सत्यमेव जयते

INDIA FLY ASH
YEAR BOOK 2026

India's Annual Review of Ash Generation, Utilization, Technology & Policy Report for Grid Connected Thermal Power Plants



Reference Period: April 2025 – March 2026
Release: August 2026

Civil Design Division
Central Electricity Authority
Ministry of Power

CEA

Ministry of Power

Government of India

August 2026

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Disclaimer: This report has been prepared based on information available on the CPCB Coal Ash Portal on 08.06.2026 and data received through email from the concerned generating stations. The data presented herein reflects entries made by the respective generating stations on the portal, as well as information furnished through email. The contents of this report are intended solely for informational and analytical purposes. No independent verification of the data has been undertaken by the Central Electricity Authority (CEA). Accordingly, the accuracy, completeness, and reliability of the information contained herein remain the responsibility of the concerned generating stations. While due care has been exercised in compilation of the report, CEA does not accept any responsibility or liability whatsoever for any errors, omissions, or interpretations arising from the use of this report. It is further clarified that this document shall not be construed as the Annual Implementation Report or Ash Compliance Report as prescribed under Clause E(2)(i) of the MoEF&CC Fly Ash Utilisation Notification dated 31.12.2021. This disclaimer shall apply irrespective of the purpose for which the report is used.

ALL DATA IN THIS YEARBOOK IS FOR 196 GRID CONNECTED TPPs ONLY. THESE PLANTS CONTRIBUTE AROUND 90% OF INDIA'S TOTAL FLY ASH GENERATION.

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अध्यक्ष तथा पदेन सचिव भारत सरकार
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FOREWORD

As on 31st March 2026, coal and lignite-based power generating stations have a total installed capacity of 226.923 GW, accounting for a major share of the country's overall electricity generation. In the near future, coal-based power generation is expected to continue playing a vital role in the energy sector. However, Indian coal typically contains a high ash content, ranging from 35% to 50%, resulting in the generation of large quantities of fly ash. The management of fly ash remains a challenge due to the requirement of large areas of land for its storage and disposal, as well as its potential to cause air and water pollution.

To address these concerns, the Ministry of Environment, Forest and Climate Change (MoEF&CC) has issued various notifications on fly ash utilization, setting progressive targets for coal and lignite-based thermal power stations with the ultimate goal of achieving 100% utilization.

Over the years, fly ash utilization has increased remarkably from about 6.64 million tonnes in 1996–97 to 317.05 million tonnes in 2025–26, achieving a utilization rate of 101.32% during 2025–26. Sustaining and further enhancing these efforts by all thermal power stations, in line with the MoEF&CC notifications, is essential for achieving 100% fly ash utilization across the country. Fly ash is now being utilized in a wide range of applications, with innovative uses continuing to emerge.

I extend my sincere gratitude to all Power Utilities, Thermal Power Stations, and the Central Pollution Control Board (CPCB) for providing valuable data and information on fly ash generation and utilization through the CPCB Coal Ash Portal and email, which has made this report possible. I am confident that this report will serve as a valuable resource for all stakeholders and contribute to achieving 100% fly ash utilization across the country. I also place on record my sincere appreciation for the vision, guidance, and leadership of Shri Praveen Gupta, Member (Thermal), CEA, whose unwavering support and encouragement have been instrumental in the successful preparation and publication of the Fly Ash Year Book 2026. I further acknowledge the valuable contribution of Shri Anuj Kanwal, Chief Engineer, Civil Design Division, CEA, and his dedicated team, whose meticulous efforts, technical expertise, and commitment have made this publication possible. Their collective dedication and hard work in compiling this comprehensive Year Book are deeply appreciated and deserve the highest commendation.

(Ghanshyam Prasad)

New Delhi
20 Aug 2026

प्रवीन गुप्ता
सदस्य तथा पदेन अपर सचिव भारत सरकार
PRAVEEN GUPTA
Member & Ex-officio Addl. Secretary
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PREFACE

The management of fly ash at coal and lignite-based thermal power stations across the country is a challenging task, in view of large quantity of ash being generated and the goal of achieving 100% utilization of fly ash within a defined timeframe, as stipulated in the latest MoEF&CC Notification dated 31st December 2021 and its subsequent amendments. Fly ash needs to be managed efficiently to prevent environmental degradation and to promote its safe and sustainable utilization.

The Notification on Fly Ash Utilization, issued on 31st December 2021 by the Ministry of Environment, Forest and Climate Change (MoEF&CC) along with its subsequent amendments-has superseded all previous notifications and is applicable from the year 2022-23 onwards. These initiatives and policy measures undertaken by the Government of India have significantly enhanced the utilization of fly ash in various sectors such as the manufacture of fly ash-based building materials, production of Portland Pozzolana Cement (PPC), construction of roads, highways, and flyovers, reclamation of low-lying areas, mine backfilling and stowing, wasteland development, and the construction of roller-compacted concrete (RCC) dams, among others.

As a result of these concerted efforts, the level of fly ash utilization has improved remarkably-from less than 10% (6.64 million tonnes) in 1996-97 to about 101.32% (317.05 million tonnes) in 2025-26. This report presents comprehensive data on fly ash generation and utilization at 196 coal and lignite-based grid-connected thermal power stations in the country for the year 2025-26. It is anticipated that the report will serve as a valuable reference for all stakeholders involved in fly ash management-facilitating effective planning, utilization, and coordination between concerned thermal power stations and user agencies.

I would like to place on record my sincere appreciation for the initiative and leadership of **Shri Anuj Kanwal**, Chief Engineer, Civil Design Division (CDD), CEA in the successful preparation and publication of the Fly Ash Year Book 2026. I also commend the Smt. Preeti Choudhary, Director, CDD, CEA and her team of the Fly Ash Management, Civil Design Division, CEA, for their dedicated efforts, meticulous coordination, technical expertise, and professionalism in compiling, analyzing, and presenting the information contained in this publication. Their collective commitment and hard work have been instrumental in bringing out this Year Book.

New Delhi
August 2026

(Praveen Gupta)
Member (Thermal)

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ACKNOWLEDGEMENT

The successful publication of the Fly Ash Year Book 2026 has been made possible through the collective efforts and valuable contributions of various organizations and individuals associated with fly ash management across the country. I sincerely thank all Power Utilities, Thermal Power Stations, and stakeholder organizations for their timely submission of fly ash generation and utilization data through the CPCB Coal Ash Portal and other communication channels. Their continued cooperation forms the foundation of this publication.

This Year Book is designed with an intention to provide a canvas to the GENCOs and the STATE GOVERNMENTS to analyse the fly ash utilization at their ends. By presenting analytical insights through graphs, charts, and data visualizations, it aims to promote transparency, support informed decision-making, strengthen coordination between thermal power stations and user agencies, encourage greater ash utilization, and contribute towards achieving a circular economy and sustainable power generation.

I gratefully acknowledge the guidance and encouragement of **Shri Ghanshyam Prasad**, Chairperson, Central Electricity Authority (CEA). I also express my sincere gratitude to **Shri Praveen Gupta**, Member (Thermal), CEA, for his valuable support, constructive suggestions, and technical guidance, which have greatly enhanced the quality of this publication. I sincerely appreciate the dedicated efforts of the officers and staff of the Fly Ash Management, Civil Design Division, CEA, and all officers, engineers, and stakeholders whose contributions made this publication possible. I place on record my special appreciation for the valuable contribution of Smt. **Preeti Choudhary**, Director, Civil Design Division, CEA, whose dedicated efforts, effective coordination, and continuous support have been instrumental in the successful preparation of the Fly Ash Year Book 2026. I also acknowledge the valuable contributions of the following officers of the Civil Design Division:

1. Shri Gaurav Agarwal, Deputy Director
2. Shri Mukesh Kumar, Assistant Director
3. Shri Nitosh Kumar, Assistant Director
4. Shri Manoj Choudhary, Assistant Director
5. Shri Naveen, Assistant Director-II

New Delhi
August 2026

(Anuj Kanwal)
Chief Engineer

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LIST OF ABBREVIATIONS

Abbreviation		Meaning
AAC	:	Autoclaved Aerated Concrete
AP	:	Andhra Pradesh
APGENCO	:	Andhra Pradesh Power Generation Corporation Limited
APL	:	Adani Power Limited
ASTM	:	American Society for Testing and Materials
BA	:	Bottom Ash
BIS	:	Bureau of Indian Standards
BOXN	:	Bogie Open Wagon (used for bulk rail transport of fly ash)
BTAP	:	Bogie Tank Wagon for Alumina Powder (used for closed fly ash transport)
BR	:	Bihar
CAMP	:	Coal Ash Management Portal
CCR	:	Coal Combustion Residue
CEA	:	Central Electricity Authority
CESC	:	Calcutta Electric Supply Corporation
CG	:	Chhattisgarh
CIL	:	Coal India Limited
CLWG	:	Central Level Working Group (Ministry of Coal — mine void allocation)
CSPGCL	:	Chhattisgarh State Power Generation Company Limited
CRRI	:	Central Rice Research Institute
CO_2	:	Carbon Dioxide
CPCB	:	Central Pollution Control Board
CPP	:	Captive Power Plant
CSIR-CBRI	:	Council of Scientific and Industrial Research – Central Building Research Institute
DVC	:	Damodar Valley Corporation
DPIIT	:	Department for Promotion of Industry and Internal Trade

Abbreviation		Meaning
ESP	:	Electro Static Precipitator
EV	:	Electric Vehicle
FALG	:	Fly Ash Lime Gypsum Technology
FY	:	Financial Year
GGBS	:	Ground Granulated Blast Furnace Slag
GIS	:	Geographic Information System
GJ	:	Gujarat
GPS	:	Global Positioning System
GSECL	:	Gujarat State Electricity Corporation Limited
GVP	:	Gypsum Vermiculate Plaster
GW	:	Giga watt
HCSD	:	High Concentration Slurry Discharge
HPGCL	:	Haryana Power Generation Corporation Limited
HR	:	Haryana
ICAR	:	Indian Council of Agricultural Research
IISS	:	Indian Institute of Soil Science
IPP	:	Independent Power Producer
IRC	:	Indian Roads Congress
IWAI	:	Inland Waterways Authority of India
JH	:	Jharkhand
KM	:	Kilo meter
KR	:	Karnataka
LMT	:	Lakh Metric Tonnes
LPGCL	:	Lalitpur Power Generation Company Limited
LOI	:	Loss on Ignition
MH	:	Maharashtra
MoC	:	Ministry of Coal
MoEF&CC	:	Ministry of Environment, Forest and Climate Change

Abbreviation		Meaning
MoP	:	Ministry of Power
MP	:	Madhya Pradesh
MPPGCL	:	Madhya Pradesh Power Generating Company Limited
MSPGCL	:	Maharashtra State Power Generation Company Limited
MSTC	:	Metal Scrap Trade Corporation Limited
MSME	:	Ministry of Micro, Small & Medium Enterprises
MT	:	Metric tonne
MW	:	Mega watt
NACA	:	Nano Concrete Aggregate
NCCBM	:	National Council for Cement and Building Materials
NHAI	:	National Highways Authority of India
NPH	:	Non-Pit Head
NRRI	:	National Rice Research Institute
NTPC	:	NTPC Ltd.
OPGC	:	Odisha Power Generation Corporation
OD	:	Odisha
PB	:	Punjab
PH	:	Pit Head
PSPCL	:	Punjab State Power Corporation Limited
PPC	:	Portland Pozzolana Cement
RFID	:	Radio-frequency identification
RMC	:	Ready-mix concrete
RJ	:	Rajasthan
RRVUNL	:	Rajasthan Rajya Vidyut Utpadan Nigam Limited
R&D	:	Research and Development
RCC	:	Rolled Compact Concrete
REE	:	Rare Earth Element
SAFAR	:	Slag and Fly ash based green products for Acid soil Reclamation

Abbreviation		Meaning
SFTO	:	Special Freight Train Operator
SoP	:	Standard Operating Procedure
SPCB	:	State Pollution Control Board
TG	:	Telangana
TN	:	Tamil Nadu
TNPGCL	:	Tamil Nadu Power Generation Corporation Limited
TSGENCO	:	Telangana State Power Generation Corporation Limited
TPP	:	Thermal Power Plant
UP	:	Uttar Pradesh
UPRVUNL	:	Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited
WB	:	West Bengal
WBPDCL	:	West Bengal Power Development Corporation Limited

Executive Summary

ALL DATA IN THIS YEARBOOK IS FOR 196 GRID CONNECTED TPPs. ONLY. THESE PLANTS CONTRIBUTE AROUND 90% OF INDIA'S TOTAL FLY ASH GENERATION.

Ash Generation and Utilization Efficiency

The national ash utilization rate of 101.32% indicates that nearly the entire quantity of ash generated during the year was gainfully utilized. This represents a substantial improvement compared to historical utilization levels and demonstrates the effectiveness of regulatory measures and market demand for fly ash-based products.

During the FY 2025-26, thermal power plants generated 3,129.19 Lakh Metric Tonne (LMT) of ash, while 3,170.48 Lakh Metric Tonne (LMT) were utilized. The ash utilization rate 101.32%, indicates that the quantity of ash utilized exceeded the ash generated during the year. This was possible through the utilization of both current-year ash generation, ash lying in operational pond at the time of issue of notification, accumulated ash from legacy ash ponds and storage facilities.

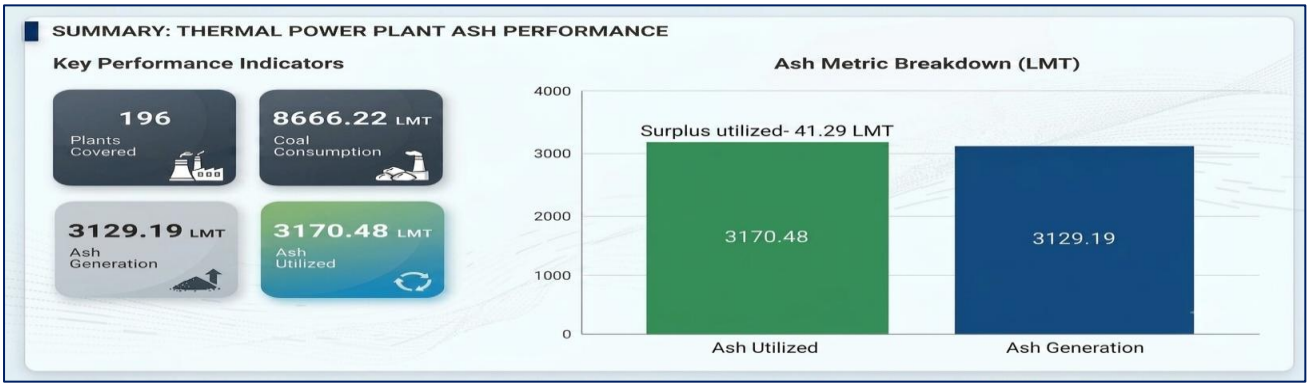
The achievement of an ash utilization rate exceeding 100% reflects significant progress in the adoption of fly ash-based products and sustainable ash management practices. It demonstrates the effectiveness of regulatory interventions, increased market demand for ash-based construction materials, and concerted efforts by thermal power plants to reduce historical ash inventories. The utilization of legacy ash not only enhances resource efficiency but also contributes to environmental protection by minimizing the requirement for ash disposal and reducing the environmental footprint of ash storage areas

Key National Statistics of Ash Utilization and trends: FY 2025–26

Statistics of Coal-Based Thermal Power Plants in India

S. No	Parameter	Value
1	No of TPPs (including Captive plants) registered in CPCB Coal ash portal (as on 08/06/2026)	566 Nos.
2	No of Grid Connected TPPs as per CEA (as on 31.03.2026 excluding 6 TPPs which has been Shut Down/retired etc)	196 Nos.
3	Total Installed capacity of coal and lignite-based Power Plant	226.923 GW
4	Ash Content in Indian Coal	35-50 %
5	Total Coal Consumption	8666.22 LMT
6	Total Ash Generation	3129.19 LMT
7	Total Ash Utilized	3170.48 LMT (101.32%)
8	Surplus Utilization	41.29 LMT

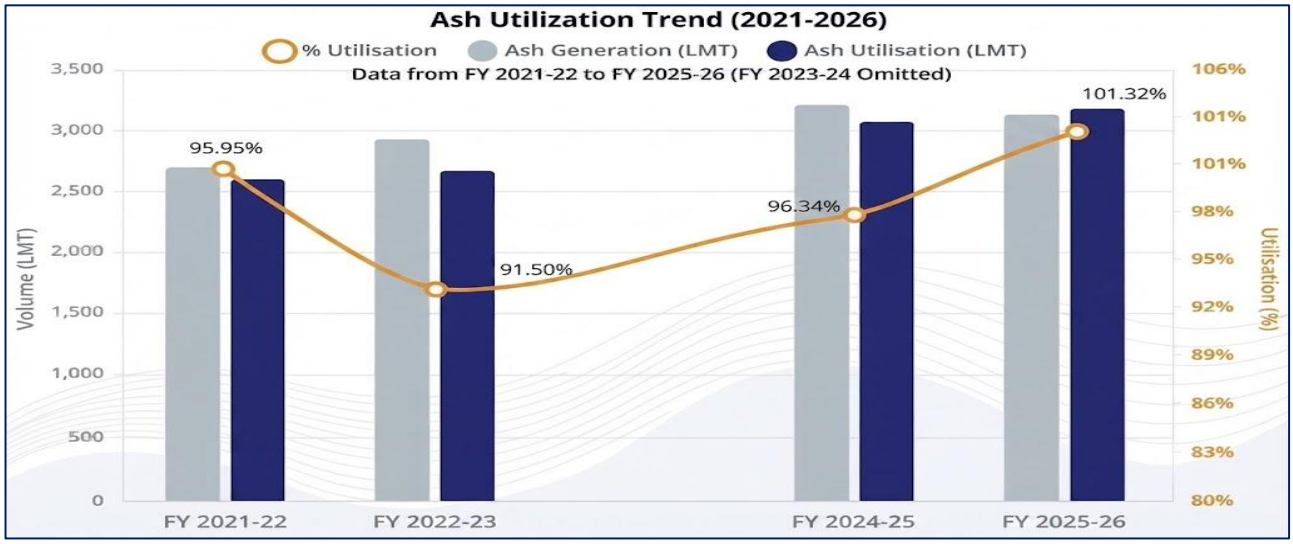
Coal Consumption, Ash generations and utilizations Statistics



National Trends

Financial year	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Overall ash utilization rate (%)
2021-22	2708.2	2598.6	95.95
2022-23	2917.5	2669.4	91.50
2024-25	3187.98	3071.38	96.34
2025-26	3129.19	3170.48	101.32

The national performance during FY 2025–26 demonstrates that fly ash is increasingly being recognized as a valuable industrial resource rather than a waste material. Continued policy support, infrastructure demand, and stakeholder coordination are expected to maintain the utilization levels and facilitate achievement of the national goal of 100% sustainable ash utilization.



1. Overview of Fly Ash in India

1.1 Introduction

Coal and lignite-based thermal power plants continue to play a dominant role in India's electricity sector, account ting for a major share of the country's installed generation capacity and electricity production. While these plants are essential for ensuring energy security and meeting growing electricity demand, they also generate substantial quantities of Coal Combustion Residues (CCR), commonly referred to as fly ash, bottom ash, and pond ash.

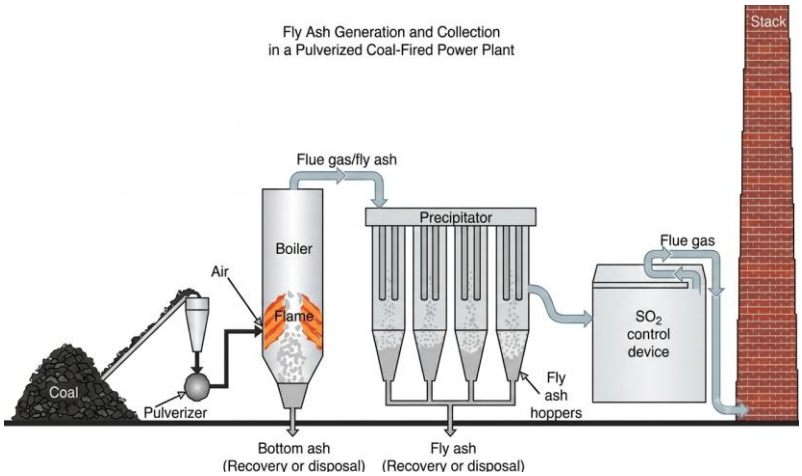
India has emerged as one of the largest producers of fly ash globally due to its extensive coal-based power generation fleet and the relatively high ash content in domestic coal. Over the years, sustained policy interventions by the Ministry of Environment, Forest and Climate Change (MoEF&CC), Ministry of Power (MoP), Central Electricity Authority (CEA), Central Pollution Control Board (CPCB), State Governments, and user industries have significantly improved the utilization of fly ash across various sectors.

The utilization of fly ash has transitioned from a waste management challenge to a resource efficiency opportunity. Fly ash is now extensively used in cement manufacturing, ready-mix concrete, fly ash bricks and blocks, road and embankment construction, mine filling, land reclamation, and other infrastructure applications. Such utilization not only reduces the environmental footprint associated with ash disposal but also conserves natural resources such as limestone, clay, sand, and aggregates.

The implementation of the MoEF&CC Fly Ash Notification, 2021 (as amended in 2022 and 2024), together with the revised Ministry of Power Guidelines issued on 30 January 2026, has further strengthened the framework for achieving sustainable and near-complete ash utilization. The focus has shifted towards achieving 100% utilization of current ash generation, accelerated evacuation of legacy ash, transparent ash allocation mechanisms, and environmentally sound disposal practices.

During FY 2025-26, thermal power plants across the country demonstrated a high level of compliance with ash utilization requirements. The overall ash utilization for FY 2025-26 is 101.32 % which exceeded 100%, reflecting significant progress towards the national objective of sustainable ash management and reduction of ash disposal requirements.

1.2 Definitions and Terminology



Ash: All the coal or lignite ash generated at TPP, such as ESP Ash (Electro Static Precipitator)/dry Fly Ash, Bottom Ash (BA), Pond Ash and Mound Ash for the purpose of utilization.

Fly Ash: It is a finely divided residue resulting from the combustion of ground or powdered coal and transported by the flue gases of boilers fired by pulverized coal. It may be utilized in:

- Cement manufacturing
- Concrete production

- Fly ash bricks, blocks & tiles manufacturing
- Lightweight aggregates & concrete manufacturing
- Roads & airfield construction
- Soil stabilization etc

Bottom Ash: It is the coarser, heavier residue extracted from the bottom of ground or pulverized or crushed coal or lignite fired boiler by any suitable process. It is generally in the form of clinkers, which are ground or broken to smaller size to facilitate extraction. It may be utilized in-

- Road and embankment construction
- Structural fill and land reclamation
- Light weight aggregate and blocks
- Soil Improvement and landscaping

Pond Ash: Fly ash or bottom ash or both mixed in any proportion and conveyed in slurry / paste form and deposited in pond / lagoon. Over a period it becomes Legacy Ash.

Legacy Ash: The ash stored in all the ash ponds or dykes other than operational ash pond or dyke designated for temporary storage of ash before 1st April 2022.

Ash Generation: Ash generation refers to the total quantity of fly ash and bottom ash produced as a result of the combustion of coal or lignite in a thermal power station during a specified period.

Ash Utilisation: Ash utilization means the productive use of fly ash, bottom ash, pond ash, or legacy ash in authorized utilization avenues such as cement manufacturing, brick production, road and embankment construction, mine filling, land reclamation, agriculture, and other environmentally sound uses.

Pit Head Plants:- Pit-Head Power Plant, as referred under the Environment (Protection) Rules, 1986, means power stations having captive transportation system for its exclusive use for transportation of coal from the loading point at the mining end upto the uploading point at the power station, without using the normal public transportation system.

