33.433236° Long 72.021864°</p>	 <p>Jand, Punjab, Pakistan Jand - Pindi Gheb Rd, Attock, Punjab, Pakistan Lat 33.372076° Long 72.091441°</p>

**TCPS**

 <p>Jand, Punjab, Pakistan C2P7+PP6, Jand, Attock, Punjab, Pakistan Lat 33.43686° Long 72.014306°</p>
--

**Pindi Gheb Tehsil**

MC/WMC Office	Parking Yards/Workshops
 <p>Pindigheb, Punjab, Pakistan 67XC+9R9, Ward 1, Pindigheb, Attock, Punjab, Pakistan Lat 33.248539° Long 72.272112°</p>	 <p>Pindigheb, Punjab, Pakistan 67R9+M4X, Police Station Road, Pindigheb, Attock, Punjab, Pakistan Lat 33.242078° Long 72.267732°</p>

Temporary Collection Points (TCPs)	Dumping Sites
 <p> <b>GPS Map Camera</b>            Pindigheb, Punjab, Pakistan            7727+PP5, Gulzarabad, Pindigheb, Attock, Punjab, Pakistan            Lat 33.261797°            Long 72.264819°         </p>	 <p> <b>GPS Map Camera</b>            Jand, Punjab, Pakistan            Jand - Pindi Gheb Rd, Attock, Punjab, Pakistan            Lat 33.372076°            Long 72.091441°         </p>

**Chakwal District**

**Chakwal Tehsil**

TMA Office	Parking Yards
 <p> <b>GPS Map Camera</b>            Chakwal, Punjab, Pakistan            WVP4+5MM, Chakwal, Punjab, Pakistan            Lat 32.935471°            Long 72.856328°         </p>	 <p> <b>GPS Map Camera</b>            Chakwal, Punjab, Pakistan            Unnamed Road, Chakwal, Punjab, Pakistan            Lat 32.911024°            Long 72.890982°         </p>

Unofficial Dumping Sites	Waste Characterization
 <p> <b>GPS Map Camera</b>            Chakwal, Punjab, Pakistan            Unnamed Road, Chakwal, Punjab, Pakistan            Lat 32.911024°            Long 72.890982°         </p>	 <p> <b>GPS Map Camera</b>            --, Punjab, Pakistan            Sotawa-Chakwal Road, Punjab, Pakistan            Lat 32.915612, Long 72.867189            01/09/2025 10:48 AM GMT+05:00            Note - Captured by GPS Map Camera         </p>

### TCP



### Choa Saidan Shah Tehsil

#### TMA Office



#### Parking Yards



#### Dumpsites



#### TCP



## Kallar Kahar Tehsil

### TMA Office



### Parking Yards



### Unofficial Dumping Sites



### TCP



**Jhelum District**

**Jhelum Tehsil**

**Temporary Collection Points (TCP)**



**WMC/MC Office**



**Dumpsites**



**Parking Yards**



**Waste Characterization**



**Dina Tehsil**

**TMA Office**



**Parking Yard**



**Unofficial Dumping sites**



**TCP**



**Sohawa Tehsil**

**TMA Office**



**Parking Yards**



**Unofficial Dumping Sites**



**TCP**



**Talagang District**

**Talagang Tehsil**

**Temporary Collection Points (TCP)**



**MC/WMC Office**



**Parking Yards**



**Waste Characterization**



**Dumping Sites**



## Bahawalpur Division

## Bahawalpur District

## Bahawalpur Tehsil

### Temporary Collection Points (TCP)



### Dumpsites



### WMC/MC Office



### Parking Yards



### Waste Characterization



**Bahawalnagar District**

**Bahawalnagar Tehsil**

**Temporary Collection Points (TCP)/Transfer Station (TS)**

**Dumpsites**



**Contractor Office**

**Parking Yards**



**Waste Characterization Study**



**Chishtian Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p> <b>Chishtian Sharif, Punjab, Pakistan</b>                      Qvv9+x29, Taj Colony Chishtian Sharif, Pakistan,                      Chishtian Sharif, Punjab, Pakistan                      Lat 29.794855° Long 72.867868°                      26/02/25 GMT +05:00                 </p>	 <p> <b>Chishtian, Punjab, Pakistan</b>                      Qaziwala Haroonabad Rd, Pakistan, Chishtian, Punjab,                      Pakistan                      Lat 29.764204° Long 72.892707°                      26/02/25 GMT +05:00                 </p>

Contractor Office	Parking Yards
 <p> <b>Chishtian, Punjab, Pakistan</b>                      Rv8p+6fr Family Park, Pakistan, Chishtian, Punjab,                      Pakistan                      Lat 29.816387° Long 72.885613°                      26/02/2025 09:58 AM GMT +05:00                 </p>	 <p> <b>Chishtian, Punjab, Pakistan</b>                      Qr1w+Gmx Bahawalpur - Bahawalnagar Rd, Chishtian,                      Punjab, Pakistan                      Lat 29.793157° Long 72.849197°                      26/02/25 GMT +05:00                 </p>

**Fort Abbas Tehsil**

Dumpsites/Parking Yard	MC/WMC Office
 <p> <b>Fort Abbas, Punjab, Pakistan</b>                      Fort Abbas, Punjab, Pakistan                      Lat 29.182702° Long 72.845357°                      25/02/2025 04:05 PM GMT +05:00                 </p>	 <p> <b>Fort Abbas, Punjab, Pakistan</b>                      8r3k+YnS, Fort Abbas, Punjab, Pakistan                      Lat 29.199802° Long 72.849074°                      25/02/2025 04:22 PM GMT +05:00                 </p>

**TCP**

 <p> <b>Fort Abbas, Punjab, Pakistan</b>                      5vF5+727, Muhallah Line Par Fort Abbas, Pakistan,                      Fort Abbas, Punjab, Pakistan                      Lat 29.191256° Long 72.856665°                      25/02/2025 03:55 PM GMT +05:00                 </p>
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<b>Haroonabad Tehsil</b>	
<b>Temporary Collection Points (TCP)</b>	<b>Dumpsites/Parking</b>
 <p style="text-align: center;"> <small>GPS Map Camera</small>            Haroonabad, Punjab, Pakistan            Haroonabad, Punjab, Pakistan            Lat 29.617365° Long 73.136687°            25/02/2025 02:22 PM GMT +05:00         </p>	 <p style="text-align: center;"> <small>GPS Map Camera</small>            Bahawalnagar, Punjab, Pakistan            Pakistan, Bahawalnagar, Punjab, Pakistan            Lat 29.645246° Long 73.163383°            26/02/2025 11:34 AM GMT +05:00         </p>
<b>MC/WMC Office</b>	
 <p style="text-align: center;"> <small>GPS Map Camera</small>            Haroonabad, Punjab, Pakistan            J42q+79h, Mian Town Haroonabad, Pakistan,            Haroonabad, Punjab, Pakistan            Lat 29.600686° Long 73.138456°            25/02/2025 12:46 PM GMT +05:00         </p>	
<b>Minchinabad Tehsil</b>	
<b>Contractor Office</b>	<b>Parking Yards</b>
 <p style="text-align: center;"> <small>GPS Map Camera</small>            Minchinabad, Punjab, Pakistan            5gqw+jxc, Pakistan, Minchinabad, Punjab,            Pakistan            Lat 30.18893° Long 73.547245°            26/02/2025 02:22 PM GMT +05:00         </p>	 <p style="text-align: center;"> <small>GPS Map Camera</small>            Minchinabad, Punjab, Pakistan            5gqw+jxc, Pakistan, Minchinabad, Punjab,            Pakistan            Lat 30.189109° Long 73.54721°            26/02/2025 02:09 PM GMT +05:00         </p>
<b>Dumpsites</b>	
 <p style="text-align: center;"> <small>GPS Map Camera</small>            Chishtian, Punjab, Pakistan            Qrvx+6mx, Bahawalpur - Bahawalnagar Rd, Chishtian,            Punjab, Pakistan            Lat 29.793212° Long 72.849182°            26/02/25 01:34 PM GMT +05:00         </p>	
<p>Correct Coordinates of Minchinabad Dumpsites 30.1533120, 73.6454330</p>	