Ash Dyke: Ash Dyke/Ash ponds are well engineered structures used for storage of bottom ash and fly Ash generated at Thermal Power Stations. A single ash dyke/ash pond may contain multiple lagoons for ash storage based on operational requirements, and other associate structures such as Overflow lagoons/Silting basins etc.

1.3 Classification of Fly Ash in India

Fly ash is one of the major by-products generated during the combustion of pulverized coal and lignite in thermal power plants. The quality, utilization and acceptance of fly ash in India are governed by the Bureau of Indian Standards (BIS) and the Ministry of Environment, Forest and Climate Change (MoEF & CC).

Owing to its diverse physical, chemical, and engineering properties, fly ash is suitable for a wide range of applications including cement and concrete production, embankment construction, mine filling, brick manufacturing, road works, agriculture, and other value-added products. However, the characteristics of fly ash vary considerably depending upon the type of fuel used, combustion technology, collection system, and fineness of the ash. Therefore, a systematic classification of fly ash is essential to facilitate its efficient utilization, ensure quality control, and enable users to select the appropriate material for specific applications.

In India, the classification and quality requirements of fly ash are primarily governed by the relevant Bureau of Indian Standards (BIS) specifications, particularly IS 3812 (Part 1): 2013, which specifies the requirements for pulverized fuel ash used as a pozzolana in cement, cement mortar, and concrete. The standard lays down the chemical, physical, and performance requirements that fly ash must satisfy for its use in construction materials. In addition to BIS standards, fly ash is also categorized based on its origin, method of collection, intended application, and physical characteristics to better address the diverse needs of users and industries.

Based on the source of fuel, fly ash is generally classified according to the type of coal or lignite from which it is generated. Since the mineral composition of the parent fuel significantly influences the chemical composition and pozzolanic properties of the ash, this classification is important for assessing its suitability for different engineering applications.

Fly ash is also classified according to the method of collection within the electrostatic precipitator or other particulate collection systems. Ash collected from different hoppers may exhibit varying particle sizes, fineness, and carbon content, thereby influencing its performance in cementitious and geotechnical applications.

Another important classification is based on end use, wherein fly ash is categorized according to its intended field of utilization such as cement manufacturing, concrete production, bricks and blocks, road and embankment construction, mine stowing, agriculture, and other applications. Such a classification assists in matching the quality and characteristics of fly ash with the technical requirements of individual sectors, thereby promoting its optimum utilization.

From the quality perspective, fly ash is also classified on the basis of its physical properties, particularly fineness and particle size distribution. Physical quality plays a significant role in determining the workability, strength development, permeability, and durability of construction materials incorporating fly ash. Accordingly, different grades or quality categories are adopted to ensure that the material satisfies the performance requirements of the intended application.

The following sections present the classification of fly ash in five broad categories, namely, classification under Bureau of Indian Standard**,** Classification Based on Source of Fuel, Classification Based on Method of Collection, Classification Based on End Use, and Classification Based on Physical Quality, together with the relevant provisions of the applicable BIS standards and their practical significance in promoting sustainable and efficient utilization of fly ash.

The broad classification of fly ash in India is illustrated below

Classification under Bureau of Indian Standards (BIS)
Classification Based on Source of Fuel
Classification Based on Method of Collection
Classification Based on End Use
Classification Based on Physical Quality

Classification of Fly Ash under Bureau of Indian Standards (BIS)

The principal classification adopted in India is prescribed under IS 3812, which specifies the quality requirements for fly ash intended for construction applications. Brief scope of the standard are tabulated on the next page.

S. No	IS Nomenclature	Scope of the Standard
1.	IS 3812 (Part 1): 2013 Pulverized Fuel Ash – Specification for Use as Pozzolana in Cement, Cement Mortar and Concrete	This standard specifies the physical and chemical requirements of fly ash used as a pozzolanic material in: - • Portland Pozzolana Cement (PPC) • Cement mortar • Concrete • Grouts • Other cementitious products The standard prescribes requirements for fineness, loss on ignition, reactive silica, lime reactivity, soundness and other quality parameters.
2.	IS 3812 (Part 2): 2013 Pulverized Fuel Ash – Specification for Use as Admixture in Cement Mortar and Concrete	Specifies the requirements for pulverized fuel ash used as a mineral admixture in cement mortar and concrete. The standard lays down limits for fineness, moisture content, loss on ignition, reactive silica, soundness, strength activity index and other performance characteristics to ensure durability and quality of concrete.

Classification of Fly Ash Based on Source of Fuel

The characteristics of fly ash depend largely on the type of fuel used in thermal power plants.

S. No.	Source of Fuel	Characteristics of Fly Ash	Occurrence in India	Typical Applications
1.	Coal-Based Fly Ash (Gondwana Bituminous & Sub-bituminous Coal)	It has low-calcium and pozzolanic in nature with relatively low calcium oxide (CaO) content. Chemically, it is broadly comparable to ASTM Class F fly ash.	Constitutes more than 85–90% of the fly ash generated in India, as the majority of thermal power plants are based on Gondwana coal reserves.	• Portland Pozzolana Cement (PPC), • Concrete, Cement Mortar, • Fly Ash Bricks and Blocks, • Road Embankments, Structural Fills, Mine Filling, Land Reclamation and Other Infrastructure Applications.
2.	Lignite-Based Fly Ash	It contains higher calcium oxide (CaO) and exhibits both pozzolanic and self-cementing properties. It is broadly comparable to ASTM Class C fly ash.	Generated in limited quantities from lignite-based thermal power stations, primarily located in Tamil Nadu (Neyveli), Gujarat (Panandhro & Akrimota) and Rajasthan (Barsingsar, Kapurdi & Palana).	• Suitable for applications requiring early strength development, including soil stabilization, • Pavement Construction, Structural Fills, • Precast Concrete Products and Specialized Cementitious Applications.

Classification of Fly Ash Based on Method of Collection

S. No.	Type of Ash	Description	Major Applications
1.	Fly Ash (ESP Ash)	Fine particulate matter carried with flue gases and collected through Electrostatic Precipitators (ESP). It is generally collected in dry form and possesses superior physical and pozzolanic properties, making it the most valuable fraction of ash.	• Cement manufacturing (including PPC) • Ready-mix concrete (RMC) • Fly ash bricks, blocks and tiles • Precast concrete products • Geopolymer materials and other cementitious applications
2.	Bottom Ash	Comparatively coarser and heavier ash particles that settle at the bottom of the boiler furnace during coal combustion. It has lower fineness than fly ash and is generally used where coarse granular material is required.	• Structural fills • Road embankments • Backfilling • Lightweight aggregates • Mine filling and reclamation
3.	Pond Ash	A mixture of fly ash and bottom ash transported hydraulically as slurry and deposited in ash ponds. The properties of pond ash depend on the proportion of fly ash and bottom ash and the method of disposal.	• Road embankments • Land reclamation • Mine void filling • Development of low-lying areas Structural fills, and backfilling

Classification of Fly Ash Based on End Use

The MoEF&CC Fly Ash Notification, 2021, along with subsequent amendments, promotes the utilization of fly ash in environmentally sustainable applications. Accordingly, fly ash may be classified based on its intended utilization, including:

- Fly ash based products viz. bricks, blocks, tiles, fibre cement sheets, pipes, boards, panels
- Cement manufacturing, ready mix concrete;
- Construction of road and fly over embankment, Ash and Geo-polymer based construction material;
- Construction of dam;
- Filling up of low lying area;
- Filling of mine voids;
- Manufacturing of sintered or cold bonded ash aggregate;
- Agriculture in a controlled manner based on soil testing;
- Construction of shoreline protection structures in coastal districts;
- Export of ash to other countries;

Classification of Fly Ash Based on Physical Quality

For commercial and engineering applications, fly ash is also classified based on its physical characteristics such as:

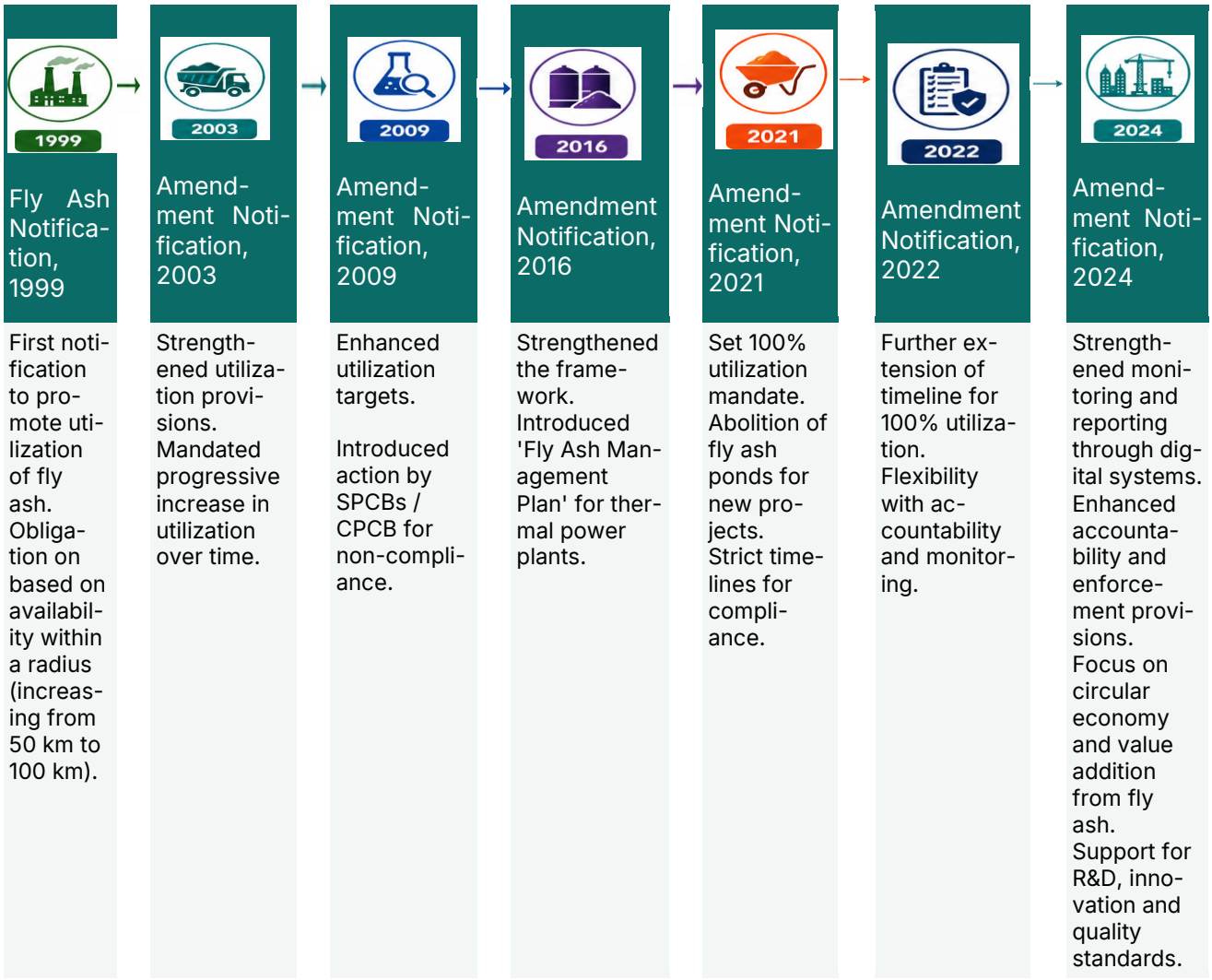
- Fineness
- Loss on Ignition (LOI)
- Moisture content
- Bulk density
- Particle size distribution
- Lime reactivity
- Reactive silica content

These parameters determine the suitability of fly ash for various construction applications and are evaluated in accordance with IS 3812.

2. Policy & Regulatory Framework

2.1 MoEF&CC Fly Ash Notifications

The timeline in respect of the MoEF&CC Fly Ash Notification is shown below: -



To address the growing environmental challenges associated with fly ash generation and disposal, the Ministry of Environment, Forest and Climate Change (MoEF&CC) has implemented a series of regulatory interventions and policy measures over the years. The first comprehensive notification on Fly Ash Utilization was issued on 14th September 1999, laying down mandatory provisions for its gainful use. This notification was subsequently amended through notifications dated 27th August 2003, 3rd November 2009, and 25th January 2016, respectively. Each amendment progressively expanded the scope of utilization, set time-bound targets, and strengthened compliance mechanisms for thermal power plants and allied industries. To streamline and consolidate all previous directives, the MoEF&CC issued a comprehensive Fly Ash Notification on 31st December 2021, which came into effect from 1st April 2022 and Subsequent amendments to this notification were issued on 30th December 2022 and 1st January 2024. The link for the notification has been provided in the Annexure-V.

2.2 Coal Ash Management Portal (CAMP) (https://coalash.cpcb.gov.in)

The Coal Ash Management Portal (CAMP) is a centralized digital platform developed for monitoring ash generation, utilization, storage, and disposal by coal and lignite-based thermal power plants across the

country. Established in accordance with the MoEF&CC Fly Ash Notification, 2021, the portal enhances transparency, accountability, and regulatory compliance in fly ash management. It also facilitates online reporting of ash generation, utilization, ash pond inventory, legacy ash status, and sector-wise utilization by thermal power plants.

Key Features

- Online reporting of ash generation and utilization.
- Monitoring of ash pond inventory and legacy ash.
- Sector-wise tracking of fly ash utilization.
- Ash requisition and allocation management.
- Compliance monitoring and performance assessment.
- Generation of reports and analytical dashboards.

2.3 Ministry of Power (MoP) Guidelines for utilization and disposal of current and legacy ash

The Ministry of Power (MoP), Government of India, issued the Revised Guidelines for Coal and Lignite-Based Thermal Power Plants (TPPs) on **30 January 2026** for utilization and disposal of current and legacy ash in accordance with the provisions of the MoEF&CC Fly Ash Notification dated 31.12.2021 and its subsequent amendments dated 30.12.2022 and 01.01.2024. The link for the MoP guideline has been provided in the Annexure-V

These guidelines supersede the earlier MoP guidelines issued on 15.03.2024 and seek to ensure 100% ash utilization in an environmentally sustainable, transparent, and economically efficient manner while minimizing the tariff burden on electricity consumers. The revised framework prescribes procedures for declaration and allocation of issuable ash, promotion of ash utilization by user agencies, support to Micro and Small Enterprises (MSEs), adoption of transparent disposal mechanisms, and rationalization of transportation cost liabilities. The guidelines are applicable to all coal and lignite-based thermal power plants, including captive and co-generating stations, and aim to facilitate effective implementation of the national objective of sustainable ash management and utilization.



2.4 Role of Central Electricity Authority (CEA) in Monitoring Ash Utilization

The Central Electricity Authority (CEA) regularly tracks, compiles, and publishes comprehensive monthly and annual reports detailing the generation and progressive utilization of ash from coal and lignite-based thermal power plants in accordance with the MoEF&CC Fly Ash Notification, 2021 (as amended) and the Ministry of Power's Ash Utilization Guidelines. It also facilitates coordination among power utilities, user agencies, State Governments, and other stakeholders to promote sustainable fly ash utilization across approved sectors. Beyond data aggregation, the CEA collaborates closely with the Central Pollution Control Board (CPCB) to formulate technical specifications, operational design standards, and annual safety certification frameworks for ash ponds and dykes. CEA integrates view point of all the stakeholders for utilisation of the fly ash.

Further, CEA monitors the implementation of the Ministry of Power's Ash Utilization Guidelines, provides technical and policy inputs to the Government, and undertakes periodic reviews to support the national objective of achieving 100% ash utilization and environmentally sustainable ash management. By doing so, the CEA bridges the gap between commercial power generation and environmental compliance, steering utilities toward the government-mandated target of 100% eco-friendly ash utilization in sectors like cement manufacturing, road construction, bricks, tiles, agriculture, mine-void filling etc.

3. Ash Generation and Utilization Data for FY 2025-26

3.1 All India Ash Generation and Utilization for the Financial Year 2025-26

As per the data available on the CPCB Coal Ash Portal, a total of 566 Thermal Power Plants including both Captive Power Plants (CPPs) and Independent Power Producers (IPPs), are registered. As per the records of the Central Electricity Authority (CEA), there were 202 grid-connected Thermal Power Plants (TPPs) in the country with a total installed capacity of 228.56 GW as on 31 March 2025. Of these, 196 TPPs, aggregating to an installed capacity of 226.923 GW, have been considered for analysis, and their fly ash generation and utilization data have been compiled and presented in the present Fly Ash Generation and Utilization Report for the year 2025–26. The balance installed capacity of 1.642 GW pertains to 6 thermal power plants that were not operational during the year on account of shutdown, retirement, or low generation.

For the 196 Thermal Power Plants (TPPs), the cumulative ash utilization rate has reached 101.32%. Achieving a utilization rate in excess of 100% indicates that the sector is not only successfully utilizes 100% of current ash generation into gainful avenues—such as cement manufacturing, brick production, and infrastructure development—but may also be progressively reclaiming legacy ash deposits from existing ponds or may be utilizing ash from operational ponds lying on the date of issue of notification.

Table 3.1

No. of Plants	Total Capacity (GW)	Coal Consumption (LMT)	Total Ash Generation (LMT)	Total Ash Utilisation (LMT)	Utilisation (%)
196	226.923	8666.22	3129.19	3170.48	101.32

3.2 All India Avenue Wise Utilization

As per the avenue-wise classification of fly ash utilization outlined in the MoEF&CC Notification, 2021, the data (as tabulated below) indicates that the major avenues of utilization are concentrated in a few key sectors. The construction of highways and roads accounts for the largest share at 30%, reflecting the growing use of fly ash in infrastructure development, particularly for embankments, base courses, and pavement layers. This is followed by cement manufacturing (28%), where fly ash serves as a valuable supplementary cementitious material enhancing the strength and durability of concrete. The production of fly ash-based bricks and blocks (16%) constitutes another major utilization channel, promoting eco-friendly alternatives to traditional clay bricks.

Additionally, mine void filling (12%) and reclamation of low-lying areas (10%) represent important environmental applications that support land restoration and reduce the need for ash disposal in ash ponds. Together, these sectors collectively account for the vast majority of fly ash utilization, demonstrating a balanced approach between industrial use, infrastructure development, and environmental restoration. The details of the avenue wise utilization of the fly ash for the year 2025-26 are shown in the Table 3.2.

Table 3.2

S. No.	Name of Avenue	Ash Utilization (LMT)
1	Making of Fly Ash based/Brick/Blocks /Tiles etc.	503.93
2	Manufacturing of Portland Pozzolana Cement	883.17
3	Construction of Highways & Roads including flyovers	956.01
4	Part replacement of cement in concrete	75.06
5	Hydro power sector (RCC Dam construction)	0.59
6	Reclamation of low-lying Area	312.82

S. No.	Name of Avenue	Ash Utilization (LMT)
7	Mining filling	378.94
8	Agriculture/ wasteland development	16.78
9	Making of Ash and Geo-polymer-based construction material	25.74
10	Manufacturing of sintered or cold bonded ash aggregate	0.06
11	Export of Ash	8.59
12	Overburden dumps	8.59
13	Others	0.21

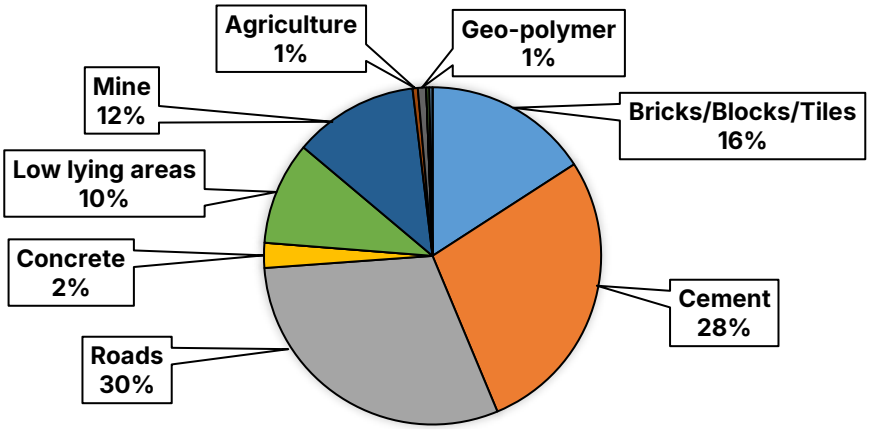


Figure 3.1 Avenue wise utilization of ash in percentages

Performance Stratification of TPPs and Primary Sector-wise Demands for Fly Ash

Based on the data compiled for 196 thermal power plants, the breakup of plants across various ranges of ash utilization percentage during the year 2025–26 is as follows:

Table 3.3

Category	Percentage Ash Utilisation	No. of TPPs	Remarks
1	100 % and more than 100* % during the Year 2025-26	121	These plants achieved full or surplus utilization of ash, reflecting efficient management and strong linkages with end users such as cement and construction sectors.
2	Between 80% to 100 % during the Year 2025-26	40	These TPPs are nearing full utilization levels, with scope for optimization to reach complete utilization.
3	Between 60% to 80 % during the Year 2025-26	19	Plants in this category have moderate utilization and may require better coordination for disposal and transportation mechanisms.
4	Less than 60 % during the Year 2025-26	16	These plants show low utilization and may face challenges such as limited demand, logistics issues, or lack of nearby ash-consuming industries.

Note: - Ash utilisation of more than 100% indicates uses of previous year ash.

The major avenues for fly ash utilization have been identified across key sectors, with road construction (30%), cement manufacturing (28%), and brick production (16%) accounting for the largest shares. These are followed by ash filling in mines (12%) and reclamation of low-lying areas (10%).

3.3 Ash Utilization for FY 2025-26 (Pit Head & Non-Pit Head wise)

"Pit-Head Power Plant," as referred under the Environment (Protection) Rules, 1986 means power stations having captive transportation system for its exclusive use for transportation of coal from the loading point at the mining end upto the uploading point at the power station without using the normal public transportation system.

As per the data available with the Central Electricity Authority, there are 30 Thermal Power Plants classified as Pit Head Thermal Power Plants. One of these plants has been closed, and accordingly, the remaining 29 Pit Head Thermal Power Plants have been taken into account for the preparation of this report.

For all 196 TPPs covered under the reporting framework, a total of 3,129.19 LMT of fly ash was generated, out of which 3,170.48 LMT was utilised, resulting in an overall fly ash utilisation rate of 101.32%.

3.4 Ash Utilised for FY 2025-26 (Pit Head & Non-Pit Head wise)

Table 3.4

Type of Plant	No. of Plants	Installed Capacity (MW)	Coal Consumption (LMT)	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)
PH	29	48010	2242.81	714.61	673.19	94.20
NPH	167	178913	6423.40	2414.59	2497.29	103.43
Total TPPs	196	226923	8666.22	3129.19	3170.48	101.32

PH= Pit Head, NPH = Non - Pit Head

3.5 Avenue Wise Ash Utilization in Pit Head and Non-Pit Head Plants

Table 3.5

S. No.	Name of Avenue	Pit Head Plant Ash Utilization (LMT)	Non-Pit Head Ash Utilization (LMT)	Total Ash Utilization (LMT)
1	Making of Fly Ash based/Brick/Blocks /Tiles etc.	44.34	459.60	503.93
2	Manufacturing of Portland Pozzolana Cement	34.82	848.36	883.17
3	Construction of Highways & Roads including fly-overs	411.24	544.76	956.01
4	Part replacement of cement in concrete	2.81	72.25	75.06
5	Hydro power sector (RCC Dam construction)	0.55	0.04	0.59
6	Reclamation of low-lying Area	54.08	258.74	312.82
7	Mining filling	100.01	278.93	378.94
8	Agriculture/ wasteland development	0.01	16.77	16.78
9	Making of Ash and Geo-polymer-based construction material	25.33	0.41	25.74
10	Manufacturing of sintered or cold bonded ash aggregate	0.01	0.05	0.06
11	Export of Ash	0.00	8.59	8.59
12	Overburden dumps	0.00	8.59	8.59
13	Others	0.00	0.21	0.21

Ash Utilization in Pit Head Plants

Pit Head Plants are only 15% of the total number of thermal power plants (29 out of 196), however, accounts for a 23% of total fly ash generation (714.61 LMT). The overall fly ash utilization rate at Pit Head Thermal Power Plants is 94.20%.