# Rahim Yar Khan District

## Rahim Yar Khan Tehsil

### Temporary Collection Points (TCP)



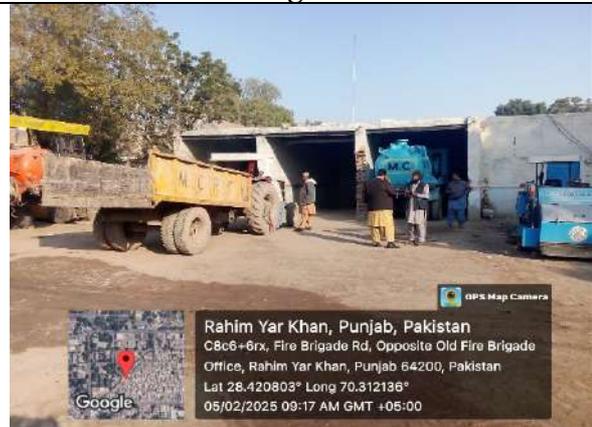
### Dumpsites



### MC/WMC Office



### Parking Yards



### Slaughter House



### Waste Characterization Study



**Khanpur Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>Khanpur, Punjab, Pakistan Mm22+4vp, Link Rd, Khanpur, Punjab, Pakistan Lat 28.650388° Long 70.652026° 02/07/25 GMT +05:00</p>	 <p>Khanpur, Punjab, Pakistan Mm22+4vp, Link Rd, Khanpur, Punjab, Pakistan Lat 28.650423° Long 70.651997° 02/07/25 GMT +05:00</p>

MC/WMC Office	Parking Yards/Workshop
	 <p>Khanpur, Punjab, Pakistan Jmw7+q5p Town Hall Khanpur, Khanpur, Punjab 54100, Pakistan Lat 28.646319° Long 70.663485° 02/07/25 GMT +05:00</p>

**Liaquat Pur Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>Liaquatpur, Punjab, Pakistan Wwpq+rvj, Liaquatpur, Punjab, Pakistan Lat 28.937222° Long 70.939889° 02/06/25 GMT +05:00</p>	 <p>Liaquatpur, Punjab, Pakistan Wxh9+rx7, Liaquatpur, Punjab, Pakistan Lat 28.927742° Long 70.971702° 02/06/25 GMT +05:00</p>

Contractor Office	Parking Yards
 <p>Liāqatpur, Punjab, Pakistan  Wwhv+4p9, Liāqatpur, Punjab, Pakistan  Lat 28.927863° Long 70.9443°  02/06/25 GMT +05:00</p>	 <p>Liāqatpur, Punjab, Pakistan  Wwhv+79r, Chak No 22 Rd, Liāqatpur, Punjab, Pakistan  Lat 28.923559° Long 70.94609°  02/06/25 GMT +05:00</p>

**Sadiqabad Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>Sadiqabad, Punjab, Pakistan  B45f+gcw, Opposite Ashraf Petrol Pump, Hussainabad, Sadiqabad, Punjab, Pakistan  Lat 28.308859° Long 70.123857°  04/02/2025 03:36 PM GMT +05:00</p>	 <p>Sadiqabad, Punjab, Pakistan  , Rahim Yar Khan, Punjab, Pakistan, Sadiqabad, Punjab, Pakistan  Lat 28.306168° Long 70.078432°  04/02/2025 03:16 PM GMT +05:00</p>

MC/WMC Office	Parking Yards/Workshop
 <p>Sadiqabad, Punjab, Pakistan  842m+8qr Tma, Sadiqabad, Punjab, Pakistan  Lat 28.300577° Long 70.134423°  04/02/2025 12:59 PM GMT +05:00</p>	 <p>Sadiqabad, Punjab, Pakistan  , Sadiqabad, Punjab, Pakistan  Lat 28.271939° Long 70.156934°  04/02/2025 03:58 PM GMT +05:00</p>

**Sargodha Division**

**Bhakkar District**

**Bhakkar Tehsil**

**Temporary Collection Points (TCP)/Transfer Station(TS)**

**Dumpsites**



**MC/WMC Office**

**Parking Yards**



**Waste Characterization**



## Darya Khan Tehsil

### Temporary Collection Points (TCP)



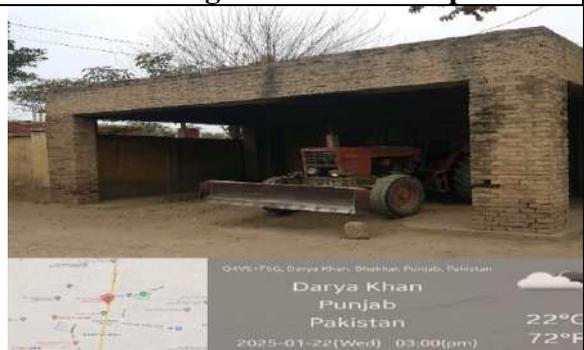
### Dumping Sites



### MC/WMC Office



### Parking Yards/Workshop



## Mankera Tehsil

### Temporary Collection Points (TCP)



### Dumpsites



### MC/WMC Office



### Parking Yards/Workshop



**Kallur Kot Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>GPS Map Camera Kallur Kot, Punjab, Pakistan 5756+735, Kallur Kot, Punjab, Pakistan Lat 32.157857° Long 71.260423° 24 January, 2025</p>	 <p>GPS Map Camera - Punjab, Pakistan Kallur Kot-Pelan Rd, Punjab, Pakistan Lat: 32.279180, Long 71.349155 01/17/2025 02:44 PM GMT+05:00 Note : Captured by GPS Map Camera</p>

**MC/WMC Office  
Parking Yards/Workshop**

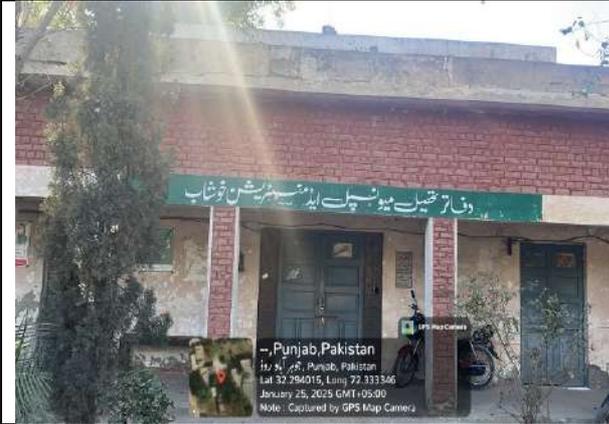


**Khushab District**

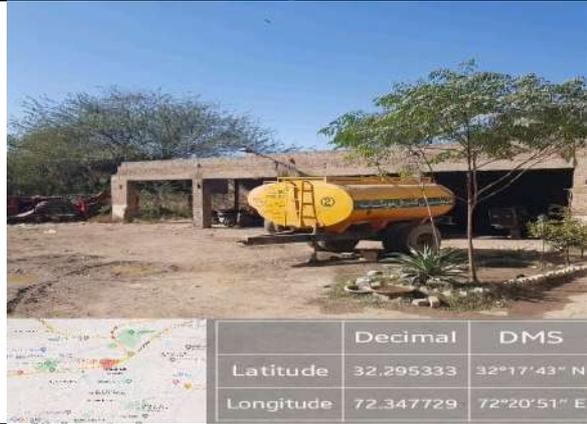
**Khushab Tehsil**

Temporary Collection Points (TCP)	Dumpsites									
 <table border="1"> <thead> <tr> <th></th> <th>Decimal</th> <th>DMS</th> </tr> </thead> <tbody> <tr> <td>Latitude</td> <td>32.295298</td> <td>32°17'43" N</td> </tr> <tr> <td>Longitude</td> <td>72.347902</td> <td>72°20'52" E</td> </tr> </tbody> </table>		Decimal	DMS	Latitude	32.295298	32°17'43" N	Longitude	72.347902	72°20'52" E	 <p>GPS Map Camera - Punjab Pakistan Khushab-Graf Road, Punjab, Pakistan Lat: 32.285463, Long 72.344266 January 23, 2025 GMT+05:00 Note : Captured by GPS Map Camera</p>
	Decimal	DMS								
Latitude	32.295298	32°17'43" N								
Longitude	72.347902	72°20'52" E								

**MC/WMC Office**



**Parking Yards**



**Waste Characterization**



**Naushehra Tehsil**

**Temporary Collection Points (TCP)**



**MC/WMC Office**



<b>Dumpsites</b>	<b>Parking Yards</b>
 <p>Naushehra, Punjab, Pakistan H49r+3vf, Naushehra, Khushab, Punjab, Pakistan Lat 32.567942° Long 72.141921° 26/01/25 12:25 PM GMT +05:00</p>	 <p>Naushehra, Punjab, Pakistan H49r+3vf, Naushehra, Khushab, Punjab, Pakistan Lat 32.567597° Long 72.142136° 26/01/25 12:24 PM GMT +05:00</p>