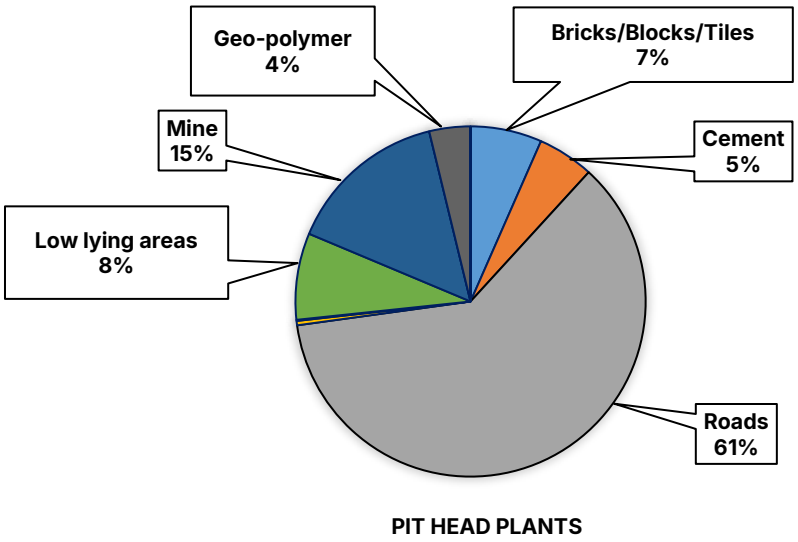


Figure 3.2 Ash Utilization in Pit Head Plants

The majority of ash utilization at Pit Head Plants is directed towards: -

- Road Construction (61%),
- Mine Filling (15%), and
- Reclamation of Low-Lying Areas (8%).

Utilization for cement manufacturing (5%) and brick production (7%) remains relatively low.
This trend is largely influenced by the geographical proximity of mines and large land areas around these plants, which makes bulk disposal through road construction and filling activities more feasible. Moreover, these avenues are typically cost-bearing for the power producer, as the transportation and handling expenses are borne by the Thermal Power Plant (TPP) itself, making them less economically favorable despite their high volumetric capacity.

Breakup of TPPs in different segments of percentage utilisation is as below in Table 3.6.

Table 3.6

S. No.	Pit Head Plants - Percentage Ash Utilisation	No. of TPPs
1	100 % and more than 100* % during the Year 2025-26	17
2	Between 80% to 100 % during the Year 2025-26	4
3	Between 60% to 80 % during the Year 2025-26	3
4	Less than 60 % during the Year 2025-26	5

Note: - Ash utilisation of more than 100% indicates uses of previous year ash.

Ash Utilization in Non-Pit Head Plants

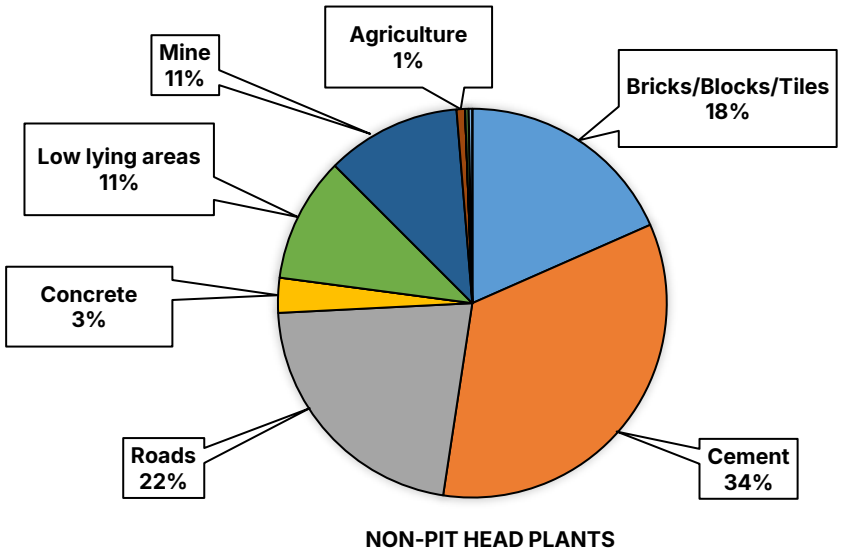


Figure 3.3 Ash Utilization in Non-Pit Head Plants

In contrast, the utilization performance at non-pit head plants is 103.43% during the same period. Non-Pit Head Thermal Power Plants exhibit a utilization profile driven more by market-linked consumption as under.

- Cement Manufacturing (34%),
- Road Construction (22%), and
- Brick Production (18%)

While mine filling (11%) & Low-Lying Area (11%) contribute relatively smaller shares.
These plants, often located near industrial and urban centers, benefit from proximity to cement and construction industries, resulting in higher-value utilization avenues. Additionally, in these cases, cement and brick manufacturers typically bear the cost of transportation, as they purchase or source fly ash for use as a raw material, making utilization both economically viable and environmentally beneficial.

A closer examination of the utilization pattern reveals distinct differences in the sectoral distribution of fly ash usage between Pit Head and Non-Pit Head Plants.

3.6 Ash Utilization of TPPs under NTPC & DVC Plants (Generate 35%-38% of Total Ash Generation among Grid Connected Plants)

Table 3.7

Name of Power Utility	Type of Plant	No. of Plants	Installed Capacity (MW)	Coal Consumption (LMT)	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)
NTPC	PH	12	30560	1449.06	515.13	540.62	104.95
	NPH	20	30430	1181.22	474.59	514.04	108.31
DVC	NPH	6	6540	250.86	115.23	124.08	107.68

3.7 All India - Sector Wise Ash Utilization

A total of 196 Thermal Power Plants, there are 49 Central sector TPPs, 69 State sector TPPs, and 78 Private sector TPPs. Among these, the Central and Private sector plants have better performance in ash utilization, achieving complete or even surplus utilization. In contrast, the State sector plants are lagging behind, indicating the need for focused efforts to improve ash management and enhance utilization practices in these plants.

Table 3.8

Sector/Type	No. of Plants	Installed Capacity (MW)	Coal Consumption (LMT)	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)
Central	**49**	**76870**	**3231.87**	**1181.86**	**1255.06**	**106.19**
PH	17	34200	1642.87	533.90	565.06	105.84
NPH	32	42670	1589.01	647.95	690.00	106.49
State	**69**	**76490**	**2496.37**	**972.53**	**911.63**	**93.74**
PH	7	6820	266.63	97.33	48.05	49.37
NPH	62	69670	2229.74	875.20	863.58	98.67
Private	**78**	**73563**	**2937.97**	**974.81**	**1003.79**	**102.97**
PH	5	6990	333.31	83.37	60.08	72.06
NPH	73	66573	2604.65	891.43	943.71	105.86
Grand Total	**196**	**226923**	**8666.22**	**3129.19**	**3170.48**	**101.32**

Note: - Ash utilisation of more than 100% indicates uses of previous year ash.

The Central Sector, with an installed capacity of 76870 MW, consumed 3,231.87 LMT of coal and generated 1,181.86 LMT of ash, contributing about 38% of total ash production. The Private Sector, despite having the installed capacity at 73563 MW, generated a relatively lower ash quantity of 974.81 LMT, contributing about 31 % of total ash production. The State Sector with an installed capacity of 76490 MW, with coal consumption of 2,496.37 LMT, produced 972.53 LMT of ash, accounting for nearly 31% of the total ash generated.

Utilization Efficiency

a. The Central Sector exhibited the excellent performance, achieving 106.19% utilization, indicating complete utilization of the current year's ash along with partial clearance of residual ash from previous years. However, performance in ash utilization in Pit Head Plants & Non-Pit Head Plants is 105.84% & 106.49 respectively.
b. The Private Sector also exhibited the best performance, achieving 102.97% utilization, indicating complete utilization of the current year's ash along with partial clearance of residual ash from previous years. However, performance in ash utilization in Pit Head Plants is only 72.06% which needs focused improvement.
c. The State Sector recorded a comparatively lower ash utilization of 93.74%, underscoring the need for further improvements in operational and logistical efficiency. Ash utilization at State Sector Pit Head Plants remained particularly low at around 49.37%, necessitating concerted and focused efforts to significantly enhance utilization levels.

Avenue Wise Utilisation of Ash in Central, State and Private Sector

Table 3.9

S. No.	Name of Avenue	Ash Utilization (LMT)			Total Ash Utilization (LMT)
		Central Sector	State Sector	Private Sector	
1	Making of Fly Ash based product's /Brick/Blocks /Tiles etc.	113.08	274.90	115.95	503.93
2	Manufacturing of Portland Pozzolana Cement	230.49	330.27	322.41	883.17
3	Construction of Highways & Roads including flyovers	703.29	148.82	103.90	956.01
4	Part replacement of cement in concrete	25.71	18.82	30.53	75.06
5	Hydro power sector (RCC Dam construction)	0.00	0.59	0.00	0.59
6	Reclamation of low-lying Area	55.46	92.25	165.11	312.82
7	Mining filling	99.17	20.30	259.47	378.94
8	Agriculture/ wasteland development	0.06	15.97	0.74	16.78
9	Making of Ash and Geo-polymer-based construction material	25.70	0.01	0.03	25.74
10	Manufacturing of sintered or cold bonded ash aggregate	0.06	0.00	0.00	0.06
11	Export of Ash	1.02	4.85	2.72	8.59
12	Overburden dumps	1.02	4.85	2.72	8.59
13	Others	0.00	0.00	0.21	0.21

Central Sector TPPs- Avenue wise ash utilisation in FY 2025-26

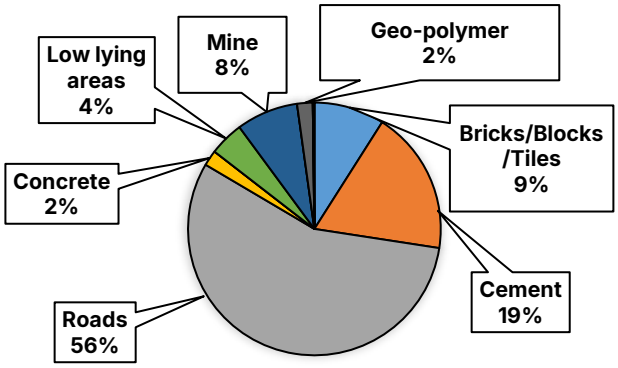


Figure 3.4 Ash Utilization in Central Sector TPPs

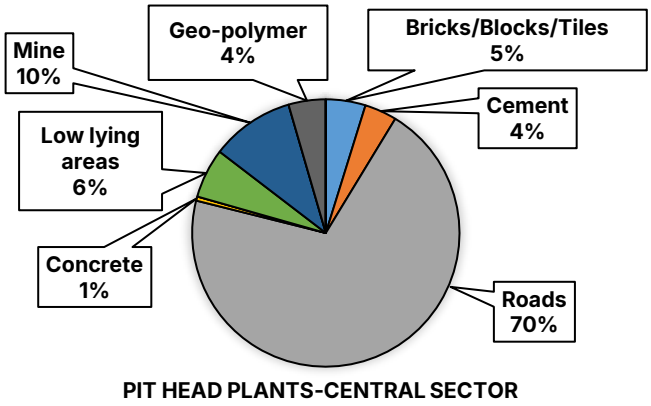


Figure 3.5 Ash Utilization in Pit Head Plants (Central Sector)

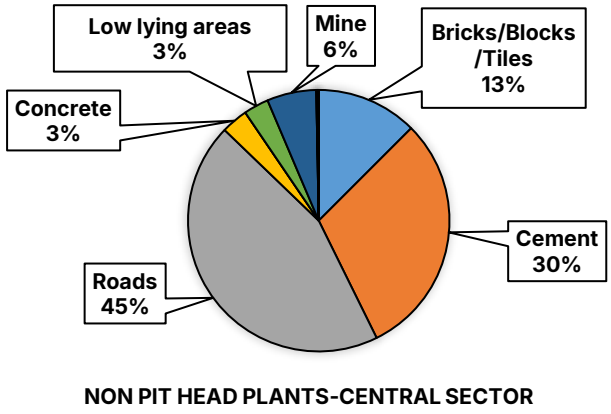


Figure 3.6 Ash Utilization in Non-Pit Head Plants (Central Sector)

There are 49 Central Sector TPPs. Out of the 49 Central Sector Plants, 17 are Pit-head Stations, accounting for about 35% of the total plants but generating nearly 45% of the total ash.

The overall utilization in the Central Sector is 106.19%, indicating almost complete ash use. The major avenues of ash utilizations in Central Sector TPPs are: -

- Road Construction (56%),
- Cement (19%) and
- Bricks/Blocks/Tiles (9%).

Other avenues include mine filling (8%), low-lying area reclamation (4%), and a small portion (2%) in concrete.

Among Central Pithead Plants major disposal is through

- Roads (70%),
- Mine Filling (10%) and
- Low-Lying Areas (6%).

The ash utilization of Pit Head Plants in remains relatively low in cement (4%) and bricks (5%)

Conversely, non-pithead plants have more diversified use —

- Roads (45%),
- Cement (30%), and
- Bricks (13%).

State Sector TPPs – Avenue wise ash utilisation in FY 2025-26

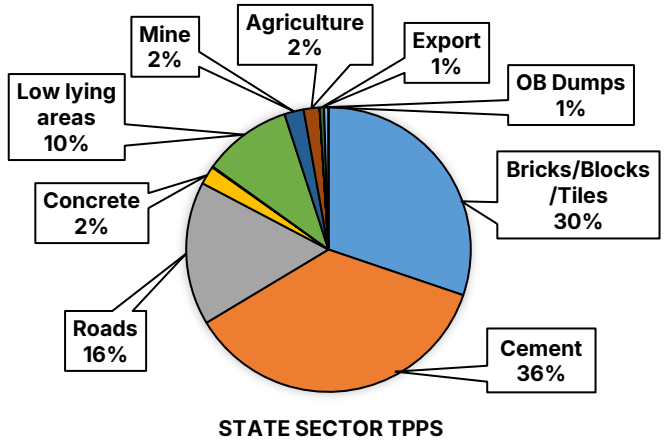


Figure 3.7 Ash Utilization in State Sector TPPs

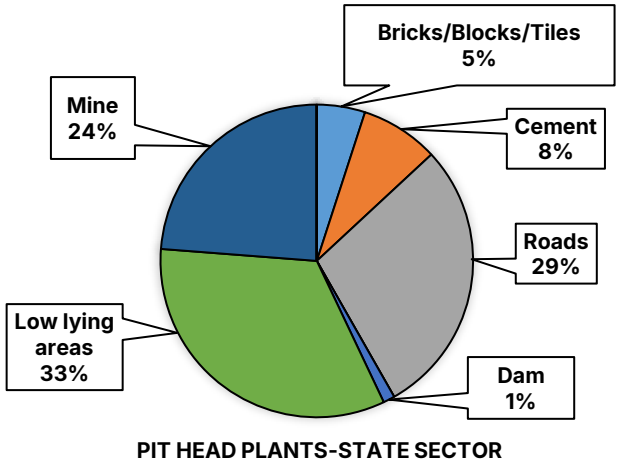


Figure 3.8 Ash Utilization in Pit Head Plants (State Sector)

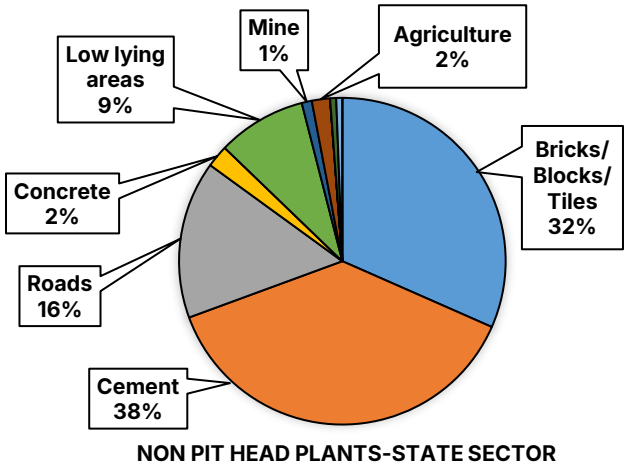


Figure 3.9 Ash Utilization in Non-Pit Head Plants (State Sector)

There are 69 plants of State Sector.

- State sector plants show a moderate utilization efficiency of 93.74%.
- They exhibit a distinctly higher reliance on cement (36%) and bricks/blocks/tiles (30%), together accounting for nearly two-thirds of total utilization.
- Road construction (16%) is another key avenue, while small portions are used in low-lying areas (10%) and mine backfilling (2%).

Among State Pithead Plants major disposal is through

- Low-Lying Areas (33%).
- Road (29%) and
- Mine filling (24%)

Their utilization in brick (5%) and Cement (8%) remains relatively low.

Conversely, Non-Pithead Plants have more diversified use: -

- Cement (38%),
- Bricks (32%), and
- Road (16%).

Private Sector TPPs – Avenue wise ash utilisation in FY 2025-26

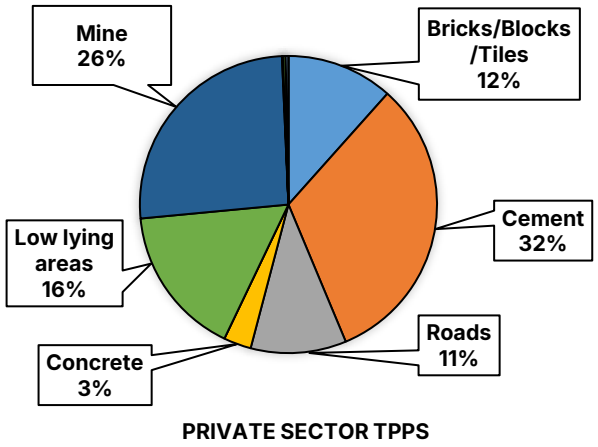


Figure 3.10 Ash Utilization in Private Sector TPPs

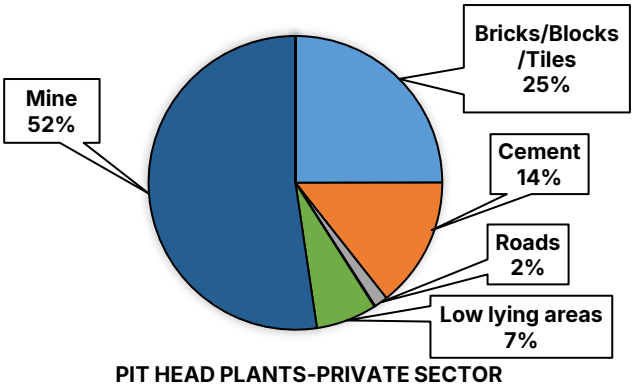


Figure 3.11 Ash Utilization in Pit Head Plants (Private Sector)

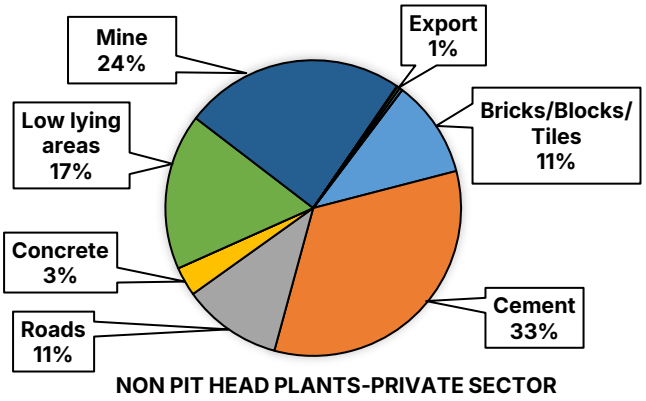


Figure 3.12 Ash Utilization in Non-Pit Head Plants (Private Sector)

There are 78 plants in the Private Sector. Private sector plants exhibit an overall utilization rate of 102.97%, showing excellent performance. However, the pattern of utilization differs from the central sector —

- Cement(32%)
- Bricks(12%)and,
- Roads(11%)

Notably, mine backfilling and low-lying area reclamation together account for a significant share (26% and 16%, respectively), reflecting the influence of captive mines and nearby land availability.

Among private sector plants, pit head units dispose a large share of ash through mine filling (52%) and low-lying areas (7%), while only 2% goes to roads.

Non-pithead private sector plants, on the other hand, show higher utilization in cement (33%), Mine (24%) and bricks (11%), but a smaller fraction (11%) in roads.

The avenue-wise ash utilization in percentage across major sectors by the Central, State, and Private Sector thermal power plants.

Table 3.10

S. No	Name of Avenue	Sector Wise Ash Utilization (%)								
		Central	PH (C)	NPH (C)	State	PH (S)	NPH (S)	Private	PH (P)	NPH (P)
1	Making of Fly Ash based product's /Brick/Blocks /Tiles etc.	9	5	13	30	5	32	12	25	11
2	Manufacturing of Portland Pozzolana Cement	19	4	30	36	8	38	32	14	33
3	Construction of Highways & Roads including flyovers	56	70	45	16	29	16	11	2	11
4	Part replacement of cement in concrete	2	1	3	2	0	2	3	0	3
5	Reclamation of low-lying Area	4	6	3	10	33	9	16	7	17
6	Mining filling	8	10	6	2	24	1	26	52	24
7	Agriculture/ wasteland de-velopment	0	0	0	2	0	2	0	0	0
8	Making of Ash and Geo-pol-ymer-based construction material	2	4	0	0	0	0	0	0	0
9	Export of Ash /Dams	0	0	0	1/0	0/1	0	0	0	1/0
10	Overburden dumps	0	0	0	1	0	0	0	0	1

3.8 Statewise Ash Generation and its Utilization of FY 2025-26

The State-wise data on ash generation and utilization for 196 grid-connected thermal power plants, for which information was available, has been compiled and presented below for the year 2025–26.

Table 3.11

S. No.	Name of State	No. of Plants	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	Utilisation (%)
1	Andhra Pradesh	9	483.80	183.06	181.53	99.16
2	Assam	1	26.90	9.87	17.95	181.86
3	Bihar	7	418.46	165.00	222.57	134.89
4	Chhattisgarh	24	1150.03	467.12	504.96	108.10
5	Gujarat	12	334.87	46.70	55.26	118.35
6	Haryana	5	180.61	73.89	83.24	112.67
7	Jharkhand	9	274.55	112.60	111.94	99.42
8	Karnataka	6	258.32	93.17	89.60	96.17

S. No.	Name of State	No. of Plants	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	Utilisation (%)
9	Madhya Pradesh	14	896.34	300.42	330.20	109.91
10	Maharashtra	19	961.34	339.43	312.22	91.98
11	Odisha	8	602.11	252.91	265.20	104.86
12	Punjab	5	201.98	68.85	95.06	138.06
13	Rajasthan	10	383.50	121.79	134.36	110.33
14	Tamil Nadu	18	506.79	137.59	148.78	108.14
15	Telangana	10	381.51	158.15	110.01	69.56
16	Uttar Pradesh	25	1085.57	389.84	295.26	75.74
17	West Bengal	14	519.52	208.82	212.32	101.68
	Grand Total	**196**	**8666.22**	**3129.19**	**3170.48**	**101.32**

Note: - Ash utilisation of more than 100% indicates uses of previous year ash.

- The above data is also illustrated through bar charts given below to provide a clearer visual representation.