**Quaidabad Tehsil**

<b>Temporary Collection Points (TCP)</b>	<b>Dumpsites</b>
 <p>Gunjial, Punjab, Pakistan 8vpf+8wq, Quaidabad, Gunjial, Punjab , Pakistan Lat 32.336081° Long 71.87522°</p>	 <p>Gunjial, Punjab, Pakistan 8vqf+7q9, Quaidabad, Gunjial, Punjab , Pakistan Lat 32.326875° Long 71.874806°</p>

<b>Parking Yards</b>	<b>MC/WMC Office</b>
 <p>Quaidabad, Punjab, Pakistan Quaidabad, Punjab, Pakistan Lat 32.337655° Long 71.880877°</p>	 <p>Quaidabad, Punjab, Pakistan 8vpj+w6w, Quaidabad, Quaidabad, Punjab , Pakistan Lat 32.337655° Long 71.880877°</p>

**Noorpur Tehsil**

<b>Temporary Collection Points (TCP)</b>	<b>Dumpsites</b>
--	------------------



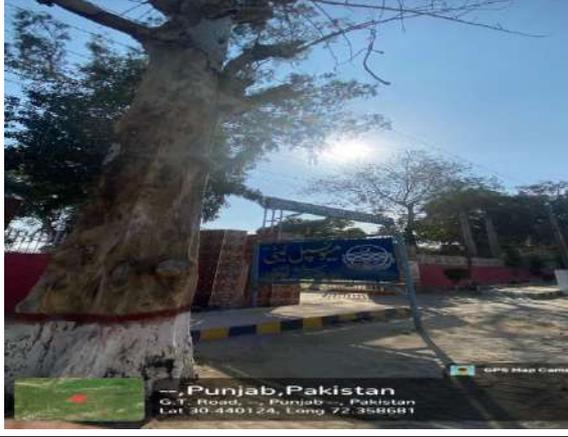
<b>MC/WMC Office</b>	<b>Parking Yards</b>
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**Mian Channu Tehsil**

<b>Temporary Collection Points (TCP)</b>	<b>Dumpsites</b>
--	------------------



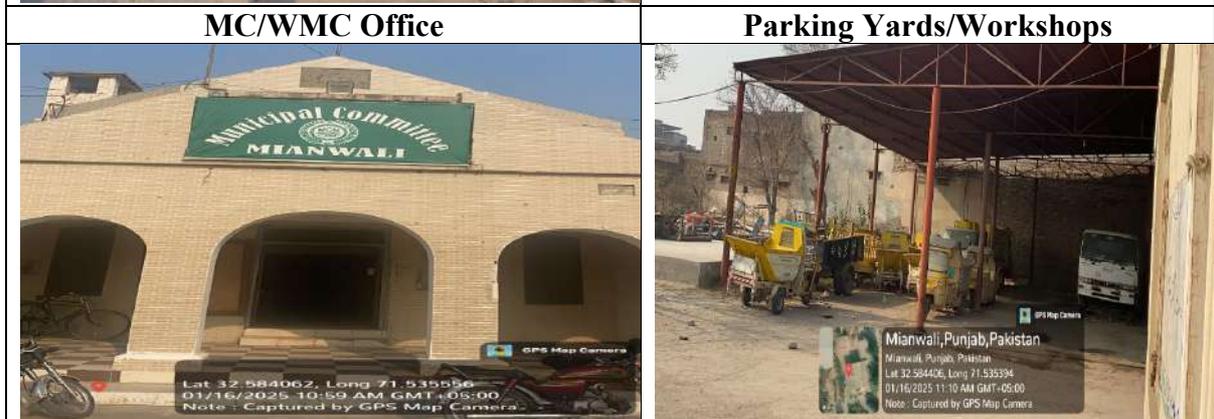
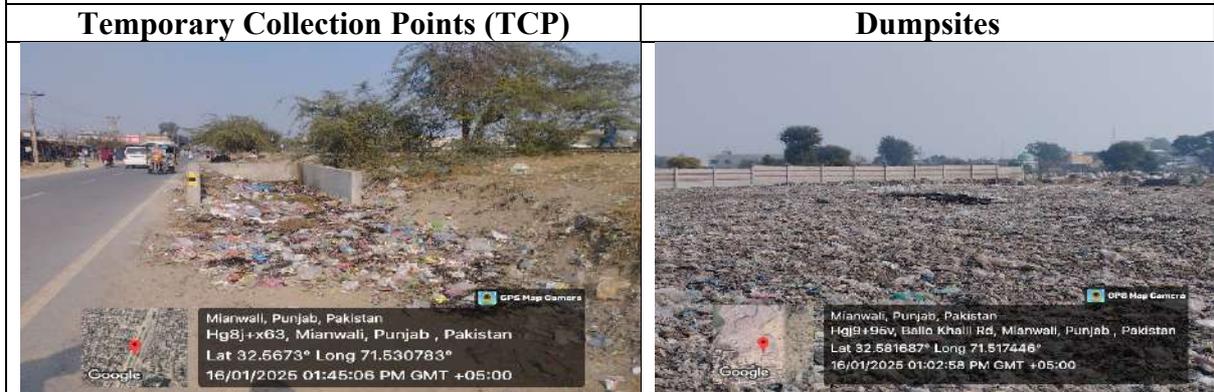
<b>MC/WMC Office</b>	<b>Parking Yards</b>
 <p style="text-align: center;">-- Punjab, Pakistan G.T. Road, -- Punjab --, Pakistan Lat 30.440124, Long 72.358681</p>	 <p style="text-align: center;">-- Punjab, Pakistan G.T. Road, -- Punjab --, Pakistan Lat 30.439589, Long 72.358748</p>
<b>Workshop</b>	
 <p style="text-align: center;">-- Punjab, Pakistan Pul Bazar, -- Punjab --, Pakistan Lat 30.639240, Long 72.358832</p>	
<b>Sargodha District</b>	
<b>Sargodha Tehsil</b>	
<b>Temporary Collection Points (TCPs)</b>	<b>Dumpsites</b>
 <p style="text-align: center;">Check in Sargodha, Punjab, Pakistan 3mj4+97v, Sargodha, Punjab, Pakistan Lat 32.080876° Long 72.65579° GMT +05:00</p>	 <p style="text-align: center;">Check in Sargodha, Punjab, Pakistan Chak - Khoonan Rd, Sargodha, Punjab, Pakistan Lat 32.047588° Long 72.55938° GMT +05:00</p>



**Waste Characterization**



**Mianwali District  
Mianwali Tehsil**



## Waste Characterization



## Esa Khel Tehsil

### Dumpsites



### TCPS



### MC/WMC Office



### Parking Yards



## Piplan Tehsil

### Dumpsites

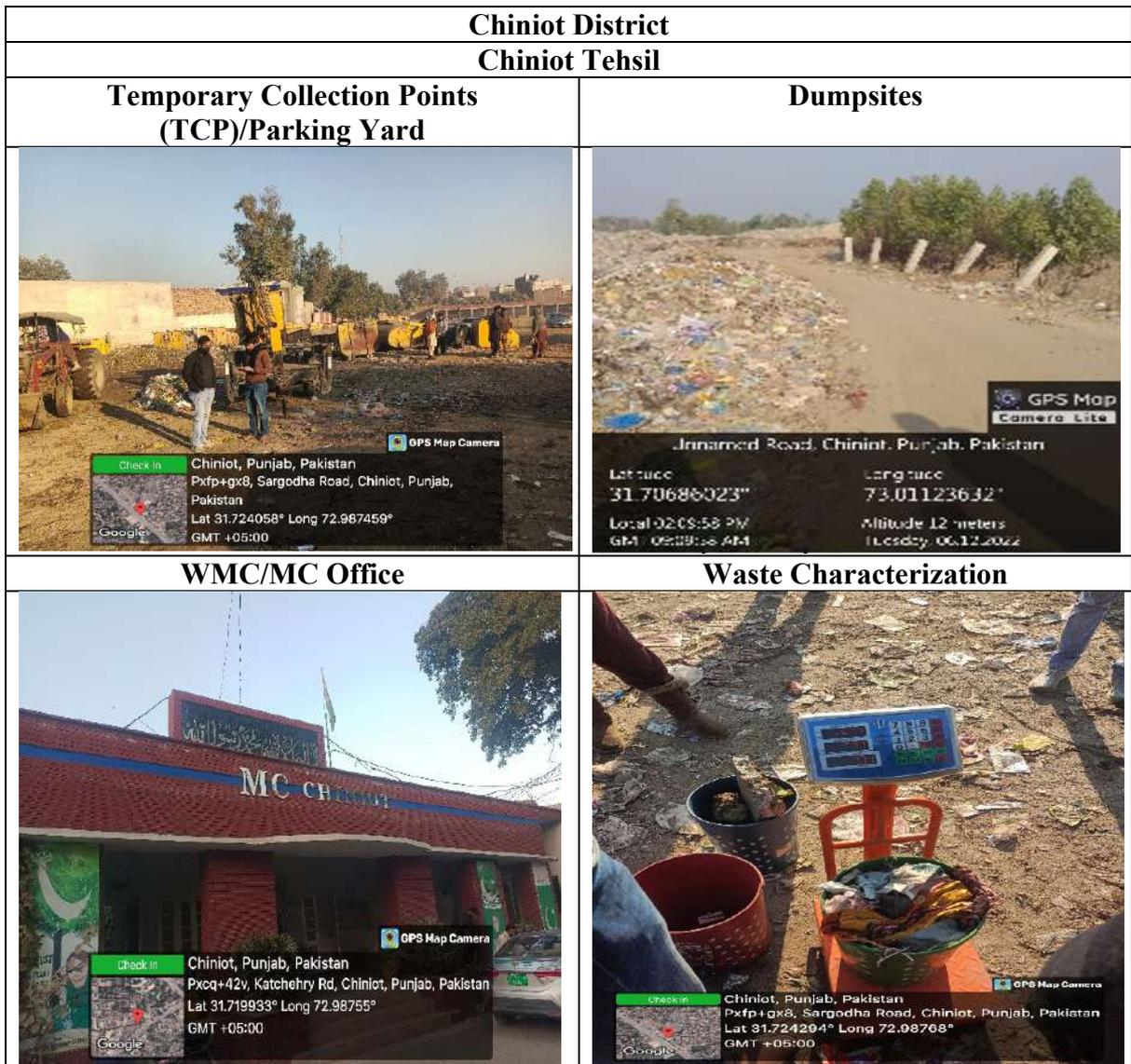


### TCP





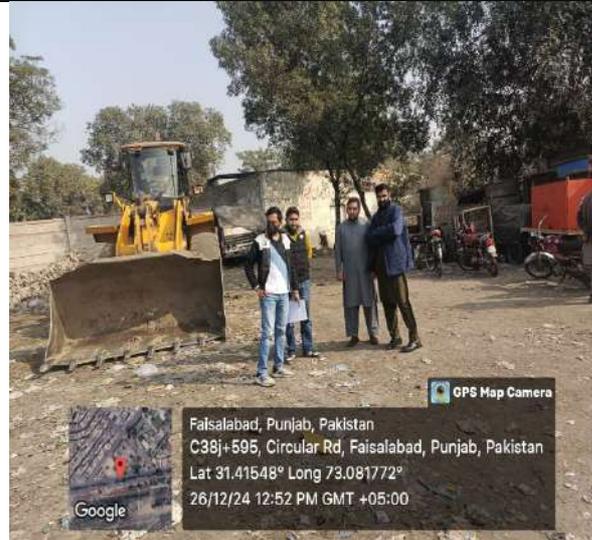
**FAISALABAD DIVISION**



**Faisalabad District**

**Faisalabad Tehsil**

**Temporary Collection Points (TCP)/  
Transfer Stations (TS)**



**Transfer Station 2**



**Workshops/Parking Yards**



**MC/WMC Office**





**Jhang District**

**Jhang Tehsil**



## Waste Characterization



## Toba Tek Singh District Toba Tek Singh Tehsil

### Temporary Collection Points (TCP)



### Dumpsites



### MC/WMC Office



### Parking Yards/Workshop



## Waste Characterization



## GUJRANWALA DIVISION

### Gujranwala District

### Gujranwala Tehsil

### Consultative meeting with the Operational team of Gujranwala Waste Management Company



MC/WMC Office



Transfer Station





**TCPs**



**Gujrat District  
Gujrat Tehsil**



### TCP 2



### MC/WMC Office



### Parking Yard/Workshop



### Parking Yard 2

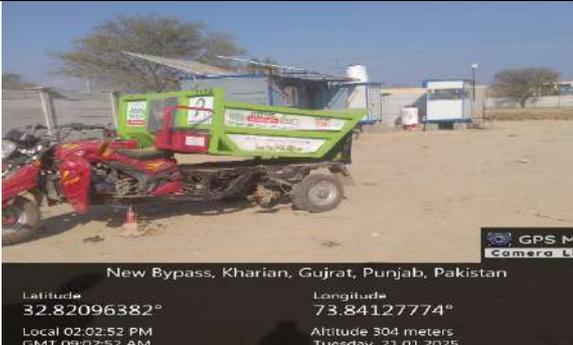


### Waste Characterization



## Kharian Tehsil

Temporary Collection Points (TCP)	Dumpsites
 <p style="text-align: center;">New Bypass, Kharian, Gujrat, Punjab, Pakistan</p> <p>Latitude: 32.82085058°      Longitude: 73.84104992°                      Local 02:02:09 PM      Altitude 304 meters                      GMT 09:02:09 AM      Tuesday, 21.01.2025</p>	 <p style="text-align: center;">Rehmania Road, Gujrat, Punjab, Pakistan</p> <p>Latitude: 32.56273406°      Longitude: 74.02401574°                      Local 12:15:06 PM      Altitude 233 meters                      GMT 07:15:06 AM      Tuesday, 21.01.2025</p>

MC/WMC Office	Parking Yards/Workshop
 <p style="text-align: center;">RV77+G6C, Kharian, Gujrat, Punjab, Pakistan</p> <p>Latitude: 32.81411515°      Longitude: 73.86332929°                      Local 01:37:04 PM      Altitude 292 meters                      GMT 08:37:04 AM      Tuesday, 21.01.2025</p>	 <p style="text-align: center;">New Bypass, Kharian, Gujrat, Punjab, Pakistan</p> <p>Latitude: 32.82096382°      Longitude: 73.84127774°                      Local 02:02:52 PM      Altitude 304 meters                      GMT 09:02:52 AM      Tuesday, 21.01.2025</p>

## Jalalpur Jattan Tehsil

Temporary Collection Points (TCP)	Dumpsites
 <p style="text-align: center;">Jalalpur Jattan, Punjab, Pakistan                      M53R+8F9 Sabzi Mandi Entrance, Kharian - Jalalpur Jattan Rd, Jalalpur Jattan, Gujrat, Punjab, Pakistan                      Lat 32.863481° Long 74.191216°                      GMT +06:00</p>	 <p style="text-align: center;">Rehmania Road, Gujrat, Punjab, Pakistan</p> <p>Latitude: 32.56273406°      Longitude: 74.02401574°                      Local 12:15:06 PM      Altitude 233 meters                      GMT 07:15:06 AM      Tuesday, 21.01.2025</p>

### Parking Yards



### Kunjah Tehsil

#### Temporary Collection Points (TCP) / Transfer Stations (TS)/Parking Yard



#### Dumpsites



### MC/WMC Office



**Wazirabad District**

**Wazirabad Tehsil**

**MC/WMC Office**



**Parking Yards**



**Dumpsites**



**Waste Characterization Study**



**Ghakar Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office/Parking Yards/Workshops**



**Alipur Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**Parking Yards**



## Hafizabad District

### Hafizabad Tehsil

#### Temporary Collection Points (TCP)



#### Dumpsites



#### MC/WMC Office



#### Parking Yards/Workshops



#### Waste Characterization



**Pindi Bhattian Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards**



**Mandi Bahauddin District**

**Mandi Bahauddin Tehsil**

**Temporary Collection Points (TCP)**

**Dumpsites**



**MC/WMC Office**

**Parking Yards**



**Waste Characterization Study**



**Phalia Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards/Workshop**



**Gujranwala Division but Falls under Sialkot SWMC**

**Narowal District**

**Narowal Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards**



**Waste Characterization (Day 1)**



**Zafarwal Tehsil**

**Dumpsites**



**Contractor Office**



**Parking Yards**



**Shakargarh Tehsil**

**Dumpsites**



**MC/WMC Office**



**Parking Yards**



**Sialkot District**

**Sialkot Tehsil**

**Consultative meeting with Operational team Sialkot Waste Management Company**



**Temporary Collection Points TCP**



**Waste Characterization**



<b>MC/WMC Office</b>	<b>Parking Yard/Workshop</b>
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<b>Sambrial Tehsil</b>	
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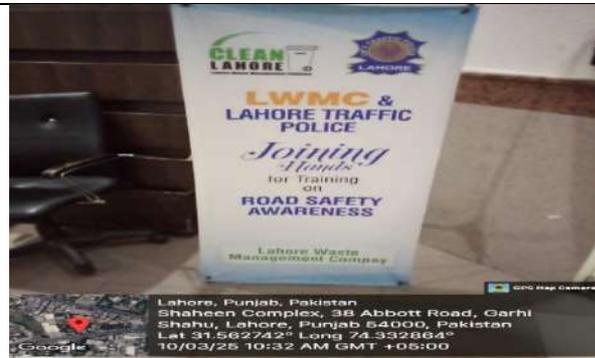
<b>TCP</b>	<b>Dumpsites</b>
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<b>MC/WMC Office/Parking Yards</b>	
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## LAHORE DIVISION