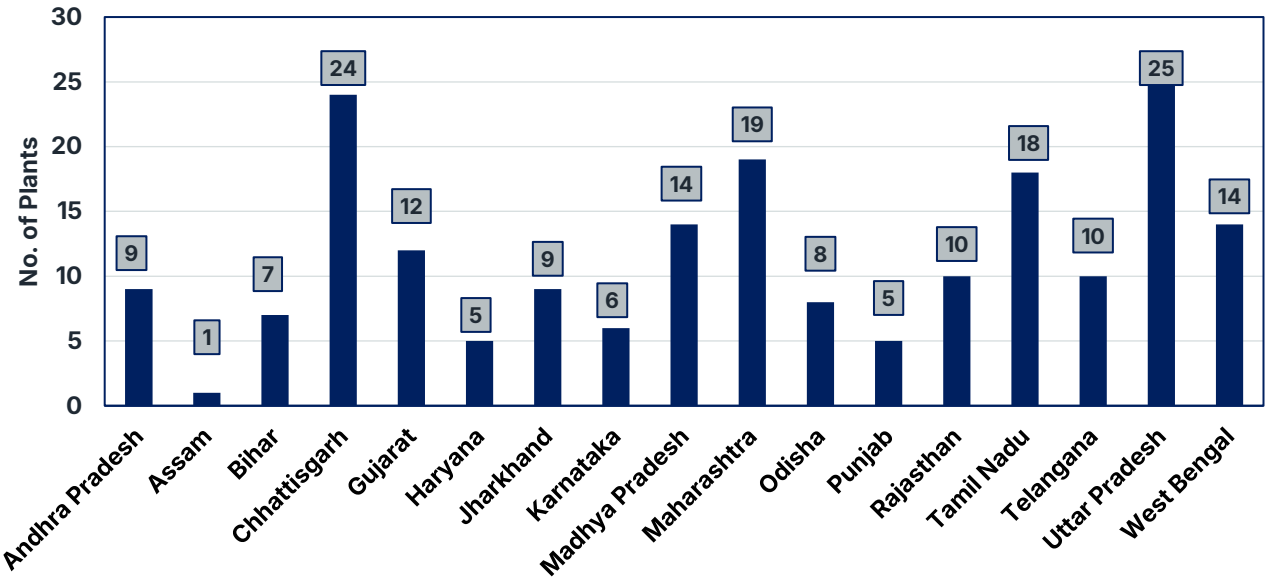


Figure 3.13 Plot Showing the State wise number of TPPs

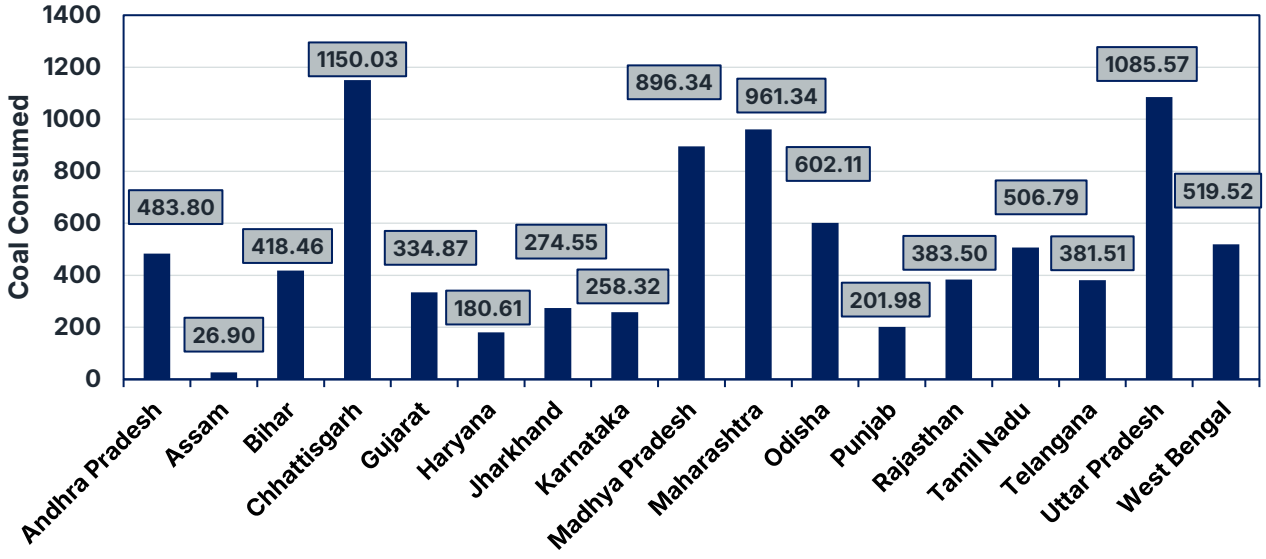


Figure 3.14 Plot Showing the State Wise Coal Consumption in LMT

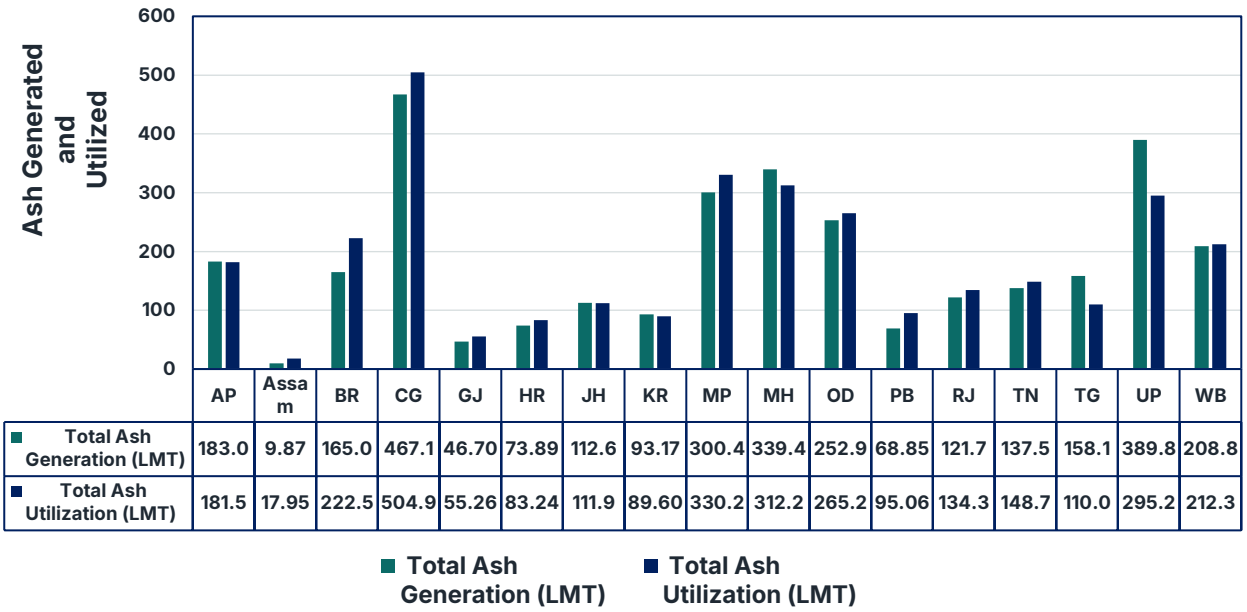


Figure 3.15 Plot Showing the State Wise Ash Generation and Utilization in LMT

3.9 State wise Ash Data (Bar Chart Representation)

It may be seen from Table 3.11 and Bar Chart Plot from Figure 3.13 to Figure 3.15 that:

i. Twelve states, namely Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal, generated more than 10 Million Tonnes (MT) of fly ash each during FY 2025–26. Together, these states accounted for the major share of the country's total fly ash generation, with Chhattisgarh recording the highest generation of 46.71 MT, followed by Uttar Pradesh (38.98 MT) and Maharashtra (33.94 MT).

ii. During FY 2025–26, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, and West Bengal achieved fly ash utilization exceeding 100%.

iii. All States and Union Territories achieved fly ash utilization of more than 75%, except Telangana, which reported a utilization level below 75%.

4. Over the years Trend of Ash Generation and Utilization

A trend analysis of progressive fly ash generation and its utilization from 1996-97 to 2025-26, based on data from previous CEA reports and recent information available on the CPCB Coal Ash Portal & obtained directly by CEA, shows a consistent improvement in fly ash management by Thermal Power Stations and Power Utilities.

The plotted data for the period 1996-97 to 2025-26 as shown in Figure 3.3 indicates a steady rise in fly ash utilization from just 9.64% in 1996-97 to approximately 101.32% in 2025-26 highlighting significant progress in sustainable ash utilization practices over time.

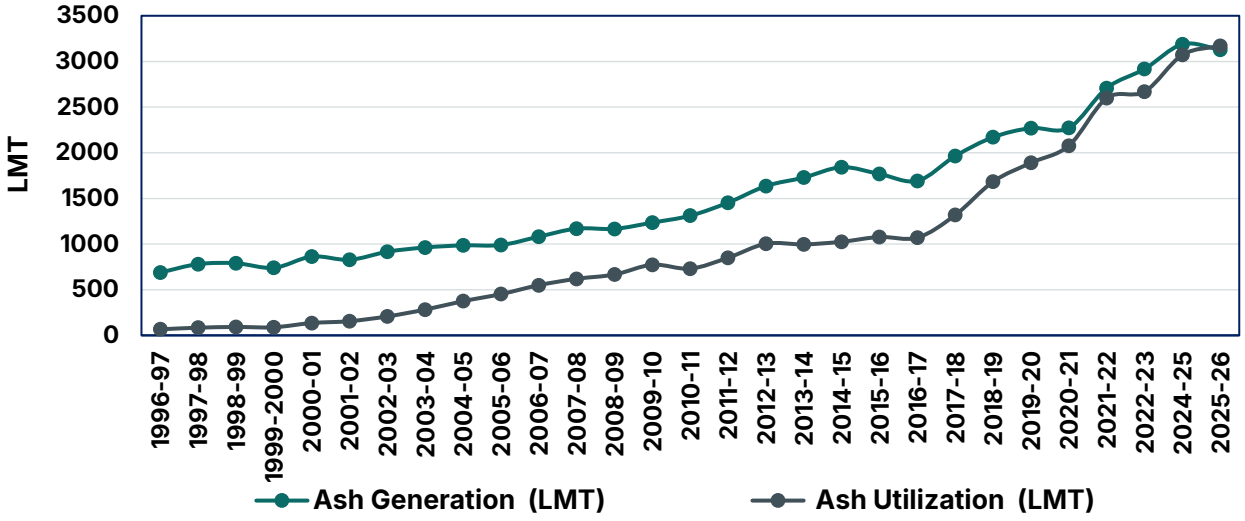


Figure 4.1 Ash Generation Vs Ash Utilization

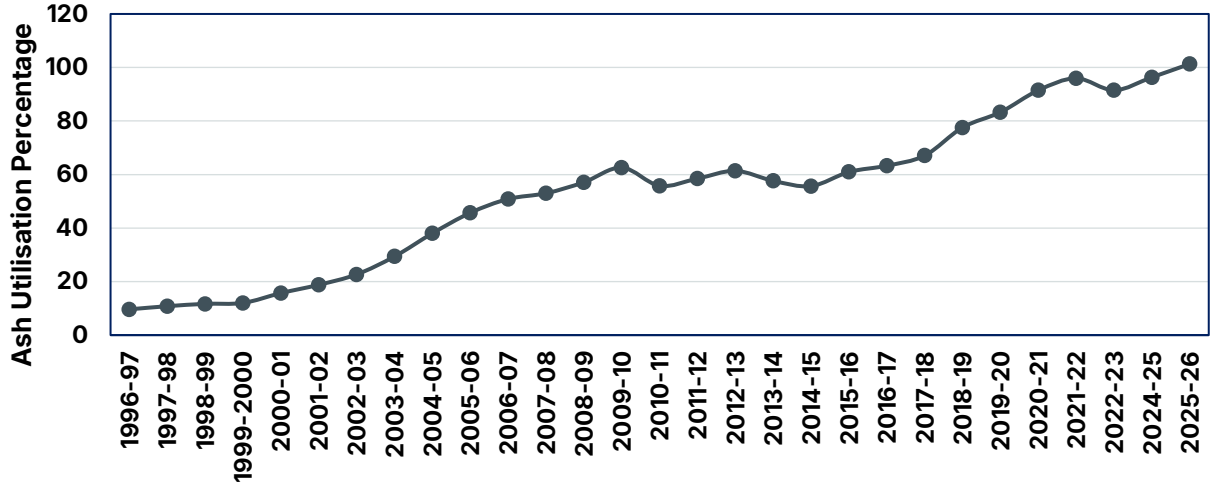


Figure 4.2 Year Wise Ash Utilisation Percentage

Trend of Avenue wise Ash Utilization

The avenue-wise ash utilisation trend for recent years (based on data available from the CPCB Coal Ash Portal) has been plotted for the major utilisation avenues—such as cement manufacturing, road construction, brick manufacturing, and mine filling. The details are given as below.

4.1 Trends of Fly Ash use in Construction of Highways

The infrastructure sector, particularly the construction of national highways, roads, and flyovers, has emerged as a primary driver for the bulk utilization of coal ash in India. Over the last four financial years,

the consumption of fly ash in road infrastructure projects has maintained a robust trajectory, reflecting strong institutional linkages between thermal power plants and executing agencies such as the National Highways Authority of India (NHAI). Ash utilization in highway and road construction witnessed a steady upward growth, rising from 773.74 Lakh Metric Tonnes (LMT) in FY 2022–23 to a peak of 1,040.04 LMT in FY 2024–25. In the subsequent fiscal year (FY 2025–26), utilization remained highly substantial at 956.01 LMT. This sustained demand underscores the successful integration of industrial by-products into large-scale civil engineering works, thereby conserving natural topsoil and promoting sustainable infrastructure development.

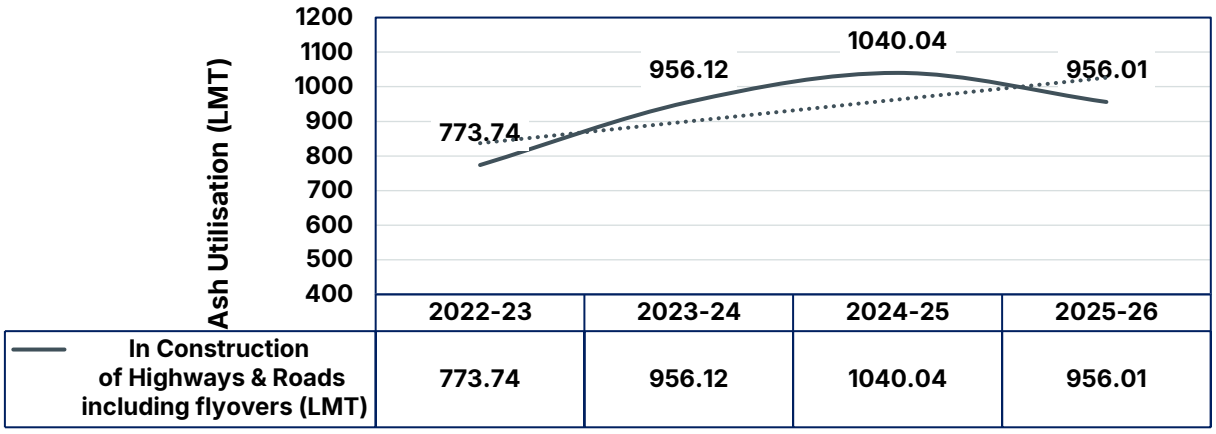


Figure 4.3 Ash Utilisation trend in recent year-Construction of Highway

4.2 Trends in Fly Ash use in Cement manufacturing

The cement industry continues to be a cornerstone for the sustainable consumption of coal ash, primarily through its integration into the production of Portland Pozzolana Cement (PPC). Several cement producers maintain long-term tie-ups with nearby thermal power plants (TPPs) to ensure a consistent and cost-effective supply of quality fly ash. These collaborations are mutually beneficial, as cement producers gain access to a valuable raw material while TPPs are able to dispose of ash sustainably without adding transport costs to TPPs or electricity consumers. To facilitate greater collaboration between TPPs and cement manufacturers, a GIS-based map and an indicative and inexhaustible list of major cement plants (compiled from online sources as on 20th Oct 2025) is provided maps in this report. The volume of ash utilized in cement manufacturing has maintained a consistently high threshold over the last four fiscal years. Consumption commenced at 886.14 Lakh Metric Tonnes (LMT) in FY 2022–23, experienced a notable surge to 970.28 LMT in FY 2023–24, and stabilized at 857.72 LMT in FY 2024–25. In the current reporting period of FY 2025–26, the sector demonstrated a resilient recovery, with utilization rising to 883.17 LMT. This steady off-take underscores the deep-rooted supply chains and stable demand from the construction materials sector.

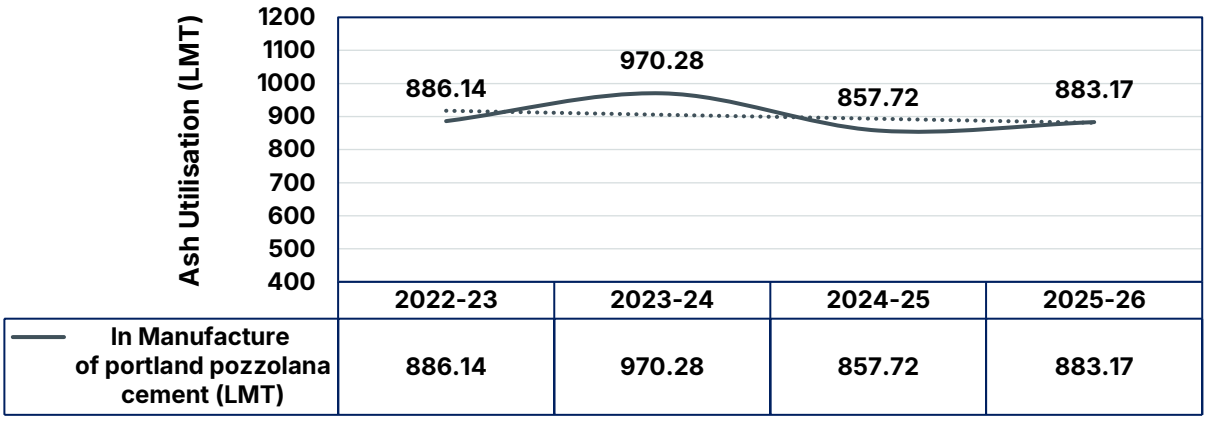
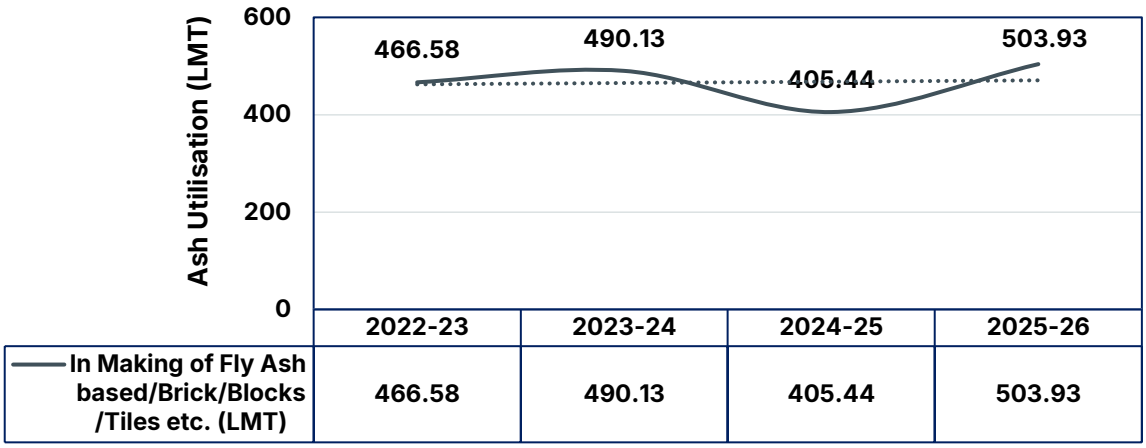


Figure 4.4 Ash Utilisation trend in recent year-Cement Manufacturing

4.3 Trends in Fly Ash use in Bricks, Block etc. manufacturing

The manufacturing of building materials—specifically fly ash-based bricks, blocks, and tiles—serves as an essential decentralized avenue for bulk ash utilization. Driven by environmental regulations that restrict the excavation of fertile topsoil for conventional clay bricks, this sector plays a critical role in advancing sustainable construction practices. The volume of ash absorbed by the brick, block, and tile manufacturing sector has remained substantial over the past four fiscal years. The sector experienced a sharp recovery in the FY 2025–26 reporting period, reaching a peak of 503.93 LMT. This progressive growth highlights the expanding market demand and strengthening supply-chain networks supporting ash-based micro and small enterprises.



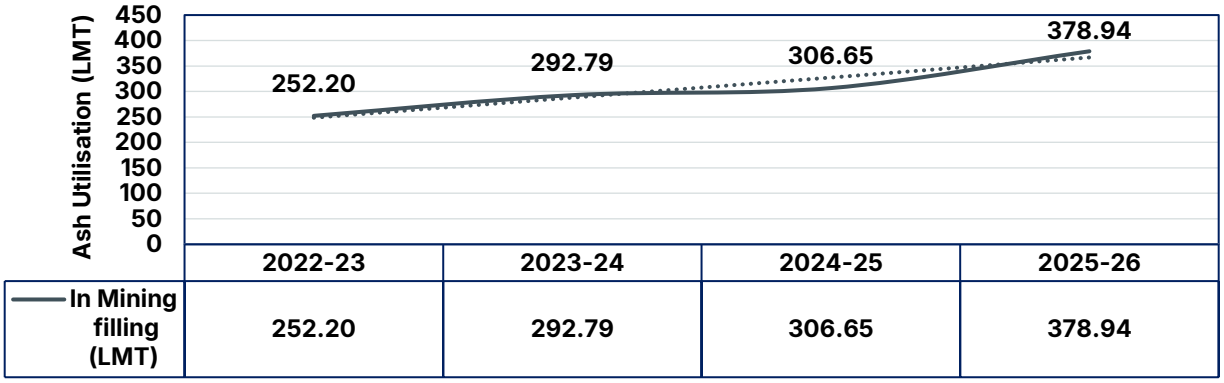
	2022-23	2023-24	2024-25	2025-26
In Making of Fly Ash based/Brick/Blocks /Tiles etc. (LMT)	466.58	490.13	405.44	503.93

Figure 4.5 Ash Utilisation trend in recent year-Brick, Block etc. Manufacturing

4.4 Trends in Fly Ash use in Mine Filling and reclamation of low-lying area

The utilization of fly ash for backfilling abandoned mines and stowing mine voids is an important volume-based disposal option. However, as per Paragraph XXVI of the 6th Minutes of Meeting (MoM) of the Fly Ash Mission, mine backfilling and filling of low-lying areas are designated strictly as a last resort measure. This ensures that higher-value, environmentally preferable applications, such as cement and building material manufacturing, are prioritized, with mine filling adopted only when such avenues are exhausted or not feasible. The quantity of fly ash utilized for mine backfilling has increased steadily over the past four fiscal years, reaching a record 378.94 LMT in FY 2025–26. This trend indicates the growing reliance on mine filling to achieve 100% fly ash utilization where other utilization options are insufficient.

Allocation of mines to Thermal Power Plants (TPPs) is undertaken by the Central Level Working Group (CLWG), chaired by the Additional Secretary, Ministry of Coal (MoC), in accordance with the Ministry's Standard Operating Procedures (SoPs). The lists of allocated mines to different TPPs for disposal of ash is provided in Annexure-IV.