Lahore District Lahore Tehsil	
Temporary Collection Points (TCPs)	Dumpsites
 <p style="text-align: center;">Lahore, Punjab, Pakistan C99h+2r4, Kamahon - Lidher rd, Kamahon Village, Lahore, Punjab, Pakistan Lat 31.435043° Long 74.379443° 18/02/2025 02:11 PM GMT +06:00</p>	 <p style="text-align: center;">Long 31.60821 Lat 74.37982</p>
LWMC Office	Workshop
 <p style="text-align: center;">Lahore, Punjab, Pakistan Shaheen Complex, 38 Abbott Road, Garhi Shahu, Lahore, Punjab 54000, Pakistan Lat 31.562742° Long 74.332864° 10/03/25 10:32 AM GMT +05:00</p>	 <p style="text-align: center;">Long 31.342289 Lat 74.173256</p>
Workshop 2	Workshop 3
 <p style="text-align: center;">Long 31.57355 Lat 74.28782</p>	 <p style="text-align: center;">Long 31.47783 Lat 73.34472</p>
Workshop 4	Waste Characterization
 <p style="text-align: center;">Long 31.274927 Lat 74.133154</p>	 <p style="text-align: center;">Lahore, Punjab, Pakistan C9hm+29m, Aashiana-e-Quaid Housing Scheme, Lahore, Punjab, Pakistan Lat 31.42756° Long 74.383489° 02/19/25 GMT +05:00</p>



Long 31.61082 Lat 74.38294

MRF(Material Recovery Facility) Plant

**Kasur District**

**Kasur Tehsil**

**Temporary Collection Points  
(TCP)/Transfer Station (TS)**

**Dumpsites**



3CXG+XX9, Kasur, Punjab, Pakistan

Latitude  
31.1001744°  
Local 10:03:49 AM  
GMT 05:03:49 AM

Longitude  
74.4266861°  
Altitude 204 meters  
Friday, 17.01.2025



Water Treatment Plant Rd, Kasur, Punjab, Pakistan

Latitude  
31.08493652°  
Local 10:30:11 AM  
GMT 05:30:11 AM

Longitude  
74.47861628°  
Altitude 198 meters  
Friday, 17.01.2025

**MC/WMC Office**

**Parking Yards**



Water Treatment Plant Rd, Kasur, Punjab, Pakistan

Latitude  
31.1159782°  
Local 11:23:49 AM  
GMT 06:23:49 AM

Longitude  
74.4668636°  
Altitude 198 meters  
Friday, 17.01.2025



4F93+VQ5, Tariq Colony, Kasur, Punjab, Pakistan

Latitude  
31.11921762°  
Local 11:33:02 AM  
GMT 06:33:02 AM

Longitude  
74.45477438°  
Altitude 207 meters  
Friday, 17.01.2025

### Waste Characterization



### Chunian Tehsil

#### Temporary Collection Points (TCP)/Transfer Station (TS)



#### Dumpsites



### MC/WMC Office



**Pattoki Tehsil**

**Temporary Collection Points (TCP)/Transfer Station (TS)**



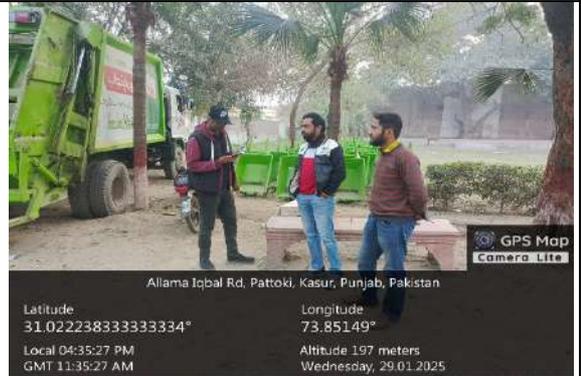
**Dumpsites**



**Parking Yards**



**MC/WMC Office**



**Nankana Sahib District**

**Nankana Sahib Tehsil**

**Temporary Collection Points (TCP)**

**Dumpsites**



**MC/WMC Office**

**Parking Yards**



**Waste Characterization**



**Tehsil Shahkot**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards**



**Sheikhupura District**

**Sheikhupura Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



MC/WMC Office	Parking Yards/Workshop
 <p>PX93+H94, Rana Street, Nabipura, Sheikhupura, Punjab, Pakistan</p> <p>Latitude: 31.719125000000002° Longitude: 73.95341166666667°  Local 10:45:13 AM Altitude 213 meters  GMT 05:45:13 AM Thursday, 30.01.2025</p>	 <p>MXR8+68J, Sheikhupura, Punjab, Pakistan</p> <p>Latitude: 31.690346666666663° Longitude: 73.96559833333335°  Local 12:14:54 PM Altitude 209 meters  GMT 07:14:54 AM Thursday, 30.01.2025</p>

### Waste Characterization Study

 <p>Dawat-e-Islami Masjid, Allama Iqbal Park, Sheikhupura, Punjab, Pakistan</p> <p>Latitude: 31.707454999999996° Longitude: 73.98452999999999°  Local 10:44:27 AM Altitude 209 meters  GMT 05:44:27 AM Friday, 31.01.2025</p>	
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### Ferozewala Tehsil

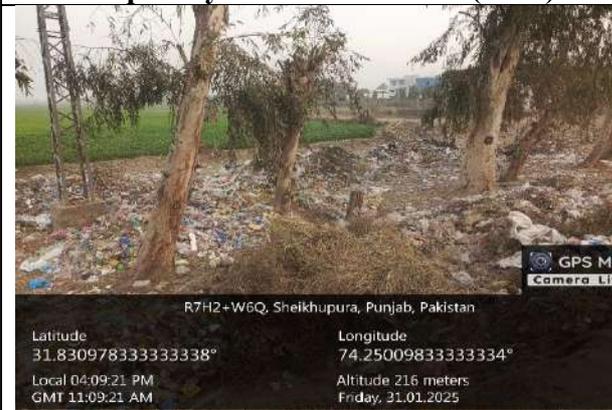
Temporary Collection Points (TCP)	Dumpsites
 <p>Kot Abdul Malik, Punjab, Pakistan  J6cv+5gg, Kot Abdul Malik, Sheikhupura, Punjab, Pakistan  Lat 31.620823° Long 74.244585°  31/01/25</p>	 <p>Ferozewala, Punjab, Pakistan  M74j-7rq, Gt Rd, Rachnia Town Ferozewala, Lahore, Punjab, Pakistan  Lat 31.655683° Long 74.282297°  31/01/25</p>

### Parking Yards



### Muridke Tehsil

#### Temporary Collection Points (TCP)



#### TCP 2



#### MC/WMC Office



#### Parking Yards



Dumpsites	Workshop
 <p> <b>Muchtaq Park Rd, Muridke, Sheikhupura, Punjab, Pakistan</b>            Latitude: 31.788823333333333° Longitude: 74.26651166666667°            Local 04:29:19 PM Altitude 213 meters            GMT 11:29:19 AM Friday, 31.01.2025         </p>	 <p> <b>R763+R84, Mohalla Dhaban Pura Rehmanpura, Muridke, Sheikhupura, Punjab, Pakistan</b>            Latitude: 31.812421666666667° Longitude: 74.25346833333333°            Local 04:14:15 PM Altitude 218 meters            GMT 11:14:15 AM Friday, 31.01.2025         </p>



**Sharaqpur Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p> <b>Sehjowal, Punjab, Pakistan</b>            F4hc+mrc, Jaranwala Road, Sehjowal, Sheikhupura, Punjab, Pakistan            Lat 31.480982° Long 74.119087°            30/01/26 05:10 PM GMT +05:00         </p>	 <p> <b>Unnamed Road, Sheikhupura, Punjab, Pakistan</b>            Latitude: 31.534423333333333° Longitude: 74.113205000000001°            Local 05:33:25 PM Altitude 203 meters            GMT 12:33:25 PM Thursday, 30.01.2025         </p>