	2022-23	2023-24	2024-25	2025-26
In Mining filling (LMT)	252.20	292.79	306.65	378.94

Figure 4.6 Ash Utilisation trend in recent year-Mine Filling

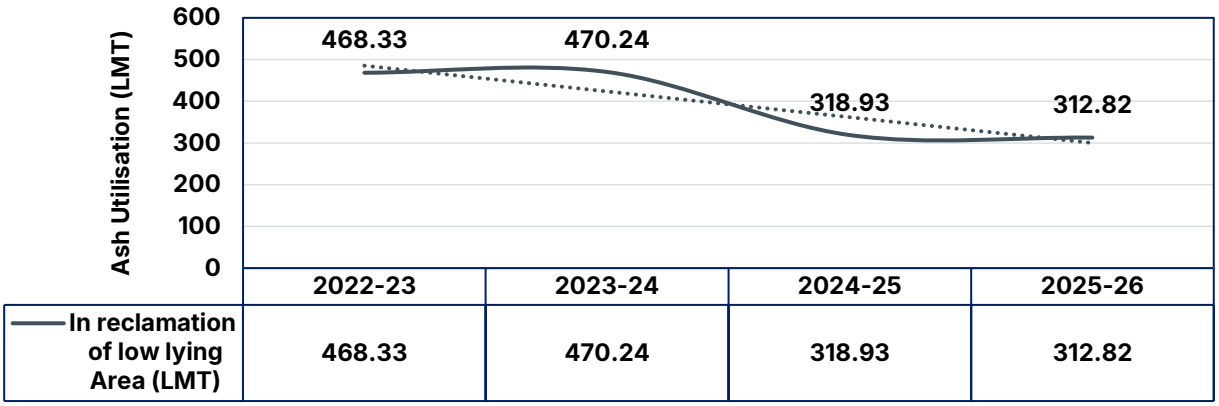


Figure 4.7 Ash Utilisation trend in recent year- Reclamation of Low Lying Area

4.5 Trends in Fly Ash Use in Agriculture/Wasteland Development

The utilization of fly ash in agriculture represents a specialized application aimed at improving soil texture, enhancing water-holding capacity, and reclaiming alkaline or degraded lands. Despite its potential agronomic benefits as a soil conditioner, this sector has seen a sharp and continuous decline in consumption volumes over recent years, indicating a strategic shift in disposal priorities and tighter regulatory scrutiny regarding direct land application.

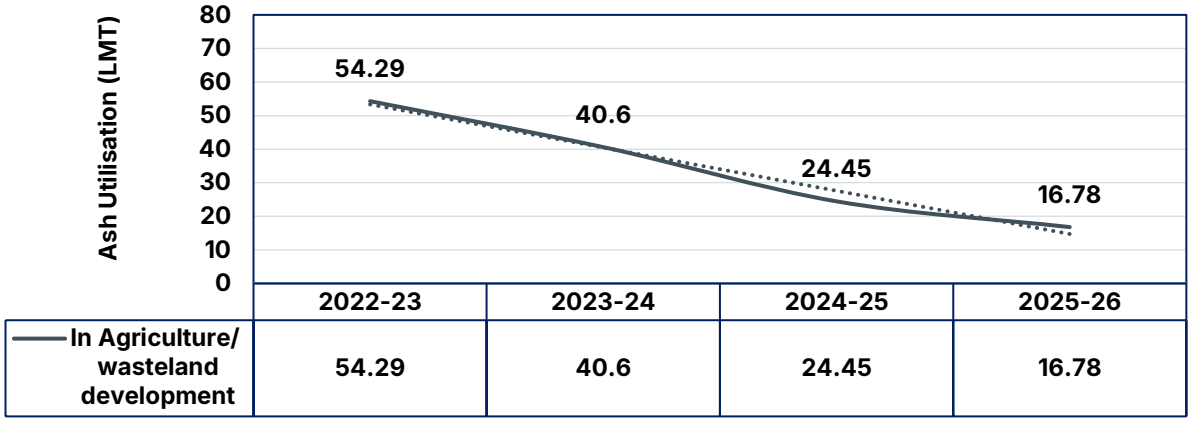


Figure 4.8 Ash Utilisation trend in recent year-Agriculture/Wasteland Devlopment

5. State Wise Profiles & Maps

This chapter presents comprehensive state-wise profiles of coal/lignite-based Thermal Power Plants (TPPs) across seventeen states. Each state profile has been developed to provide an integrated overview of the thermal power sector and its fly ash utilisation status through a combination of GIS-based maps, statistical charts, and key observations.

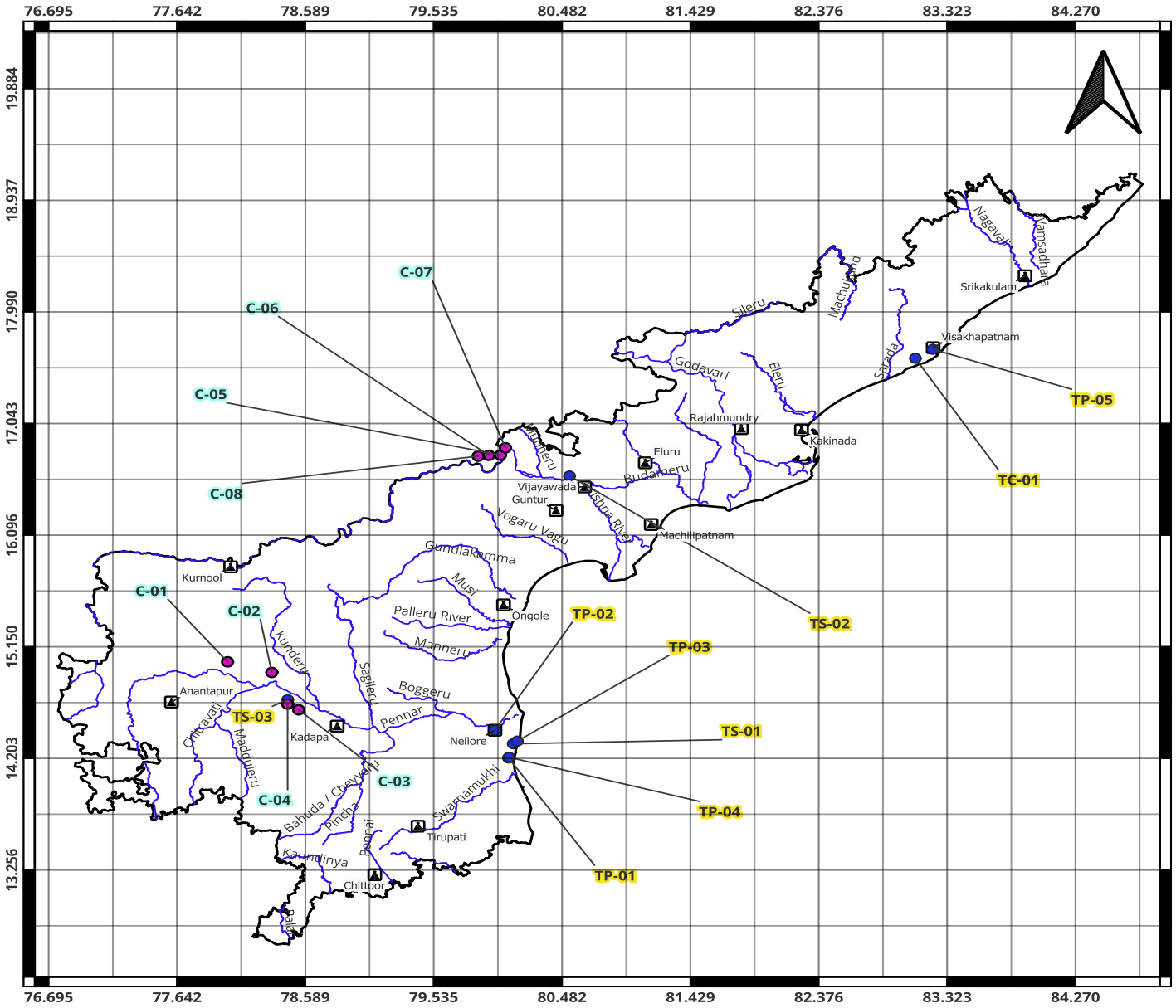
The GIS maps depict the geographical locations of Thermal Power Plants, major Cement Plants, and Mine Voids for ash filling allotted to various thermal power plants, enabling visualization of the spatial distribution of ash generation sources and key utilisation avenues. These maps facilitate an understanding of the regional infrastructure available for fly ash utilisation and the potential for optimizing transportation and resource linkage.

In addition to the GIS maps, each state profile includes graphical representations of installed capacity and sector-wise distribution of Thermal Power Plants, coal consumption, ash generation, ash utilisation, percentage utilisation, and avenue-wise utilisation of fly ash. Salient observations highlighting the state's ash utilisation performance, dominant utilisation avenues, and sectoral trends have also been included to provide a concise analytical summary.

The state-wise profiles are presented in the following sections for the following state's: -

S No.	Name of State
1	Andhra Pradesh
2	Assam
3	Bihar
4	Chhattisgarh
5	Gujarat
6	Haryana
7	Jharkhand
8	Karnataka
9	Madhya Pradesh
10	Maharashtra
11	Odisha
12	Punjab
13	Rajasthan
14	Tamil Nadu
15	Telangana
16	Uttar Pradesh
17	West Bengal

5.1 Andhra Pradesh



Andhra Pradesh

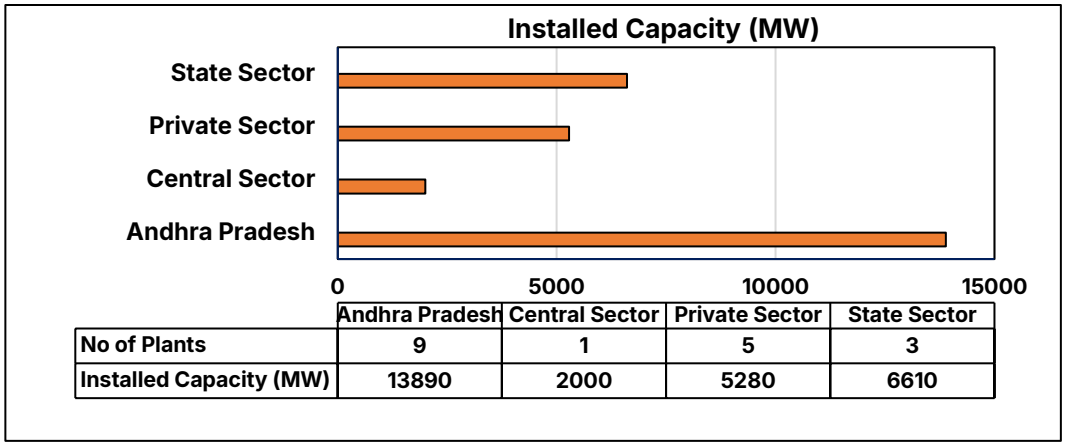
Note:- Scale: 1 cm = 37 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	SIMHADRI
TP-01	SIMHAPURI JPL
TP-02	PAINAMPURAM
TP-03	SGPL
TP-04	THAMMINAPATNAM
TP-05	VIZAG
TS-01	SRI DAMODARAM SANJEEVAIAH
TS-02	Dr. N.TATA RAO
TS-03	RAYALASEEMA

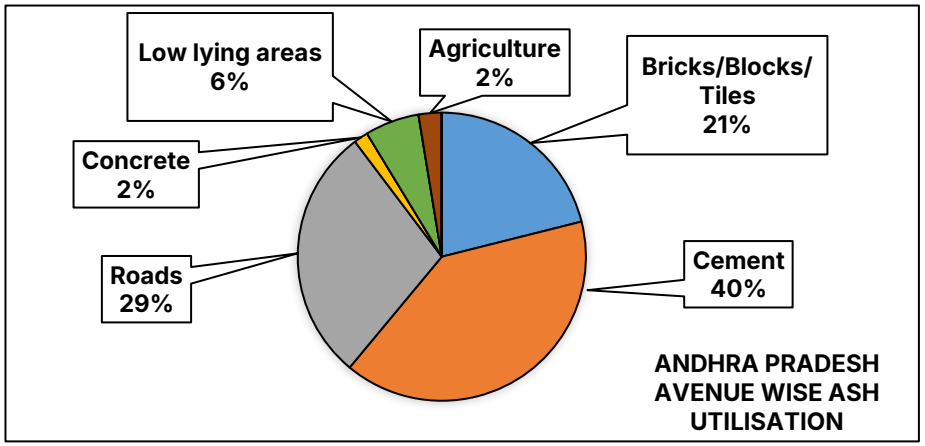
Symbol	Name of Cement Plant
C-01	UltraTech Cement Ltd (Andhra Pradesh Cement Works)
C-02	Dalmia Cement (Bharat) Ltd
C-03	Zuari Cement Ltd
C-04	The India Cements Ltd (Yerraguntla Plant)
C-05	Anjani Portland Cement Ltd
C-06	Andhra Cements Company Ltd (Visakha Cement Works)
C-07	KCP Ltd (Cement Unit-II)
C-08	Sagar Cements Ltd

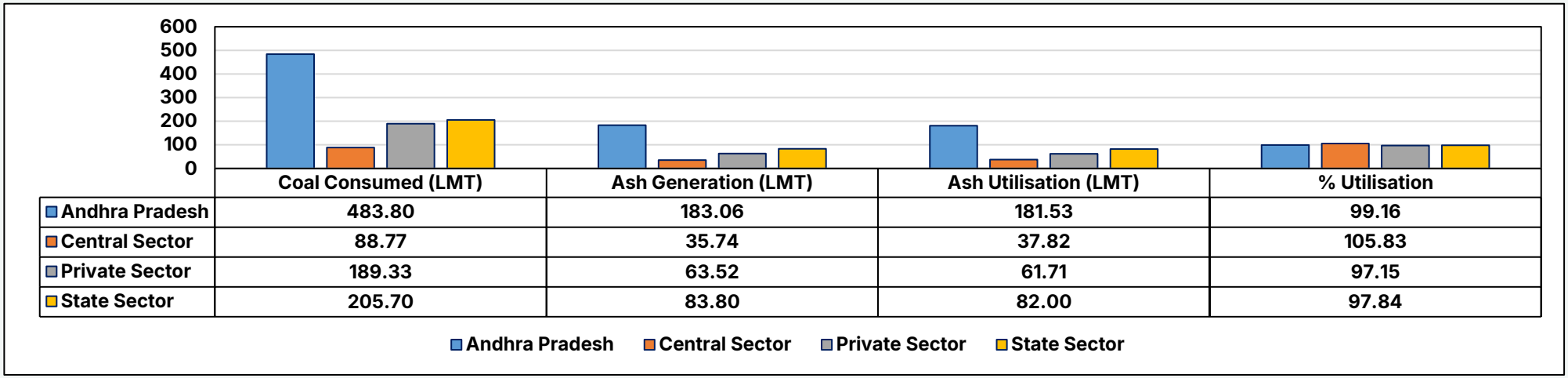
Figure 5.1 Map Showing the locations of TPPs and Major Cement Plants in Andhra Pradesh

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Andhra Pradesh



	Andhra Pradesh	Central Sector	Private Sector	State Sector
No of Plants	9	1	5	3
Installed Capacity (MW)	13890	2000	5280	6610





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Andhra Pradesh	483.80	183.06	181.53	99.16
Central Sector	88.77	35.74	37.82	105.83
Private Sector	189.33	63.52	61.71	97.15
State Sector	205.70	83.80	82.00	97.84

Figure 5.2 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Andhra Pradesh

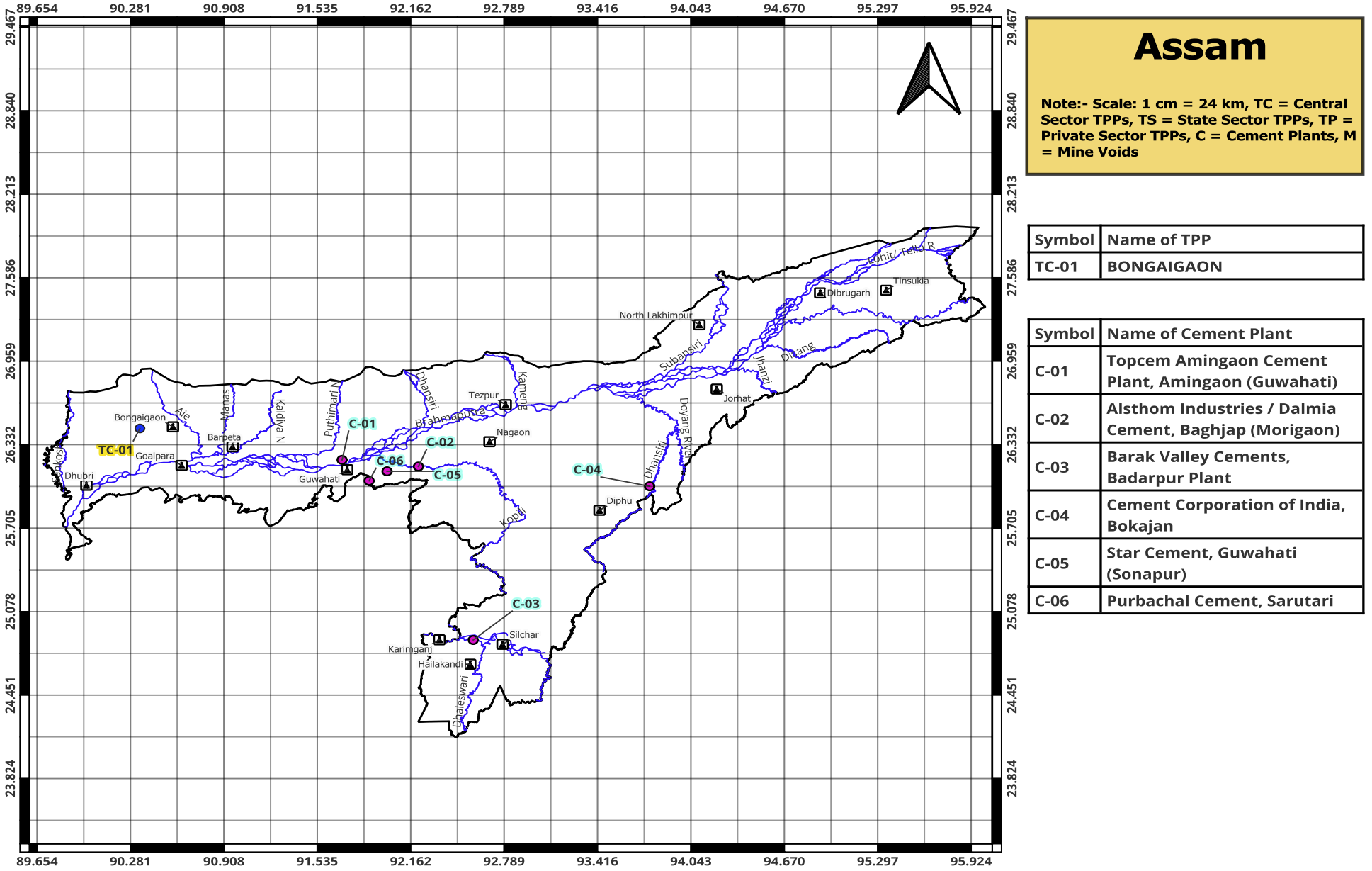
Observations:

- Over all Ash utilisation is approximately 100% and private and state sectors have achieved nearly 100% and central sector have more than 100% ash utilisation.
- Majority of ash is being used in cement, roads and bricks.
- Cement sector is the primary consumer of fly ash, indicating strong industrial linkage.

Table 5.1 Ash Generation and Utilization Data of Andhra Pradesh for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	SIMHADRI	NTPC Ltd.	2000	Andhra Pradesh	35.74	37.82	105.83
2	Dr. NTTPS (VIJAYAWADA)	A.P.GENCO	2560	Andhra Pradesh	33.38	26.82	80.34
3	RAYALSEEMA THERMAL POWER PROJECT	A.P.GENCO	1650	Andhra Pradesh	29.75	32.66	109.8
4	SRI DAMODARAM SANJEEVAIAH	APPDCL	2400	Andhra Pradesh	20.68	22.51	108.88
5	JINDAL POWER LIMITED (SIMHAPURI UNIT)	SEL	600	Andhra Pradesh	3.61	3.64	100.72
6	SEMBCORP ENERGY INDIA LIMITED (FORMERLY THERMAL POWER-TECH CORPORATION INDIA LIM-ITED)	THERMAL POWERTECH CORPO-RATION OF INDIA LIMITED	1320	Andhra Pradesh	21.25	19.72	92.79
7	SEMBCORP ENERGY INDIA LIMITED PROJECT-2	THERMAL POWERTECH CORPO-RATION OF INDIA LIMITED	1320	Andhra Pradesh	17.18	15.74	91.61
8	THAMMINAPATNAM	MEENAKSHI ENERGY LIMITED	1000	Andhra Pradesh	2.74	1.88	68.52
9	HINDUJA POWER PLANT, VISA-KHAPATNAM	HINDUJA NATIONAL POWER CORPORATION LTD	1040	Andhra Pradesh	18.74	20.74	110.67
	Grand Total				**183.07**	**181.53**	**99.16**

5.2 Assam

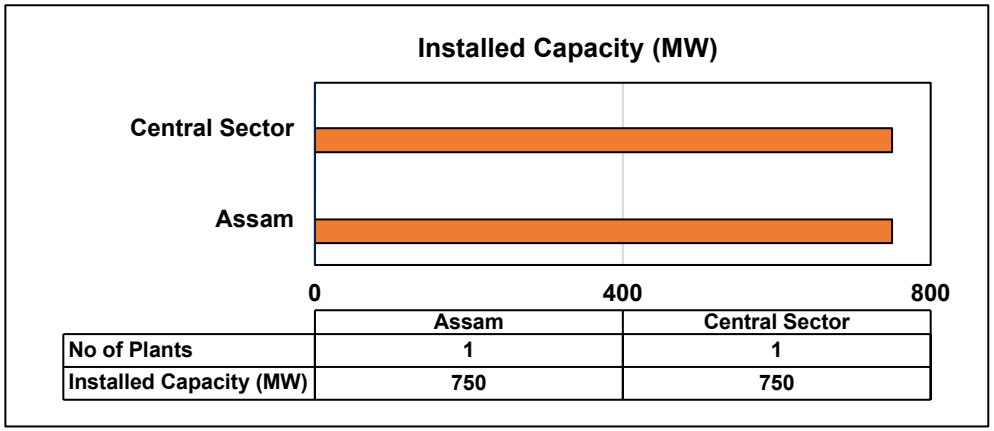


Symbol	Name of TPP
TC-01	BONGAIGAON

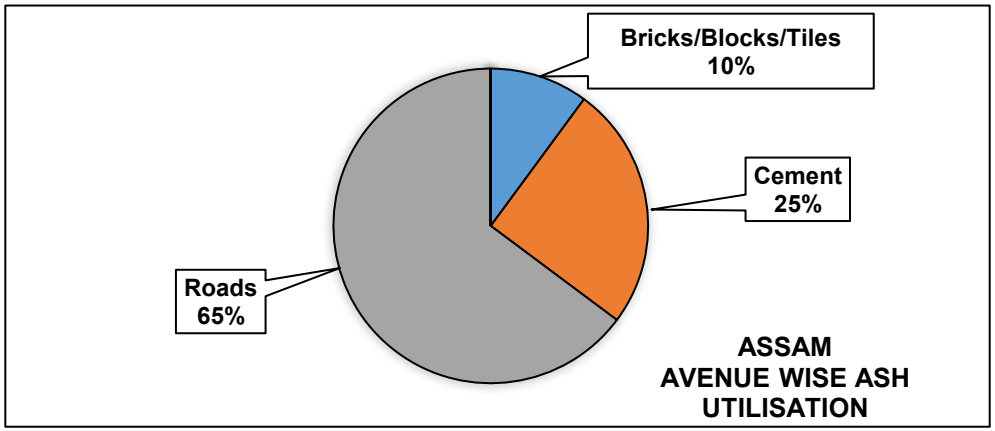
Symbol	Name of Cement Plant
C-01	Topcem Amingaon Cement Plant, Amingaon (Guwahati)
C-02	Alsthom Industries / Dalmia Cement, Baghjap (Morigaon)
C-03	Barak Valley Cements, Badarpur Plant
C-04	Cement Corporation of India, Bokajan
C-05	Star Cement, Guwahati (Sonapur)
C-06	Purbachal Cement, Sarutari

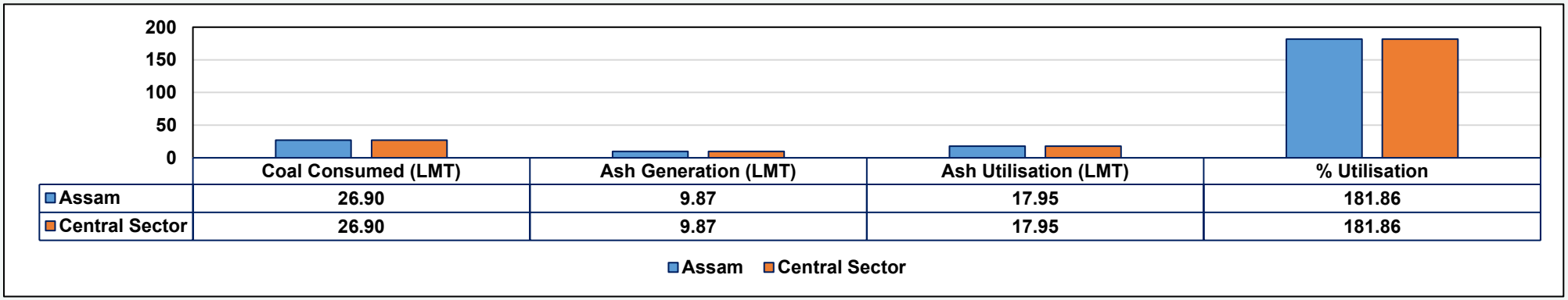
Figure 5.3 Map Showing the locations of TPPs and Major Cement Plants in Assam

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Assam



	Assam	Central Sector
No of Plants	1	1
Installed Capacity (MW)	750	750





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Assam	26.90	9.87	17.95	181.86
Central Sector	26.90	9.87	17.95	181.86

Figure 5.4 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Assam

Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in roads, cement & bricks. A significant 65% of ash is utilized by the infrastructure development.