## Parking Yards



F4HC+MRC, Lahore-Jaranwala Rd, Sehjowal, Sheikhupura, Punjab, Pakistan

Latitude  
31.479575°

Local 05:07:16 PM  
GMT 12:07:16 PM

Longitude  
74.11933°

Altitude 206 meters  
Thursday, 30.01.2025

## Safdar Abad Tehsil

### Temporary Collection Points (TCP)



Dhaban Lalanwala Tonga Stand, DK-03 Dhaban Lalanwala Road, Safdarabad, Nankana Sahib, Punjab, Pakistan

Latitude  
31.731358333333333°

Local 02:53:59 PM  
GMT 09:53:59 AM

Longitude  
73.57251666666666°

Altitude 201 meters  
Thursday, 30.01.2025

### Dumpsites



HPMX+Q64, Taali Chak, Sheikhupura, Punjab, Pakistan

Latitude  
31.689993333333337°

Local 01:31:23 PM  
GMT 08:31:23 AM

Longitude  
73.57844666666666°

Altitude 204 meters  
Thursday, 30.01.2025

### MC/WMC Office



PHHF+FFF, Lalanwala Abdullahpur Bypass Road, Safdarabad, Nankana Sahib, Punjab, Pakistan

Latitude  
31.728783333333332°

Local 01:49:06 PM  
GMT 08:49:06 AM

Longitude  
73.57351166666666°

Altitude 203 meters  
Thursday, 30.01.2025

### Proposed Dumpsites



PJWC+8P7, Safdarabad, Nankana Sahib, Punjab, Pakistan

Latitude  
31.744886666666667°

Local 03:09:09 PM  
GMT 10:09:09 AM

Longitude  
73.623955°

Altitude 201 meters  
Thursday, 30.01.2025

**DG Khan Division**

**Kot Addu District**

**Kot Addu Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>Kot Addu, Punjab, Pakistan Fx87-p78, Circular Rd, Ward Number 14e Kot Addu, Muzaffargarh, Punjab, Pakistan Lat 30.466951° Long 70.962968° 21/01/25 01:27 PM GMT +05:00</p>	 <p>Kot Addu, Punjab, Pakistan Cx99+r8j, Kot Addu, Muzaffargarh, Punjab, Pakistan Lat 30.428612° Long 70.967917° 21/01/25 01:12 PM GMT +05:00</p>
MC/WMC Office	Parking Yards/Workshops
 <p>Kot Addu, Punjab, Pakistan Fx97+j9g, Railway Road, Ward Number 14e Kot Addu, Muzaffargarh, Punjab, Pakistan Lat 30.469168° Long 70.963413° 21/01/25 09:22 AM GMT +05:00</p>	 <p>Kot Addu, Punjab, Pakistan Fx87+mxj Iqbal Park, Ward Number 14e Kot Addu, Muzaffargarh, Punjab, Pakistan Lat 30.46669° Long 70.964999° 21/01/25 12:09 PM GMT +05:00</p>
Waste Characterization	
 <p>Kot Addu, Punjab, Pakistan Fx6c+3f7, Mandi Mevashi Road, Kot Addu, Muzaffargarh, Punjab 34050, Pakistan Lat 30.460147° Long 70.971384° 22/01/25 12:26 PM GMT +05:00</p>	

### Chowk Sarwar Shaheed Tehsil

#### Temporary Collection Points (TCP)



#### Dumpsites



#### MC/WMC Office



#### Parking Yards



**Dera Ghazi Khan District**

**Dera Ghazi Khan Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards/Workshop**



**Waste Characterization (Day 1)**



**Waste Characterization (Day 2)**



### Kot Chutta Tehsil

#### Temporary Collection Points (TCP)



#### Dumpsites



#### MC/WMC Office/Parking Yards



### Layyah District

#### Layyah Tehsil

#### Temporary Collection Points (TCP)



#### MC/WMC Office



Dumpsites	Parking Yards/Workshops
 <p>GPS Map Camera Layyah, Punjab, Pakistan Xxj9+cf7, Health Office Rd, Layyah, Punjab, Pakistan Lat 30.981549° Long 70.971145° 16/01/25 11:27 AM GMT +05:00</p>	 <p>GPS Map Camera Layyah, Punjab, Pakistan Xw3p+pjp, Layyah, Punjab, Pakistan Lat 30.954256° Long 70.936705° 16/01/25 10:11 AM GMT +05:00</p>

### Waste Characterization

 <p>GPS Map Camera Layyah, Punjab, Pakistan Xw3m+8vp, Layyah, Punjab, Pakistan Lat 30.953003° Long 70.935438° 16/01/25 02:07 PM GMT +05:00</p>
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### Karor Lal Eason Tehsil

Temporary Collection Points (TCP)	Dumpsites
 <p>GPS Map Camera Karor Lal Eason, Punjab, Pakistan 6whw+jmg, Karor Lal Eason, Layyah, Punjab, Pakistan Lat 31.22901° Long 70.945916° 17/01/25 10:50 AM GMT +05:00</p>	 <p>GPS Map Camera Karor Lal Eason, Punjab, Pakistan 6wgr+grf, Karor Lal Eason, Layyah, Punjab, Pakistan Lat 31.227009° Long 70.941936° 17/01/25 10:45 AM GMT +05:00</p>

MC/WMC Office	Parking Yards
 <p>GPS Map Camera Karor Lal Eason, Punjab, Pakistan 6wjw+643, Karor Lal Eason, Layyah, Punjab, Pakistan Lat 31.227783° Long 70.949937° 17/01/25 11:55 AM GMT +05:00</p>	 <p>GPS Map Camera Karor Lal Eason, Punjab, Pakistan 6wjw+643, Karor Lal Eason, Layyah, Punjab, Pakistan Lat 31.227667° Long 70.950187° 17/01/25 10:18 AM GMT +05:00</p>