Table 5.2 Ash Generation and Utilization Data of Assam for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	BONGAIGAON	NTPC Ltd.	750	Assam	9.87	17.95	181.86

5.3 Bihar

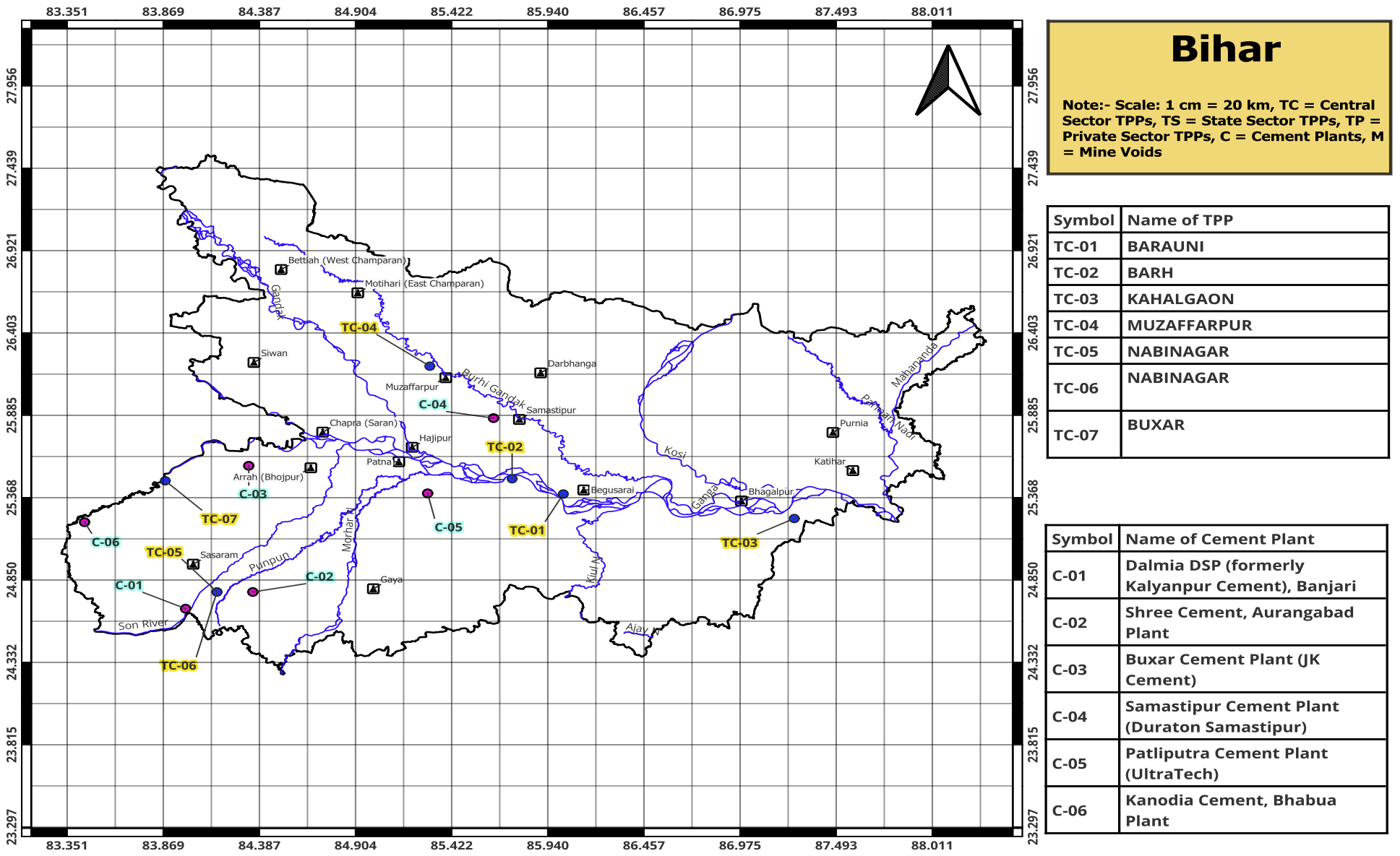
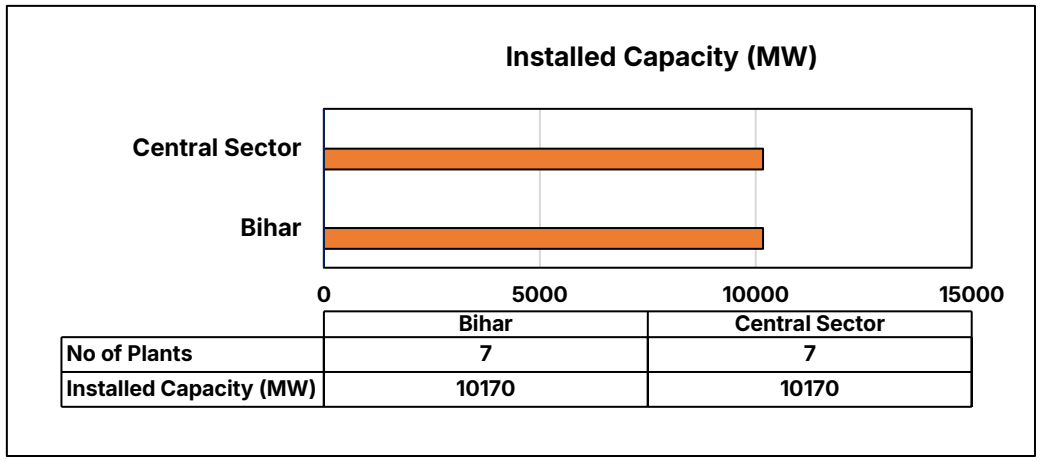
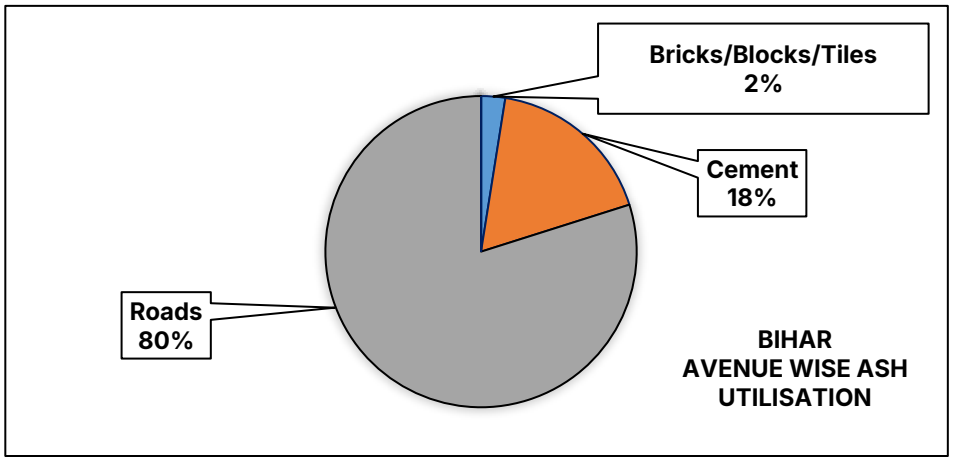


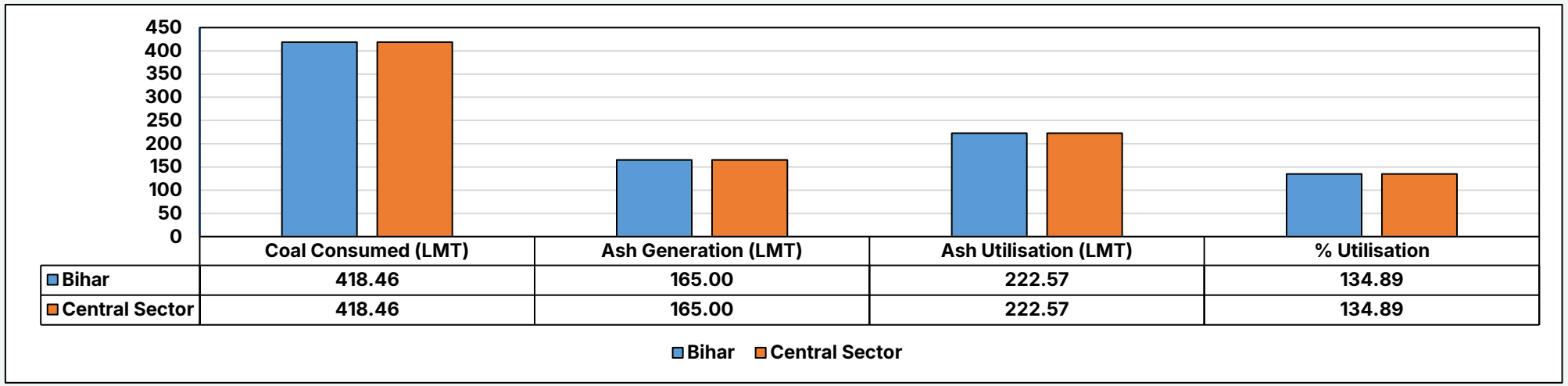
Figure 5.5 Map Showing the locations of TPPs and Major Cement Plants in Bihar

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Assam



	Bihar	Central Sector
No of Plants	7	7
Installed Capacity (MW)	10170	10170





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Bihar	418.46	165.00	222.57	134.89
Central Sector	418.46	165.00	222.57	134.89

Figure 5.6 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Bihar

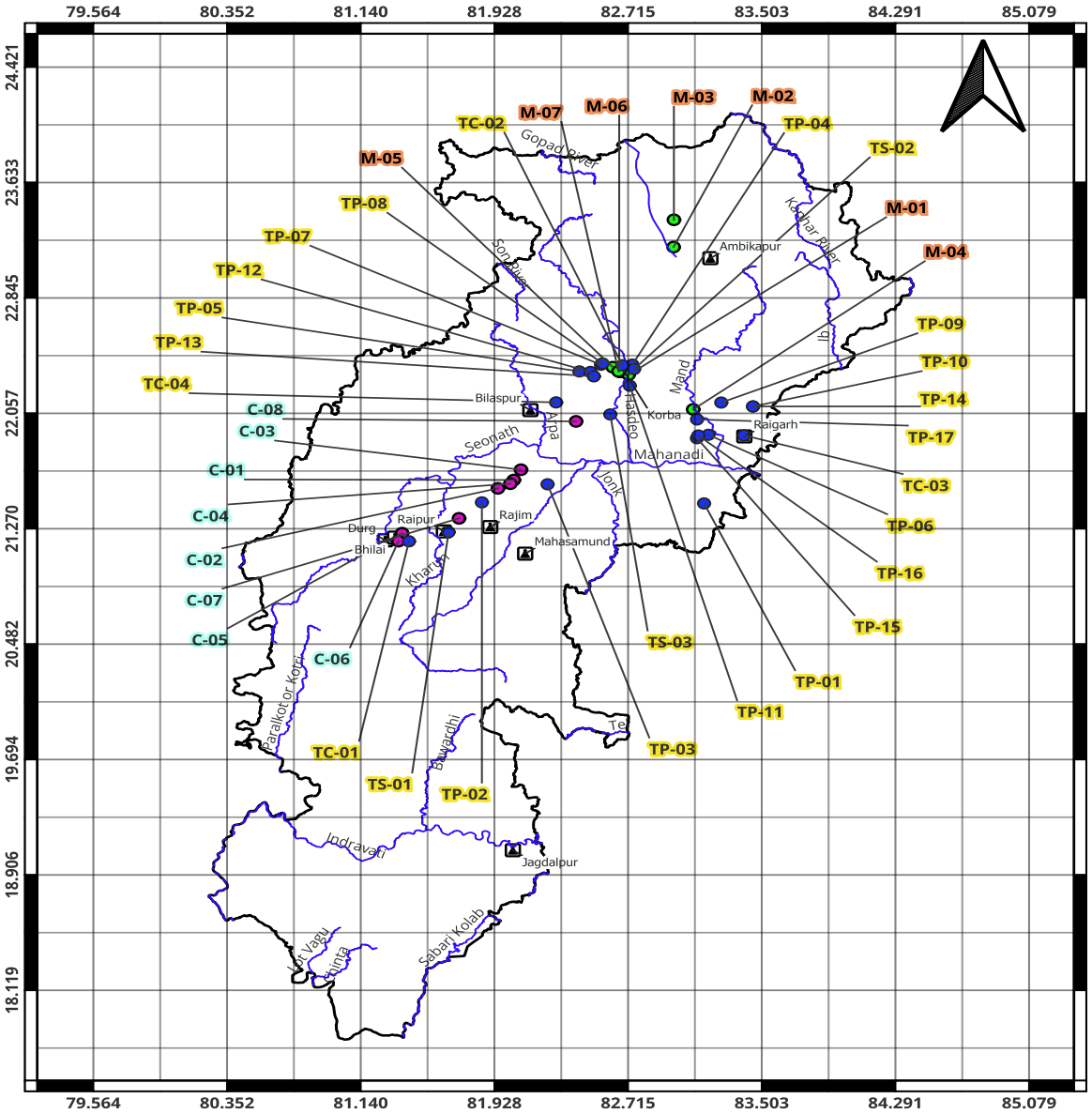
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Roads & Cement.
- Road projects remain the primary driver of ash utilisation, highlighting the importance of infrastructure development in managing ash disposal

Table 5.3 Ash Generation and Utilization Data of Bihar for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	BARAUNI TPS	NTPC Ltd.	500	Bihar	9.37	11.85	126.5
2	BARH SUPER	NTPC Ltd.	3300	Bihar	48.27	53.56	110.97
3	KAHALGAON	NTPC Ltd.	2340	Bihar	49.18	82.01	166.75
4	KANTI TPS	NTPC Ltd.	390	Bihar	6.65	9.03	135.94
5	NPGC NABINAGAR	NTPC Ltd.	1980	Bihar	32.78	45.79	139.71
6	BRBCL NABINAGAR	NTPC Ltd.	1000	Bihar	15.28	20.32	133
7	BUXAR THERMAL POWER PROJECT	SJVNL	660	Bihar	3.48	0	0
Grand Total					**165.01**	**222.56**	**134.88**

5.4 Chhattisgarh



Chhattisgarh

Note:- Scale: 1 cm = 31 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

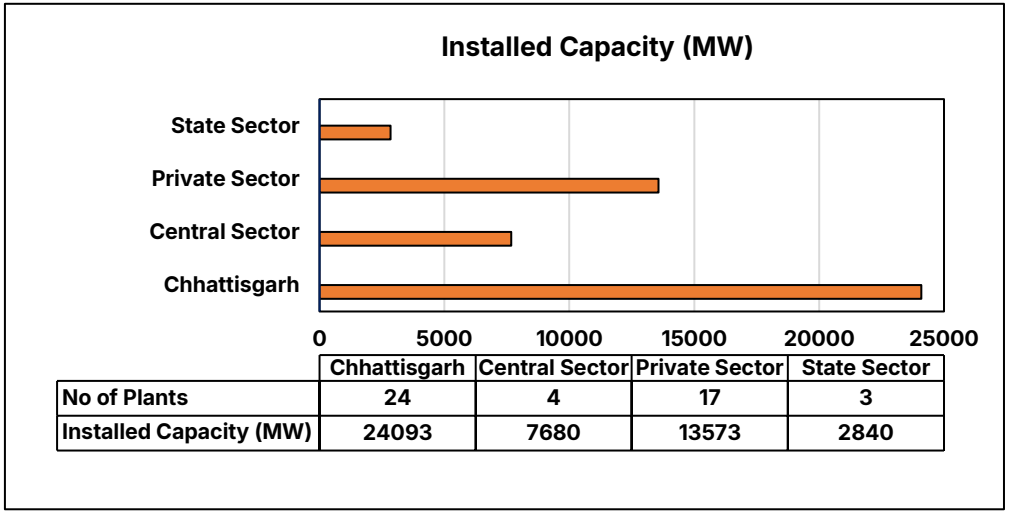
Symbol	Name of TPP
TC-01	BHILAI
TC-02	KORBA
TC-03	LARA
TC-04	SIPAT
TP-01	APL RAIGARH
TP-02	APL RAIPUR
TP-03	AKALTARA
TP-04	BALCO
TP-05	BANDAKHAR
TP-06	BARADARHA
TP-07	CHAKABURA
TP-08	KASAIPALLI TPP
TP-09	NAWAPARA
TP-10	O.P.JINDAL SUPER TPP (STAGE-I)
TP-11	PATHADI
TP-12	RATIJA
TP-13	SVPPL RENKI
TP-14	O.P.JINDAL SUPER TPP(STAGE-II)
TP-15	UCHPINDA
TP-16	VEDANTA LTD CHHATTISGARH TPP
TP-17	BINJKOTE
TS-01	DSPM
TS-02	HASDEO (KORBA WEST)
TS-03	MARWA

Symbol	Name of Cement Plant
C-01	Shree Cement Raipur Cement Plant
C-02	UltraTech Cement, Hirmi Cement Works
C-03	Ambuja Cements, Bhatapara Plant
C-04	UltraTech Rawan Cement Plant
C-05	ACC Jamul Cement Plant
C-06	Jaypee Bhilai Cement Plant
C-07	Cement Corporation of India, Mandhar Cement Plant
C-08	Cement Corporation of India, Akaltara (grinding plant)

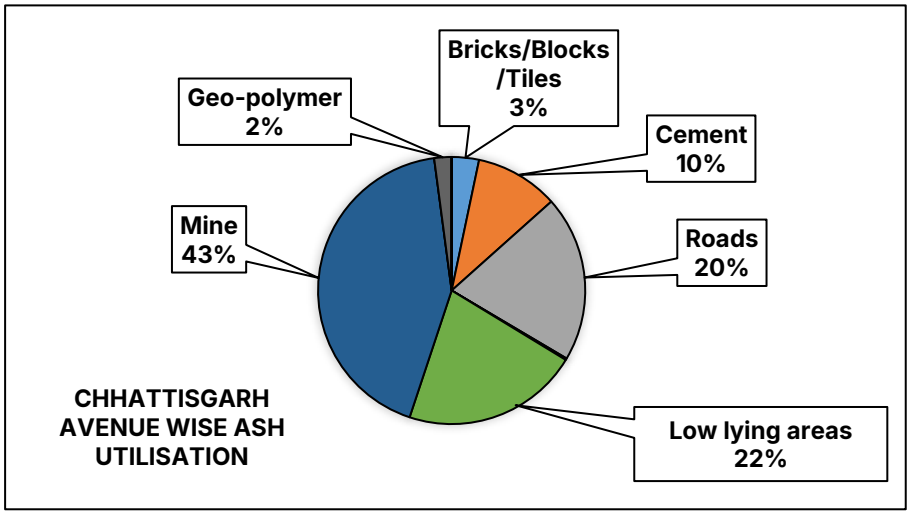
Symbol	Name of Mine Void
M-01	Manikpur, western quarry (Korba CG) (269.97 L Cum)
M-02	Bishrampur OCM
M-03	Dugga OC
M-04	Domnara OC
M-05	Surakachhar 3&4 pit (Korba CG)
M-06	Kusmunda OCP (Near RVR Bunker)
M-07	Kusmunda OCP (Near 33 KV Substation 2)

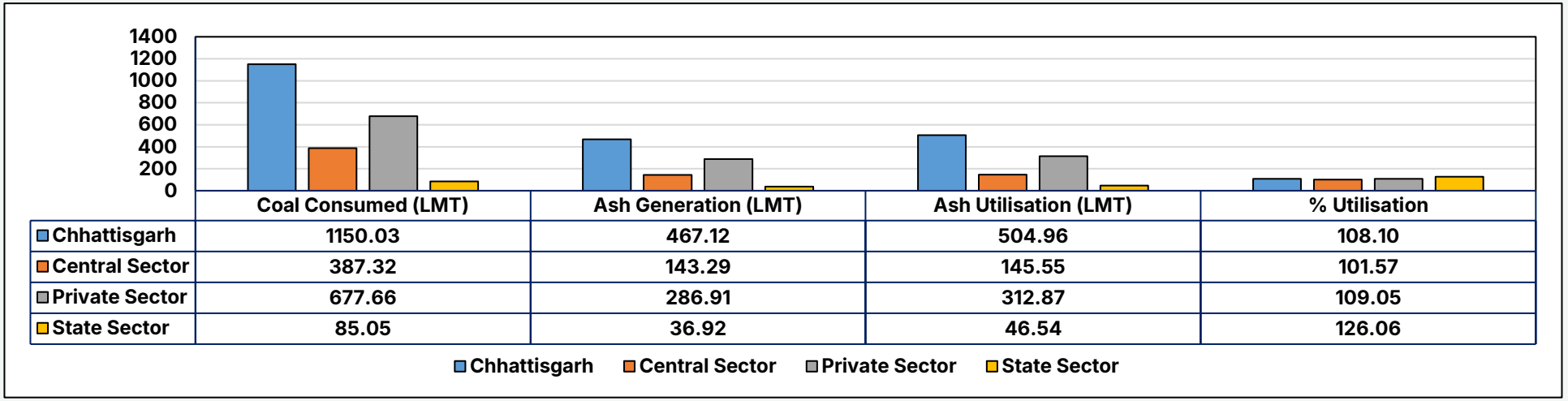
Figure 5.7 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in Chhattisgarh

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Chhattisgarh



	Chhattisgarh	Central Sector	Private Sector	State Sector
No of Plants	24	4	17	3
Installed Capacity (MW)	24093	7680	13573	2840





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Chhattisgarh	1150.03	467.12	504.96	108.10
Central Sector	387.32	143.29	145.55	101.57
Private Sector	677.66	286.91	312.87	109.05
State Sector	85.05	36.92	46.54	126.06