**Choubara Tehsil**

**Dumpsites**



**MC/WMC Office**



**Temporary Collection Points (TCP)**



**Parking Yards/Workshop**



**Muzaffargarh District**

**Muzaffargarh Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Parking Yards/Workshop**



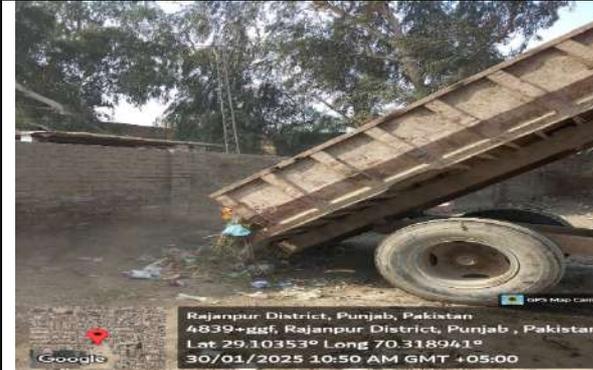
**Waste Characterization**



**Rajanpur District**

**Rajanpur Tehsil**

**Temporary Collection Points (TCP)**



**Dumpsites**



**MC/WMC Office**



**Waste Characterization Study**



**Rojhan Tehsil  
Dumpsites**



**MC/WMC Office**



**Parking Yards/Workshop**



## Jampur Tehsil

### Temporary Collection Points (TCP)



### Dumpsites



### MC/WMC Office



### Parking Yards



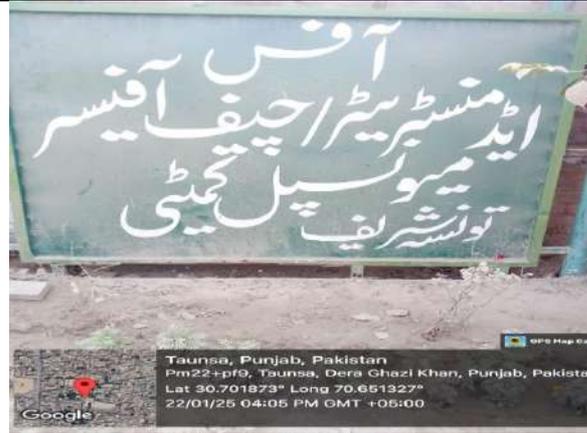
## Taunsa District

### Taunsa Tehsil

### Dumpsites



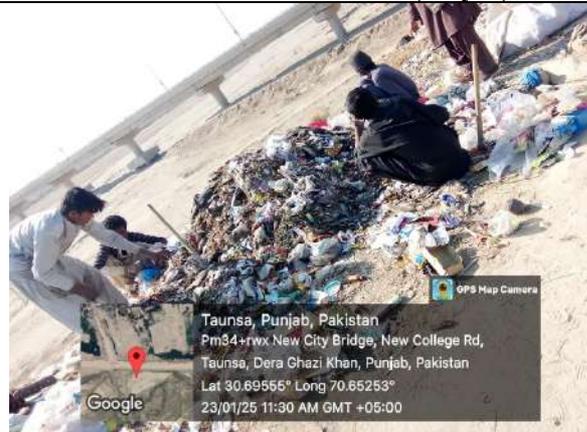
### MC/WMC Office



### Parking Yards



### Waste Characterization (Day 1)



### Waste Characterization (Day 2)



### Vehova Tehsil Dumpsites



MC/WMC Office	Parking Yards
 <p> <b>Vehova, Punjab, Pakistan</b>            4gj4+859, Vehova - Indus Hwy Link Rd, Vehova,            Dera Ghazi Khan, Punjab, Pakistan            Lat 31.130893° Long 70.505645°            23/01/25 02:21 PM GMT +05:00         </p>	 <p> <b>Vehova, Punjab, Pakistan</b>            4gj4+859, Vehova - Indus Hwy Link Rd, Vehova,            Dera Ghazi Khan, Punjab, Pakistan            Lat 31.130703° Long 70.505377°            23/01/25 02:47 PM GMT +05:00         </p>

**MULTAN DIVISION**

Multan District	
Multan City Tehsil	
Temporary Collection Points (TCP)	Dumpsites
 <p> <b>Multan, Punjab, Pakistan</b>            5fjh+rx3, Kiri Jimindan, Multan, Punjab, Pakistan            Lat 30.182017° Long 71.480188°            28/12/24 10:09 AM GMT +05:00         </p>	 <p> <b>Multan, Punjab, Pakistan</b>            4hx2+3hm, Vehari Road, Kot Rab Nawaz Multan,            Punjab, Pakistan            Lat 30.147848° Long 71.550687°            28/12/24 11:35 AM GMT +05:00         </p>
MC/WMC Office	Parking Yards
 <p> <b>Multan, Punjab, Pakistan</b>            277, Near Khanewal Rd, Shamsabad Colony            Multan, Pakistan, Multan, Punjab, Pakistan            Lat 30.20798° Long 71.474874°            06/03/2025 11:46 AM GMT +05:00         </p>	 <p> <b>Multan, Punjab, Pakistan</b>            2387 Shaheed Younis Road, Mohalla Nawazabad,            Multan, Punjab, Pakistan            Lat 30.201772° Long 71.47616°            20/01/25 01:02 PM GMT +05:00         </p>

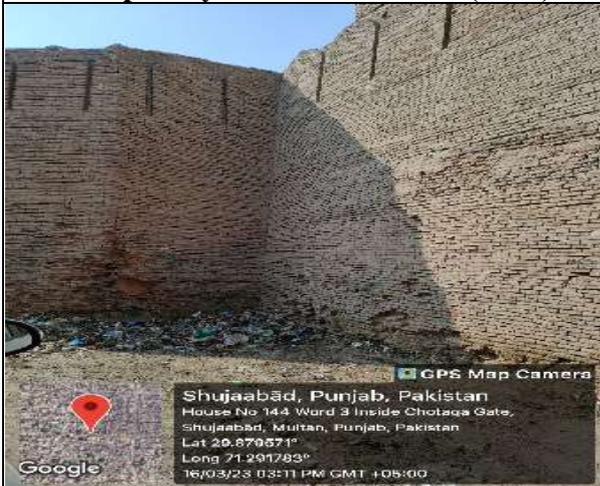
## Waste Characterization Study



### Shujaabad Tehsil

#### Temporary Collection Points (TCP)

#### Dumpsites



**TCP 2**



**Parking Yard**



## Jalalpur Pirwala Tehsil

### Temporary Collection Points (TCP)



### Dumpsites



### MC/WMC Office



### Parking Yards



### TCP 2





## Jahanian Tehsil

### Dumpsites



### MC/WMC Office



### Parking Yards/Workshop



## Tehsil Kabirwala

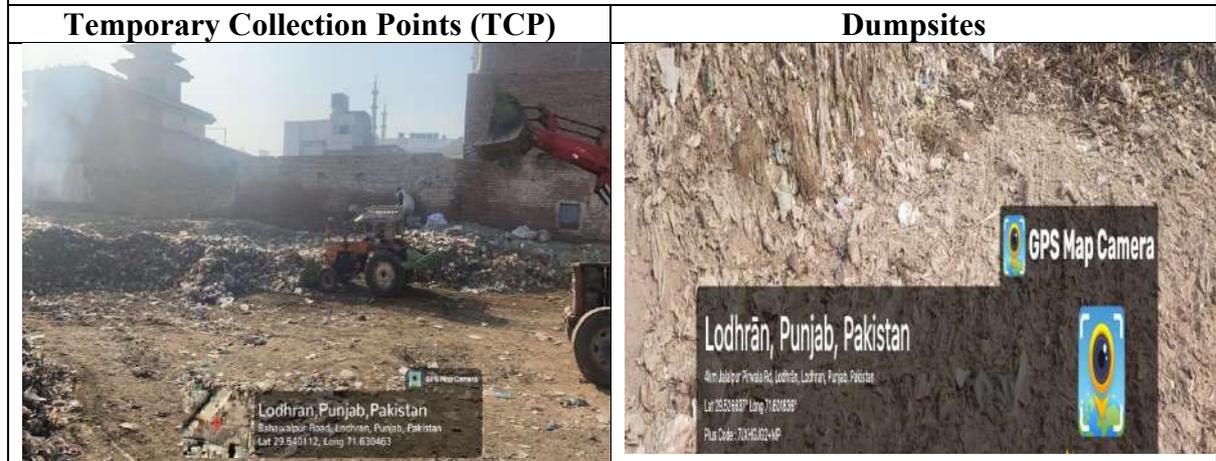
### MC/WMC Office/Parking Yards





**Lodhran District**

**Lodhran Tehsil**



**MC/WMC Office/Parking Yards**

**Waste Characterization**



**Dunyapur Tehsil**

Temporary Collection Points (TCP)	Dumpsites
 <p>Dunyapur, Punjab, Pakistan Old Lodhran Rd, Dunyapur, Punjab, Pakistan Lat 29.798607° Long 71.74232°</p>	 <p>Dunyapur, Punjab, Pakistan Rq57+8vr, Dakota Rd, Dunyapur, Lodhran, Punjab, Pakistan Lat 29.80833° Long 71.764837°</p>

**MC/WMC Office/Parking Yards**



**Karor Pacca Tehsil**

Dumpsites	TCP
 <p>Kahror Pakka, Punjab, Pakistan Kahror Pakka, Punjab, Pakistan Lat 29.631594, Long 71.922934</p>	 <p>Kahror Pakka, Punjab, Pakistan Jwg6+qc2, Sidiq Kanju Rd, Kahror Pakka, Punjab, Pakistan Lat 29.626951° Long 71.911742°</p>

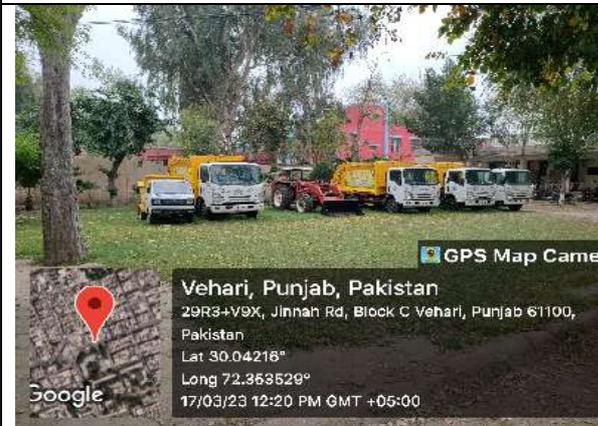
MC/WMC Office	Parking Yards
 <p align="center">- Punjab, Pakistan Punjab, Pakistan Lat 29.624990, Long 71.911293</p>	 <p align="center">Kahror Pakka, Punjab, Pakistan Kahror Pakka Road, Kahror Pakka, Punjab, Pakistan Lat 29.623881, Long 71.912635</p>