Figure 5.8 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Chhattisgarh

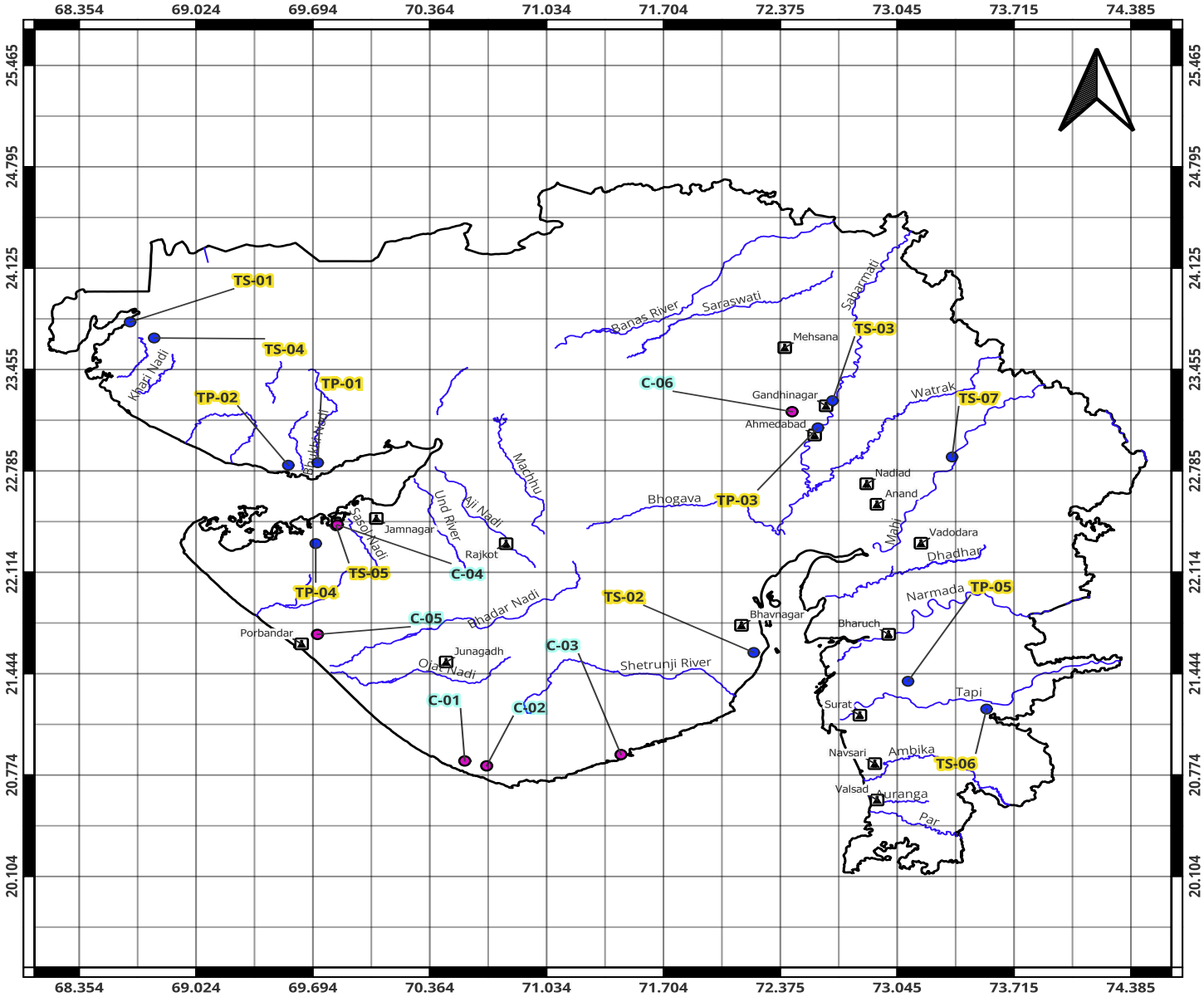
Observations:

- Over all Ash utilization along with sector wise ash utilization is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in roads, mine & low-lying area.

Table 5.4 Ash Generation and Utilization Data of Chhattisgarh for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	BHILAI	NTPC Ltd.	500	Chhattisgarh	11.91	12.53	105.15
2	KORBA	NTPC Ltd.	2600	Chhattisgarh	55.97	60.71	108.48
3	LARA	NTPC Ltd.	1600	Chhattisgarh	29.23	24.96	85.39
4	SIPAT	NTPC Ltd.	2980	Chhattisgarh	46.18	47.34	102.53
5	DSPM	C.S.P.G.C.L.	500	Chhattisgarh	9.56	11.28	117.99
6	HASDEO (KORBA WEST)	C.S.P.G.C.L.	1340	Chhattisgarh	5.7	5.05	88.67
7	ATAL BIHARI VAJPAYEE TPP, MARWA	C.S.P.G.C.L.	1000	Chhattisgarh	21.67	30.21	139.45
8	APL RAIGARH	APL	600	Chhattisgarh	11.45	15.53	135.6
9	APL RAIPUR	APL	1370	Chhattisgarh	24.21	24.07	99.44
10	CHAKABURA TPP	ACB (INDIA) Ltd.	30	Chhattisgarh	1.84	1.84	100
11	KASAIPALI	ACB (INDIA) Ltd.	270	Chhattisgarh	3.05	3.05	100
12	SVPPL RENKI	ACB (INDIA) Ltd.	63	Chhattisgarh	1.17	1.17	100
13	VEDANTA LIMITED CHHATTISGARH THERMAL POWER PLANT	VEDANTA LIMITED	600	Chhattisgarh	6.63	4.99	75.28
14	O.P. JINDAL SUPER TPP (STAGE-I)	JINDAL POWER LTD.	1000	Chhattisgarh	27.05	29.25	108.12
15	O.P. JINDAL SUPER TPP(STAGE-II)	JINDAL POWER LTD.	2400	Chhattisgarh	65.82	71.27	108.27
16	KMPCL (AKALTARA)	KSK MAHANADI POWER COMPANY LIMITED	1800	Chhattisgarh	29.41	29.92	101.73
17	BALCO	BHARAT ALUMINIUM COM-PANY LIMITED	600	Chhattisgarh	23.87	23.84	99.89
18	MCCPL BANDHAKHAR	MARUTI CLEAN COAL AND POWER LIMITED	300	Chhattisgarh	6.36	6.36	100
19	BARADARHA	DB POWER LIMITED	1200	Chhattisgarh	22.85	29.55	129.32
20	TRN POWER PLANT	TRN ENERGY PVT LTD	600	Chhattisgarh	10.11	15.9	157.27
21	KORBA POWER LIMITED	KORBA POWER LIMITED	600	Chhattisgarh	12.21	15.98	130.85
22	RATIZA TPS	SPECTRUM COAL AND POWER LIMITED	100	Chhattisgarh	0.36	0.36	100
23	UCHPINDA POWER STATION	RKM THERMAL POWER PVT LTD	1440	Chhattisgarh	27.45	24.82	90.4
24	BINJKOTE TPP	SARDA ENERGY & MINERALS LIMITED	600	Chhattisgarh	13.06	14.98	114.8
Grand Total					**467.12**	**504.96**	**108.10**

5.5 Gujarat



Gujarat

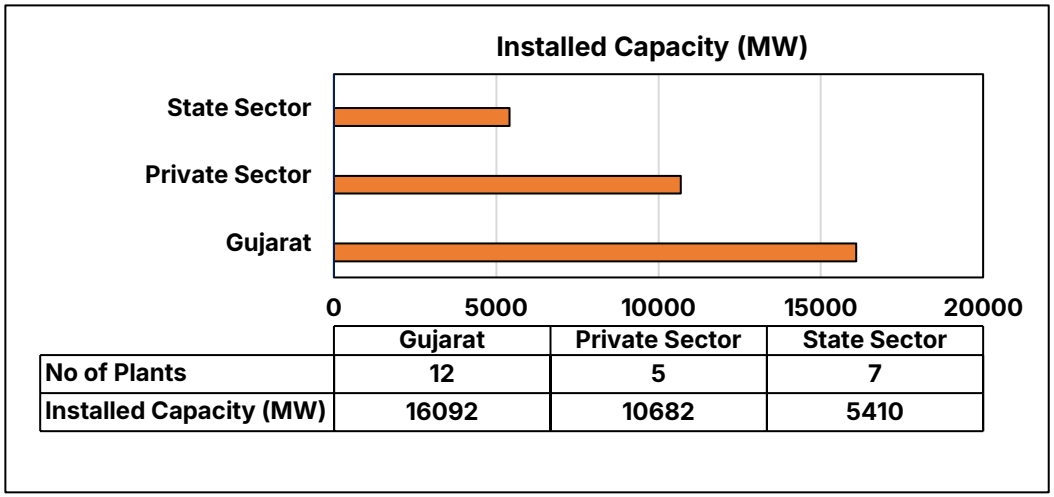
Note:- Scale: 1 cm = 26 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TP-01	APL MUNDRA TPP - I & II
TP-02	MUNDRA UMTPP
TP-03	SABARMATI (D-F STATIONS)
TP-04	SALAYA
TP-05	SURAT LIG.
TS-01	AKRIMOTA
TS-02	BHAVNAGAR CFBC
TS-03	GANDHI NAGAR
TS-04	KUTCH
TS-05	SIKKA
TS-06	UKAI
TS-07	WANAKBORI

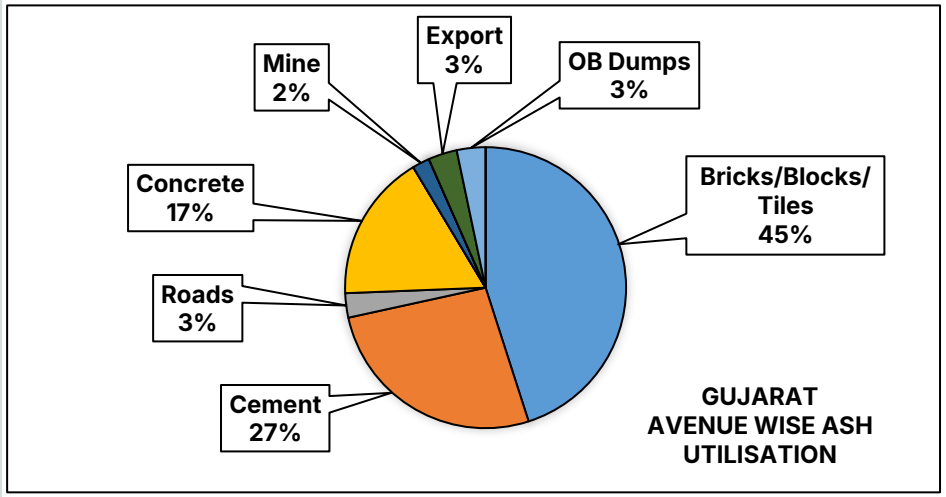
Symbol	Name of Cement Plant
C-01	Siddhi Cement Sutrapada Cement Plant
C-02	Ambuja Cement Plant, Kodinar (Ambujanagar)
C-03	GCW UltraTech Gujarat Cement
C-04	Shree Digvijay Cement Sikka Cement Plant
C-05	Saurashtra Cement Ranavav Cement Plant
C-06	JK Lakshmi,Kalol Cement Plant

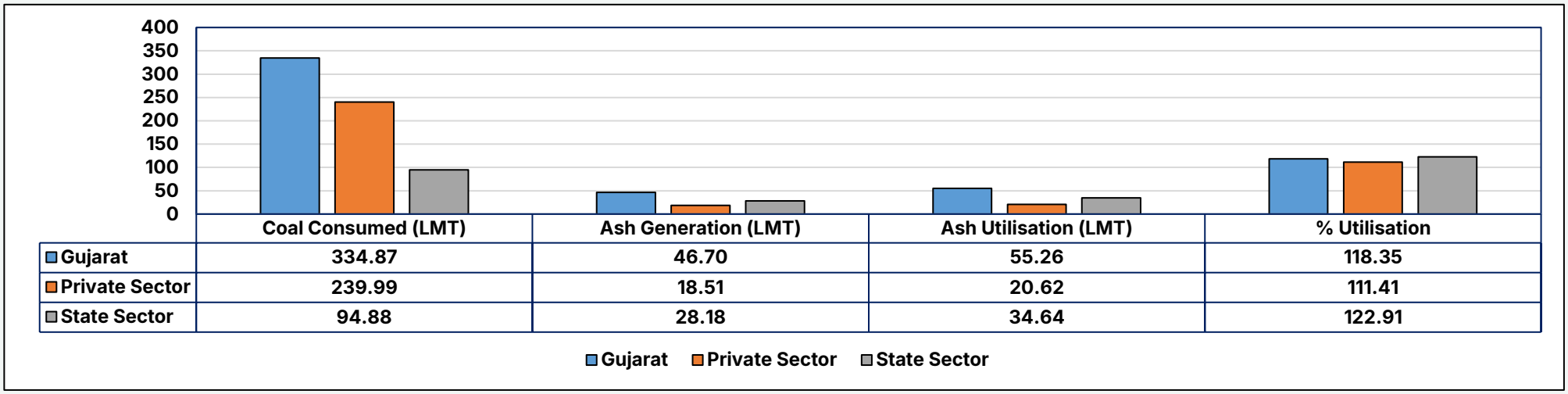
Figure 5.9 Map Showing the locations of TPPs and Major Cement Plants in Gujarat

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Gujarat



	Gujarat	Private Sector	State Sector
No of Plants	12	5	7
Installed Capacity (MW)	16092	10682	5410





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Gujarat	334.87	46.70	55.26	118.35
Private Sector	239.99	18.51	20.62	111.41
State Sector	94.88	28.18	34.64	122.91

Figure 5.10 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Gujarat

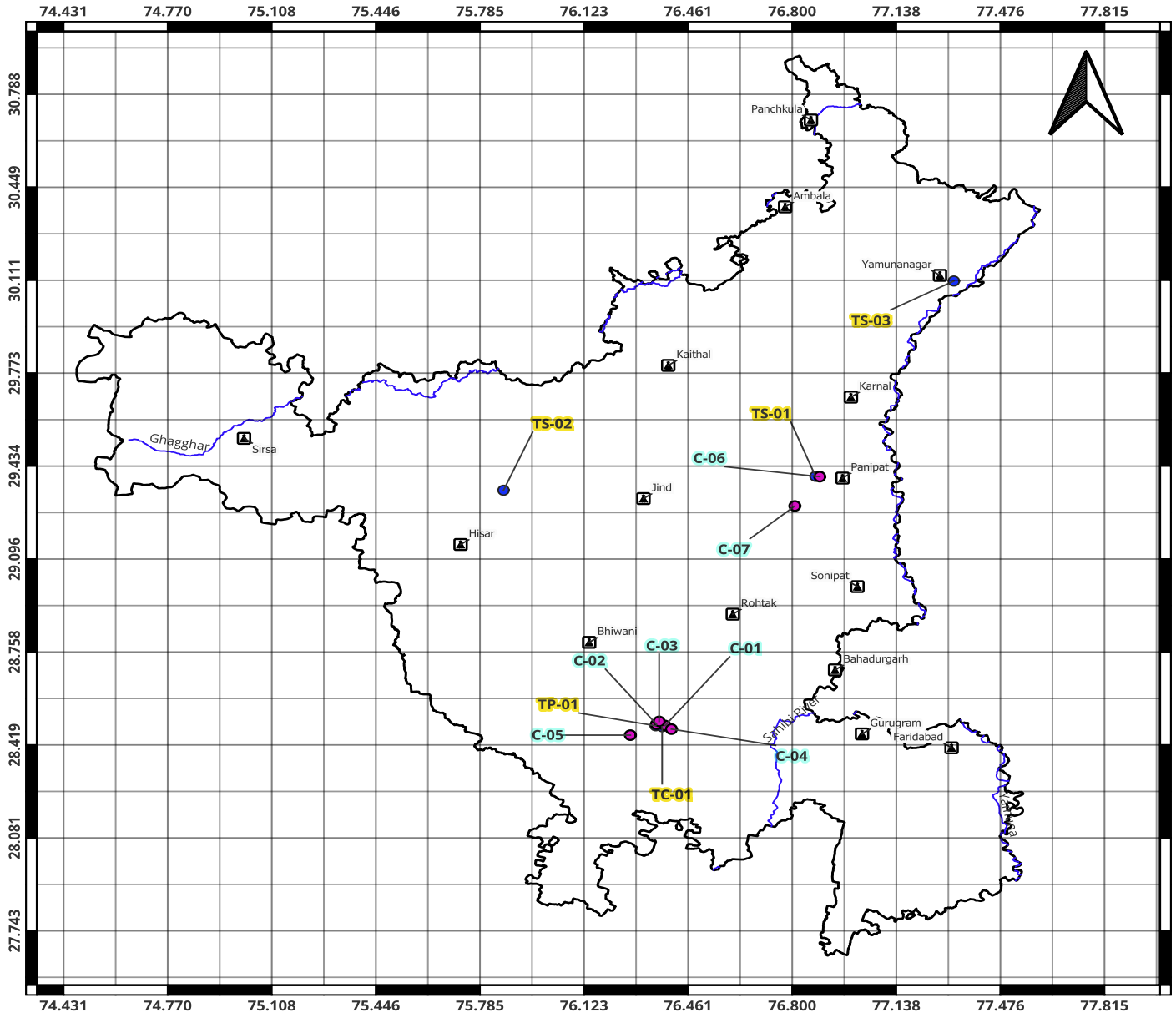
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Bricks industries, Cement & Concrete.

Table 5.5 Ash Generation and Utilization Data of Gujarat for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	BHAVNAGAR LIGNITE THERMAL POWER STATION, PADVA	G.S.E.C.L.	500	Gujarat	2.26	1.01	44.7
2	GANDHINAGAR	G.S.E.C.L.	630	Gujarat	2.95	5.79	196.23
3	KUTCH LIGNITE THERMAL POWER STATION	G.S.E.C.L.	150	Gujarat	0.45	0.45	100
4	SIKKA	G.S.E.C.L.	500	Gujarat	0.14	0.1	71.31
5	UKAI	G.S.E.C.L.	1110	Gujarat	7.41	7.39	99.8
6	WANAKBORI	G.S.E.C.L.	2270	Gujarat	14.3	19.22	134.41
7	AKRIMOTA	G.M.D.C.L.	250	Gujarat	0.69	0.69	100
8	MUNDRA TPS	APL	4620	Gujarat	5.84	7.63	130.73
9	MUNDRA UMPP	COASTAL GUJARAT POWER LTD.	4000	Gujarat	1.74	1.83	104.8
10	SABARMATI	TORENT POWER Ltd.	362	Gujarat	4.89	5.13	104.77
11	SALAYA	ESSAR POWER	1200	Gujarat	2.5	2.5	100
12	SURAT LIGNITE POWER PLANT	GUJARAT INDUS-TRIES POWER COM-PANY LIMITED	500	Gujarat	3.54	3.54	100
Grand Total					**46.71**	**55.28**	**118.35**

5.6 Haryana



Haryana

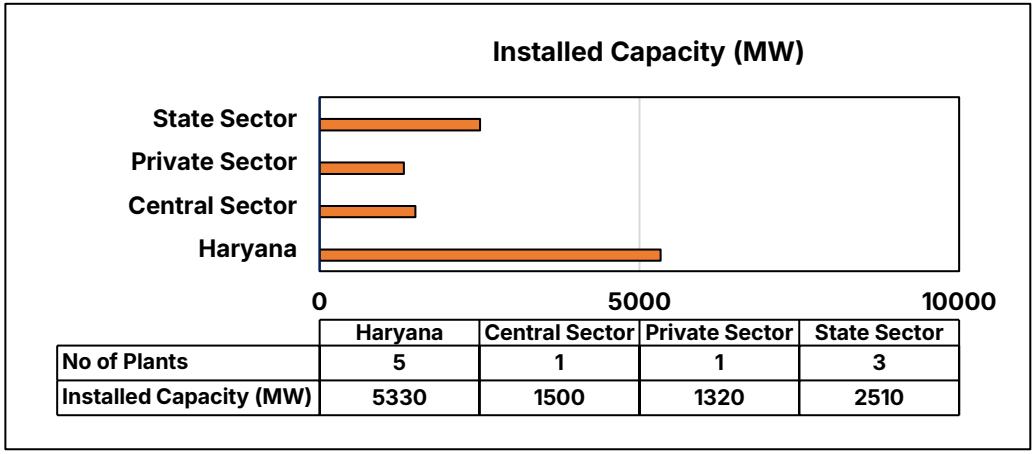
Note:- Scale: 1 cm = 13 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	INDIRA GANDHI
TP-01	MAHATMA GANDHI
TS-01	PANIPAT
TS-02	RAJIV GANDHI
TS-03	YAMUNA NAGAR

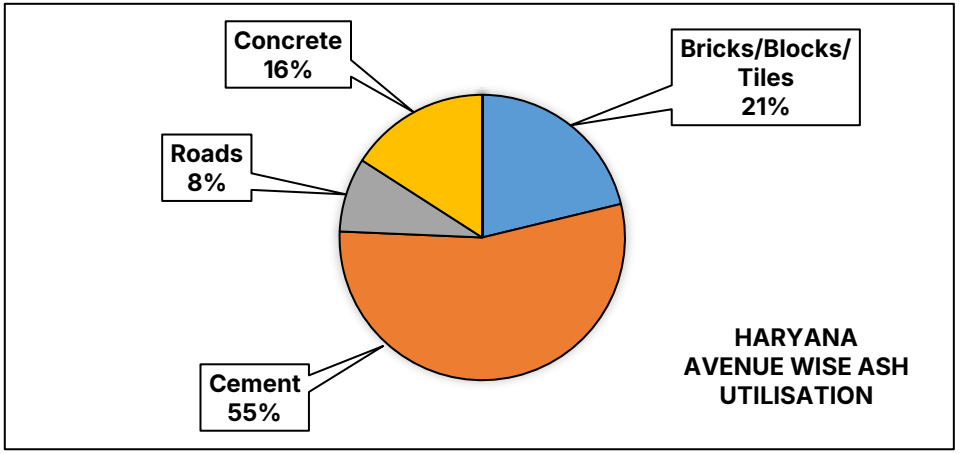
Symbol	Name of Cement Plant
C-01	JK Super Cement Jhajjar Cement Plant
C-02	JK Lakshmi Cement Jharli Cement Plant
C-03	UltraTech Cement Jhajjar (Jharli)
C-04	Wonder Cement Jhajjar Cement Plant
C-05	Haryana Cement Plant NUVOCO VISTAS CORP. LTD.
C-06	Shree Cement Panipat Cement Plant
C-07	UltraTech Panipat Cement Plant

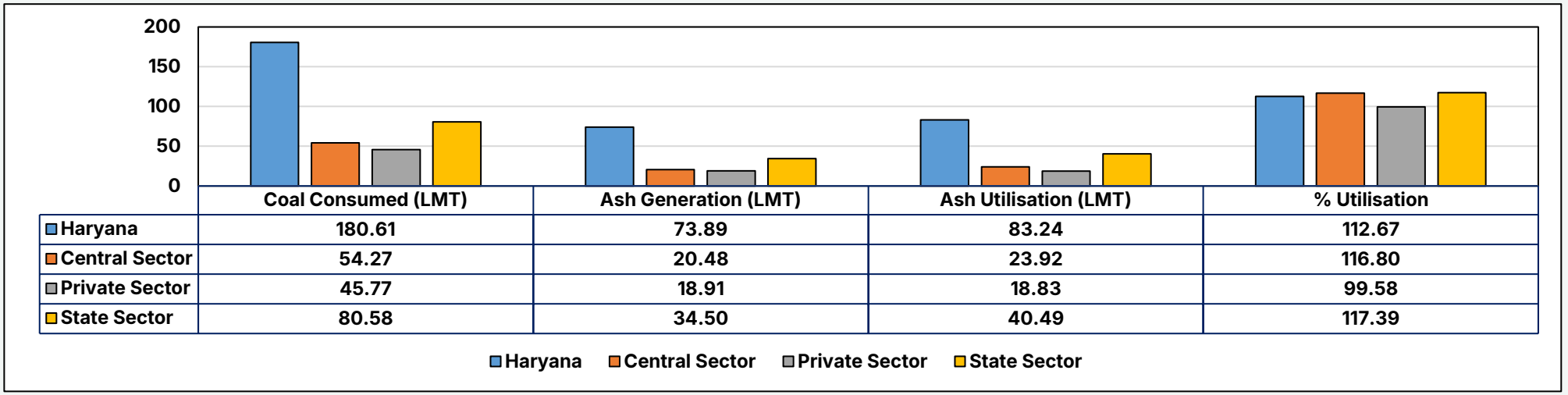
Figure 5.11 Map Showing the locations of TPPs and Major Cement Plants in Haryana