### Workshop

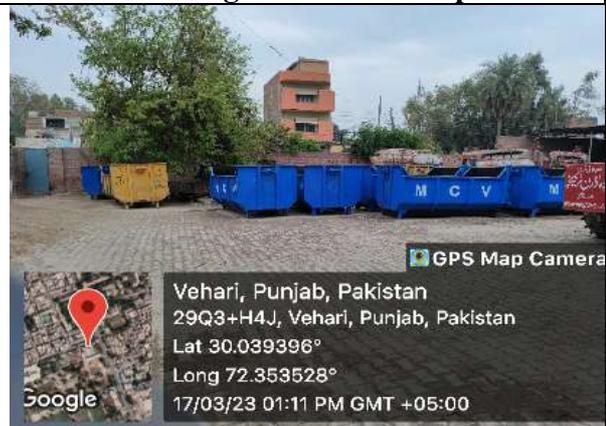


### Vehari District Vehari Tehsil

#### MC/WMC Office



#### Parking Yard/Workshop



#### Temporary Collection Points (TCP)



#### Dumpsites



### Waste Characterization



### Mailsi Tehsil

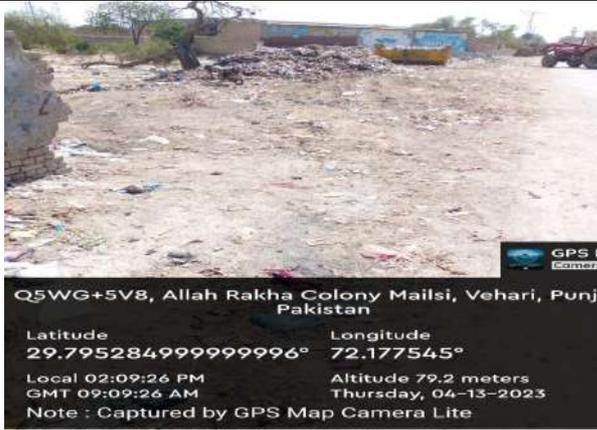
#### MC/WMC Office



#### Workshop/Parking Yards



#### Temporary Collection Points (TCP)



#### Dumpsites



# SAHIWAL DIVISION

## Okara District

### Okara Tehsil

#### Temporary Collection Points (TCP)/Transfer Station (TS)

#### Dumpsites



#### TCP 2

#### MC/WMC Office/Parking Yards



#### Waste Characterization



**Pakpattan Sharif District**

**Pakpattan Sharif Tehsil**

**Waste Characterization**



89XH+R32, Pakpattan, Pakpattan, Punjab, Pakistan  
Latitude: 30.34971666666667° Longitude: 73.37755999999999°  
Local 09:28:57 AM Altitude 163 meters  
GMT 04:28:57 AM Wednesday, 29.01.2025

**Dumpsites**



100 Wali Canal Rd, Pakpattan, Punjab, Pakistan  
Latitude: 30.369383333333335° Longitude: 73.43538333333332°  
Local 02:27:00 PM Altitude 163 meters  
GMT 09:27:00 AM Tuesday, 28.01.2025

**MC/WMC Office**



89XP+4R3, College Rd, Pakpattan, Pakpattan, Punjab, Pakistan  
Latitude: 30.347854999999996° Longitude: 73.38701666666665°  
Local 08:26:33 AM Altitude 162 meters  
GMT 08:26:33 AM Tuesday, 28.01.2025

**Parking Yards**



89XP+2HX, Pakpattan, Pakpattan, Punjab, Pakistan  
Latitude: 30.347815° Longitude: 73.38624333333334°  
Local 02:54:06 PM Altitude 163 meters  
GMT 09:54:06 AM Tuesday, 28.01.2025

**Temporary Collection Points (TCP)**



89XH+R32, Pakpattan, Pakpattan, Punjab, Pakistan  
Latitude: 30.349649999999997° Longitude: 73.37769499999999°  
Local 01:37:59 PM Altitude 163 meters  
GMT 08:37:59 AM Tuesday, 28.01.2025

**TCP 2**



993V+FMX, Pakpattan, Pakpattan, Punjab, Pakistan  
Latitude: 30.353205000000003° Longitude: 73.39495166666667°  
Local 01:45:12 PM Altitude 165 meters  
GMT 08:45:12 AM Tuesday, 28.01.2025

TCP 3	TCP 4
 <p> <b>89QQ+3P7, Thana Rd, Pakpattan, Pakpattan, Punjab, Pakistan</b>            Latitude: 30.337425° Longitude: 73.38962°            Local 01:35:55 PM Altitude 164 meters            GMT 08:55:55 AM Tuesday, 28.01.2025         </p>	 <p> <b>Unnamed Road, Pakpattan, Pakpattan, Punjab, Pakistan</b>            Latitude: 30.336145000000002° Longitude: 73.38518°            Local 02:05:45 PM Altitude 163 meters            GMT 09:05:45 AM Tuesday, 28.01.2025         </p>

**Arifwala Tehsil**

Temporary Collection Points (TCP)	TCP 2
 <p> <b>72VX+WF7, Arifwala, Pakpattan, Punjab, Pakistan</b>            Latitude: 30.29444615° Longitude: 73.04984721°            Local 12:26:42 PM Altitude 157 meters            GMT 07:26:42 AM Wednesday, 29.01.2025         </p>	 <p> <b>8322+9CJ, Arifwala, Pakpattan, Punjab, Pakistan</b>            Latitude: 30.30075872° Longitude: 73.05051384°            Local 12:30:57 PM Altitude 156 meters            GMT 07:30:57 AM Wednesday, 29.01.2025         </p>
TCP 3	TCP 4
 <p> <b>73R5+PFM, City Rd, Arifwala, Pakpattan, Punjab, Pakistan</b>            Latitude: 30.29130581° Longitude: 73.05890495°            Local 12:19:33 PM Altitude 158 meters            GMT 07:19:33 AM Wednesday, 29.01.2025         </p>	 <p> <b>73W3+QFJ, Bura Road, near Rafay Hotel, Arifwala, Pakpattan, Punjab 57450, Pakistan</b>            Latitude: 30.29718605° Longitude: 73.05329971°            Local 12:24:59 PM Altitude 158 meters            GMT 07:24:59 AM Wednesday, 29.01.2025         </p>

<p style="text-align: center;"><b>TCP 5</b></p>  <p style="text-align: center;">73J6+FW6, Abu Safwan Road, Muzaffarabad, Arifwala, Pakpattan Punjab 57450, Pakistan</p> <p>Latitude: 30.28106883° Longitude: 73.06194715° Local 12:04:08 PM GMT 07:04:08 AM Altitude 158 meters Wednesday, 29.01.2025</p>	<p style="text-align: center;"><b>TCP 6</b></p>  <p style="text-align: center;">9, Gulshan Iqbal Colony, Arifwala, Pakpattan, Punjab 57450, Pakistan</p> <p>Latitude: 30.28386147° Longitude: 73.07013974° Local 11:54:19 AM GMT 06:54:19 AM Altitude 158 meters Wednesday, 29.01.2025</p>
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<p style="text-align: center;"><b>MC/WMC Office/Parking Yards</b></p>  <p style="text-align: center;">73Q9+3HV, Arifwala, Pakpattan, Punjab, Pakistan</p> <p>Latitude: 30.2886831° Longitude: 73.0690501° Local 10:14:19 AM GMT 05:14:19 AM Altitude 160 meters Wednesday, 29.01.2025</p>	<p style="text-align: center;"><b>Dumpsites</b></p>  <p style="text-align: center;">Arifwala, Punjab, Pakistan 8323+w54, Ghulam Muhammad Town, Arifwala, Pakpattan, Punjab, Pakistan Lat 30.302872° Long 73.052518° 29/01/25 12:48 PM GMT +05:00</p>
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**Sahiwal District**

**Sahiwal Tehsil**

<p style="text-align: center;"><b>Temporary Collection Points (TCP)/Transfer Station (TS)</b></p>  <p style="text-align: center;">Sahiwal, Punjab, Pakistan M64c+5rp, Sahiwal Bunga Hayat Road, Sahiwal, Sahiwal District, Punjab, Pakistan Lat 30.654577° Long 73.171593° 30/12/24 12:58 PM GMT +05:00</p>	<p style="text-align: center;"><b>Dumpsites</b></p>  <p style="text-align: center;">Sahiwal, Punjab, Pakistan M64c+5rp, Sahiwal Bunga Hayat Road, Sahiwal, Sahiwal District, Punjab, Pakistan Lat 30.654359° Long 73.171203° 30/12/24 12:39 PM GMT +06:00</p>
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### MC/WMC Office



### Parking Yard



### Waste Characterization



503 Shaheen Complex,  
Egerton Road, Lahore, Pakistan

**+92 42-99205316-22**  
**uspmu@punjab.gov.pk**  
**urbanunit.gov.pk**



**The Urban Unit**  
Planning & Development Board, Punjab