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Haryana



	Haryana	Central Sector	Private Sector	State Sector
No of Plants	5	1	1	3
Installed Capacity (MW)	5330	1500	1320	2510





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Haryana	180.61	73.89	83.24	112.67
Central Sector	54.27	20.48	23.92	116.80
Private Sector	45.77	18.91	18.83	99.58
State Sector	80.58	34.50	40.49	117.39

Figure 5.12 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Haryana

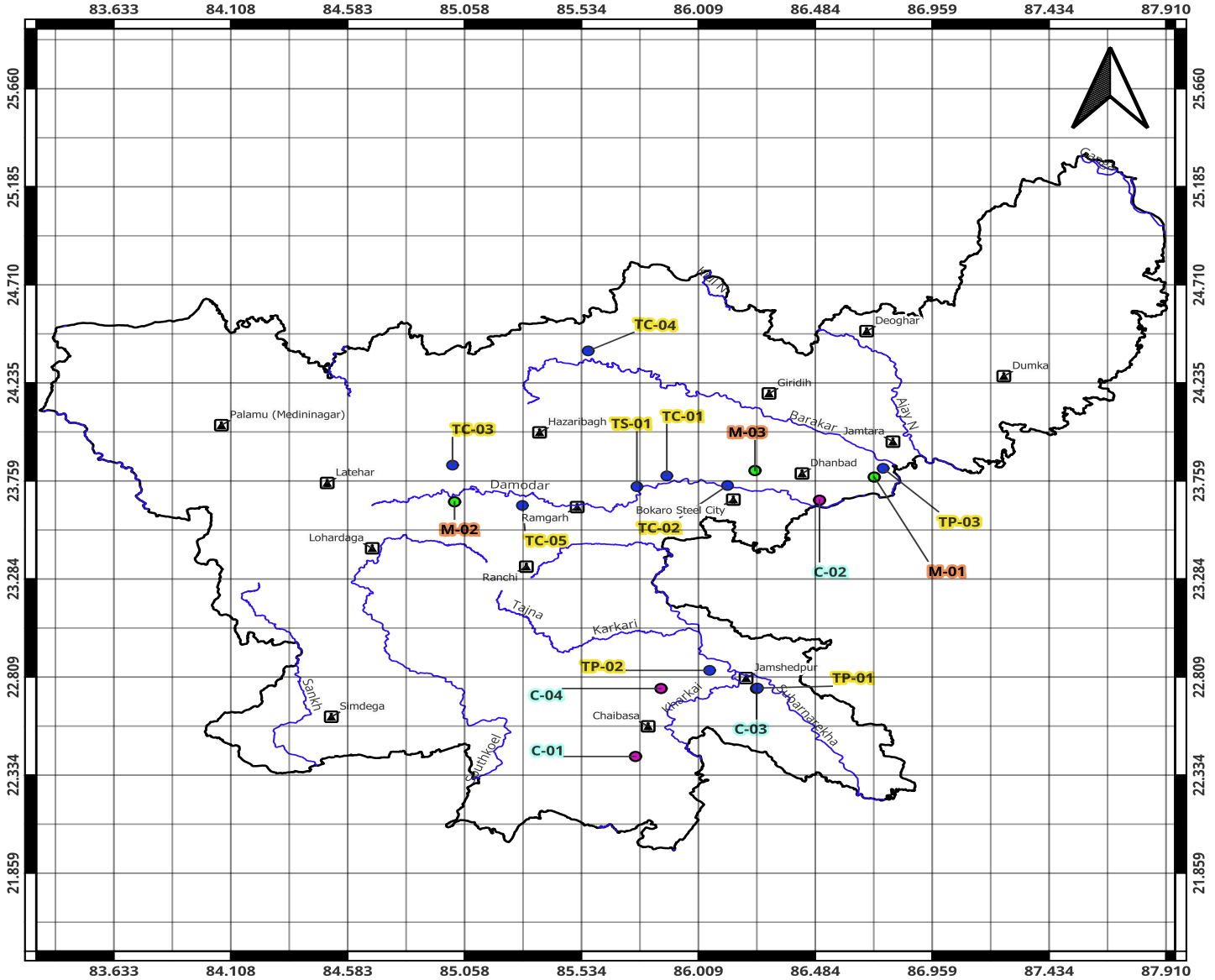
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Cement & Concrete and Bricks industries.
- Cement sector is the primary consumer of fly ash, indicating strong industrial linkage.
- The central sector and state sector have more than 100% ash utilisation and private have achieved near by 100% utilisation.

Table 5.6 Ash Generation and Utilization Data of Haryana for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	IGSTPS JHAJJAR	NTPC Ltd.	1500	Haryana	20.48	23.92	116.8
2	PANIPAT THERMAL POWER STATION, PANIPAT	H.P.G.C.L.	710	Haryana	9.86	19.19	194.54
3	RAJIV GANDHI TPS, HISAR	H.P.G.C.L.	1200	Haryana	14.13	12.1	85.62
4	YAMUNANAGAR	H.P.G.C.L.	600	Haryana	10.5	9.21	87.68
5	MAHATMA GANDHI	JHAJJAR POWER LIMITED	1320	Haryana	18.91	18.83	99.58
Grand Total					**73.88**	**83.25**	**112.68**

5.7 Jharkhand



Jharkhand

Note:- Scale: 1 cm = 19 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

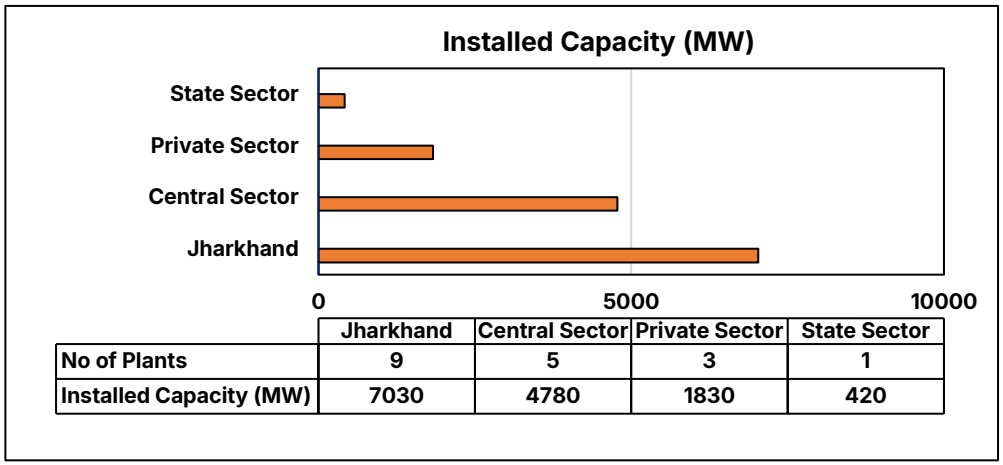
Symbol	Name of TPP
TC-01	BOKARO TPS `A` EXP
TC-02	CHANDRAPURA(DVC)
TC-03	NORTH KARANPURA
TC-04	KODARMA
TC-05	PATRATU
TP-01	JOJOBERA
TP-02	MAHADEV PRASAD
TP-03	MAITHON
TS-01	TENUGHAT

Symbol	Name of Cement Plant
C-01	ACC Ltd. Chaibasa Cement Works
C-02	ACC Sindri Cement Works (Grinding Unit)
C-03	Nuvoco Vistas Jojobera Cement Plant
C-04	Shree Cement Ltd Jharkhand Cement Plant

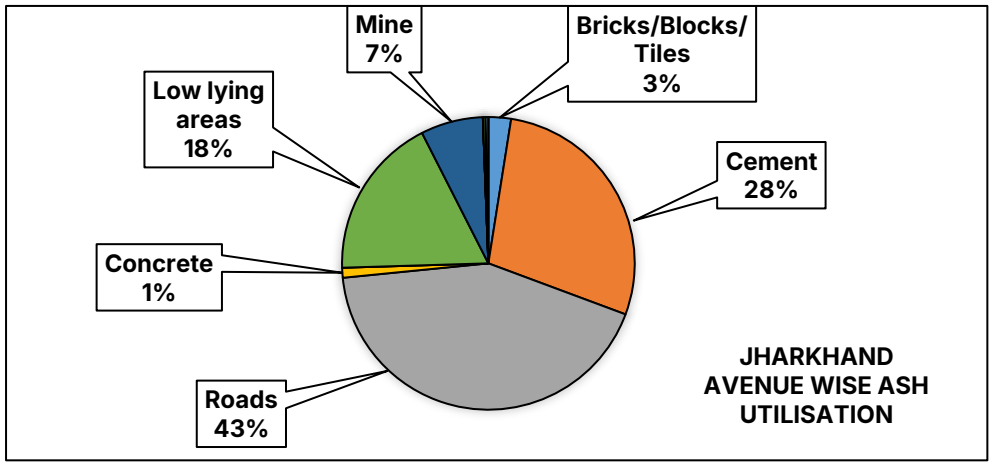
Symbol	Name of Mine Void
M-01	Pusai OCP
M-02	Dakra OC
M-03	Muraidih (Cluster-XIII)

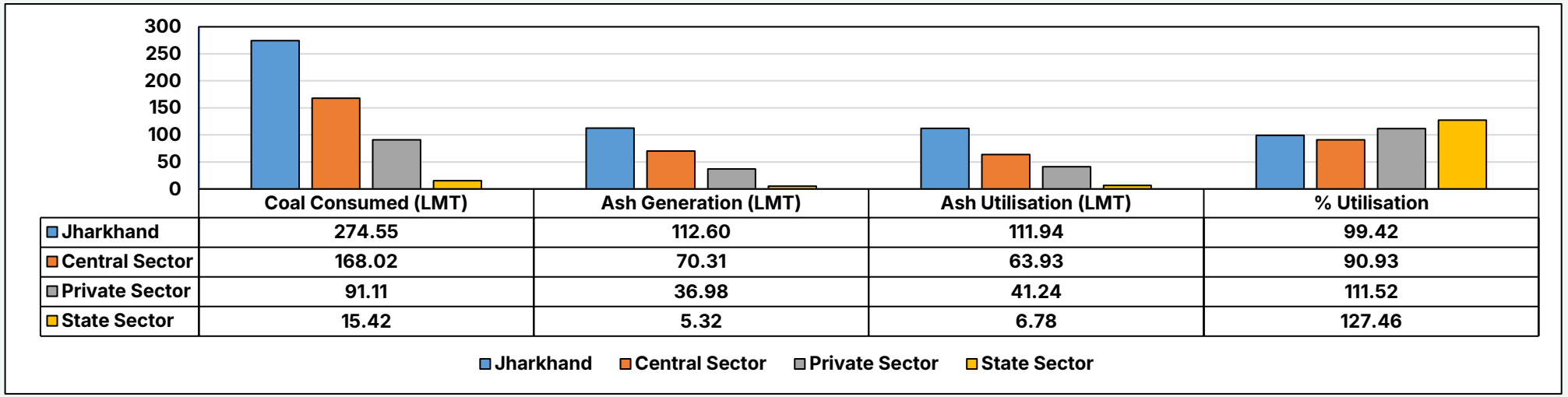
Figure 5.13 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in Jharkhand

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Jharkhand



	Jharkhand	Central Sector	Private Sector	State Sector
No of Plants	9	5	3	1
Installed Capacity (MW)	7030	4780	1830	420





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Jharkhand	274.55	112.60	111.94	99.42
Central Sector	168.02	70.31	63.93	90.93
Private Sector	91.11	36.98	41.24	111.52
State Sector	15.42	5.32	6.78	127.46

Figure 5.14 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Jharkhand

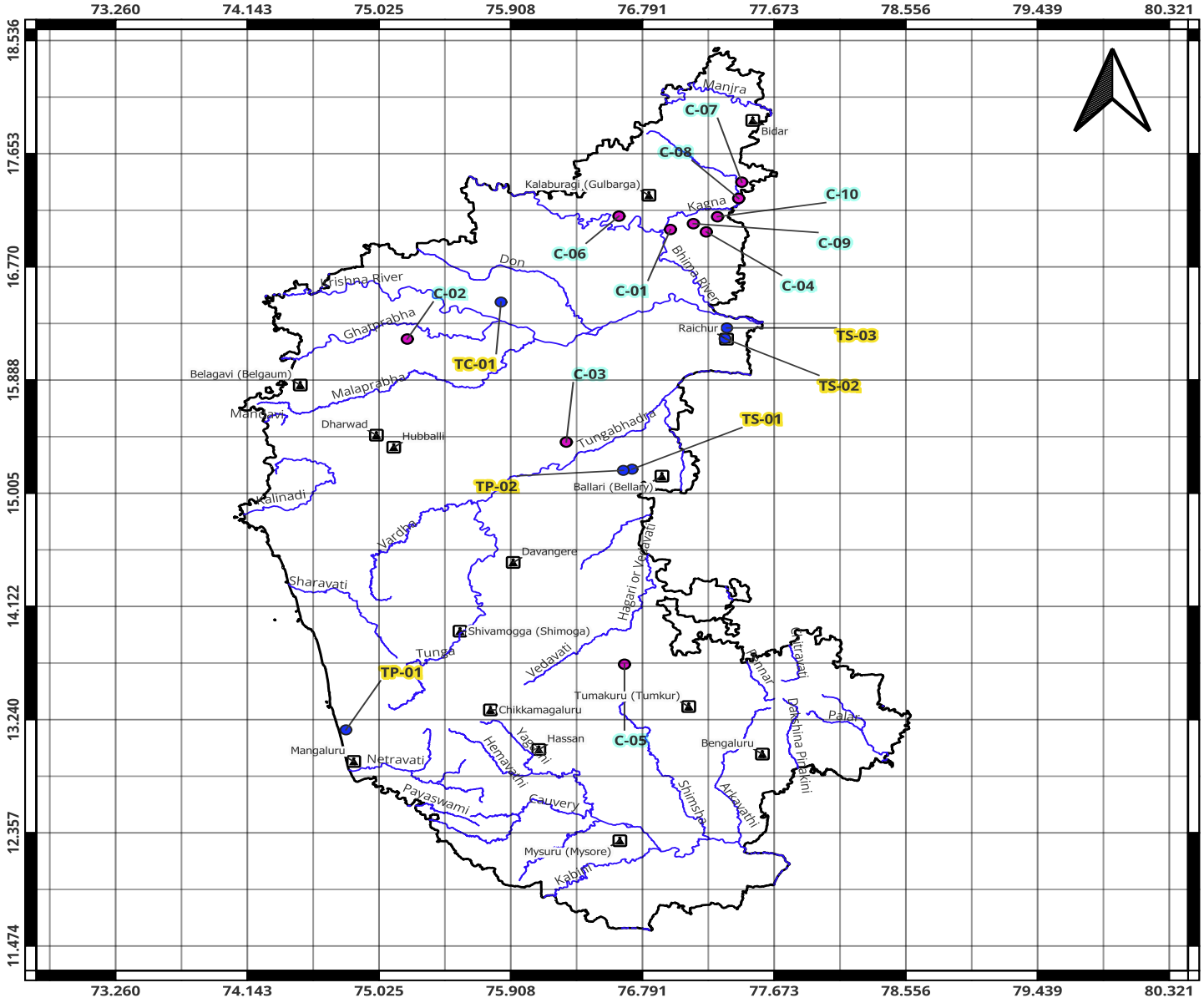
Observations:

- Over all Ash utilisation is nearly 100%.
- Majority of ash is being used in Roads, Cement & low-lying area.
- The Central Sector shows comparatively lower utilisation and needs focused efforts.

Table 5.7 Ash Generation and Utilization Data of Jharkhand for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	NORTH KARANPUARA STP	NTPC Ltd.	1980	Jharkhand	34.43	17.09	49.63
2	BTPS	D.V.C.	500	Jharkhand	0	1.45	0
3	CHANDRAPURA	D.V.C.	500	Jharkhand	10.63	8.14	76.53
4	KODERMA	D.V.C.	1000	Jharkhand	19.9	31.64	158.97
5	PATRATU SUPER THERMAL	PATRATU VIDYUT UTPADAN NIGAM LIMITED	800	Jharkhand	5.34	5.62092	105.2
6	TENUGHAT THERMAL POWER STATION	TENUGHAT VIDYUT NIGAM LIMITED	420	Jharkhand	5.32	6.78	127.46
7	JOJOBERA	T.P.CO.	240	Jharkhand	9.33	10.48	112.35
8	ADHUNIK PNRLTD.	ADHUNIK POWER & NATURAL RESOURCES LIMITED	540	Jharkhand	10.18	12.02	118.07
9	MAITHON RBTPP	MAITHON POWER LIMITED	1050	Jharkhand	17.47	18.74	107.27
Grand Total					**112.6**	**111.96**	**99.43**

5.8 Karnataka



Karnataka

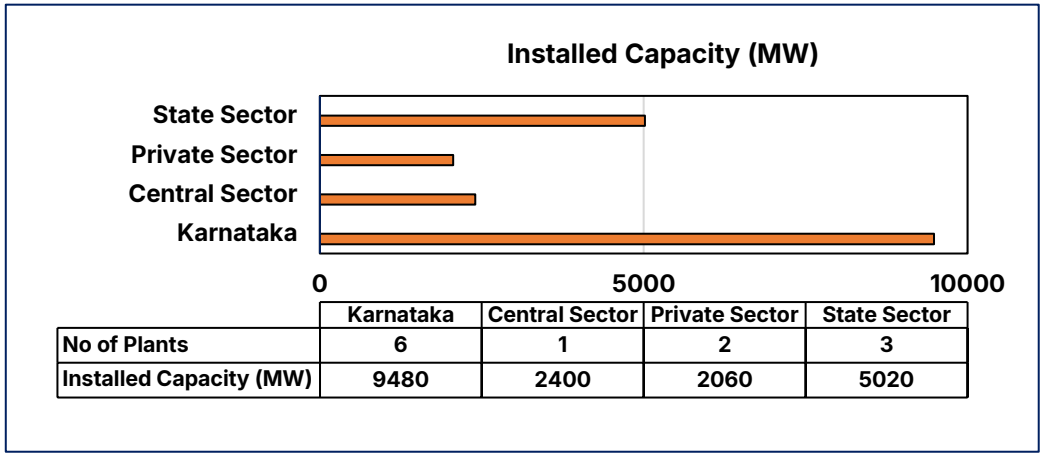
Note:- Scale: 1 cm = 34 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	KUDGI
TP-01	APL UDUPI
TP-02	TORANGALLU (SBU-I)
TS-01	BELLARY
TS-02	RAICHUR
TS-03	YERMARUS

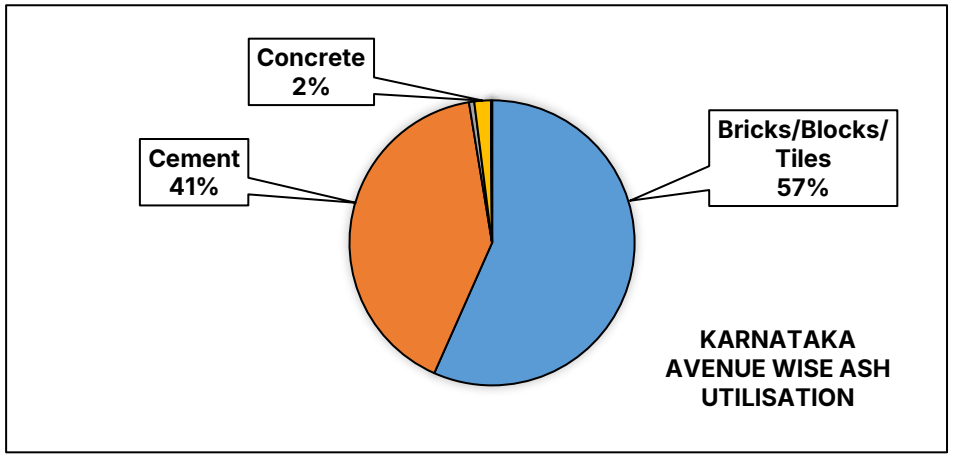
Symbol	Name of Cement Plant
C-01	ACC Wadi Cement Plant
C-02	Dalmia Cement Bharat Ltd
C-03	Ultratech Cement Ginigera Works
C-04	Shree Cement Ltd. Kodla Plant
C-05	Heidelberg Cement India Ltd
C-06	Cement Corporation of India Ltd (Kurkunta)
C-07	Vasavadatta Cement (BK Birla Group)
C-08	Kalburgi Cement Pvt Ltd (Bharathi Cement)
C-09	Orient Cement Ltd (Chittapur Plant)
C-10	Vasavadatta Cement (BK Birla Group)

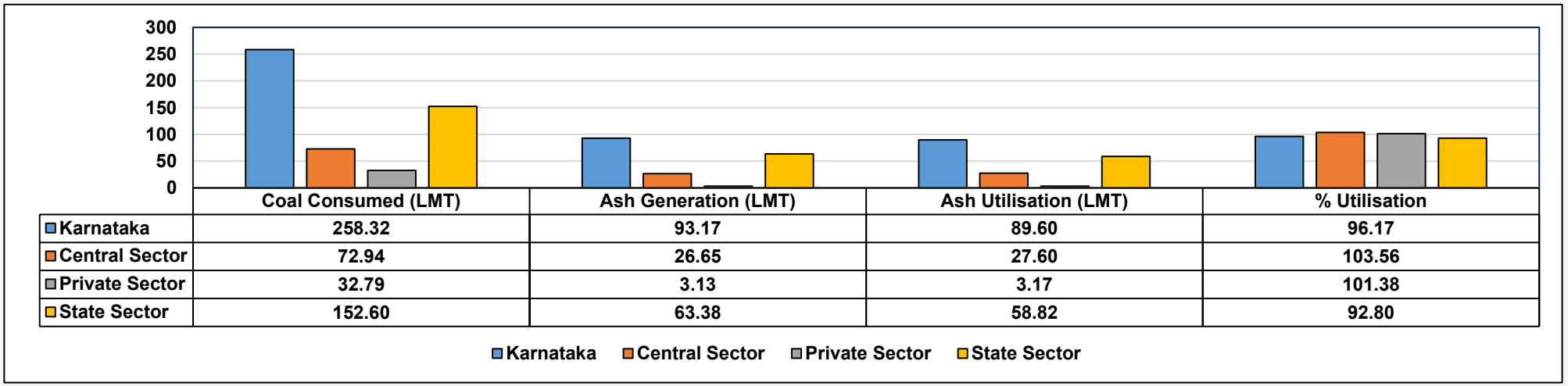
Figure 5.15 Map Showing the locations of TPPs and Major Cement Plants in Karnataka

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Karnataka



	Karnataka	Central Sector	Private Sector	State Sector
No of Plants	6	1	2	3
Installed Capacity (MW)	9480	2400	2060	5020





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Karnataka	258.32	93.17	89.60	96.17
Central Sector	72.94	26.65	27.60	103.56
Private Sector	32.79	3.13	3.17	101.38
State Sector	152.60	63.38	58.82	92.80

Figure 5.16 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Karnataka

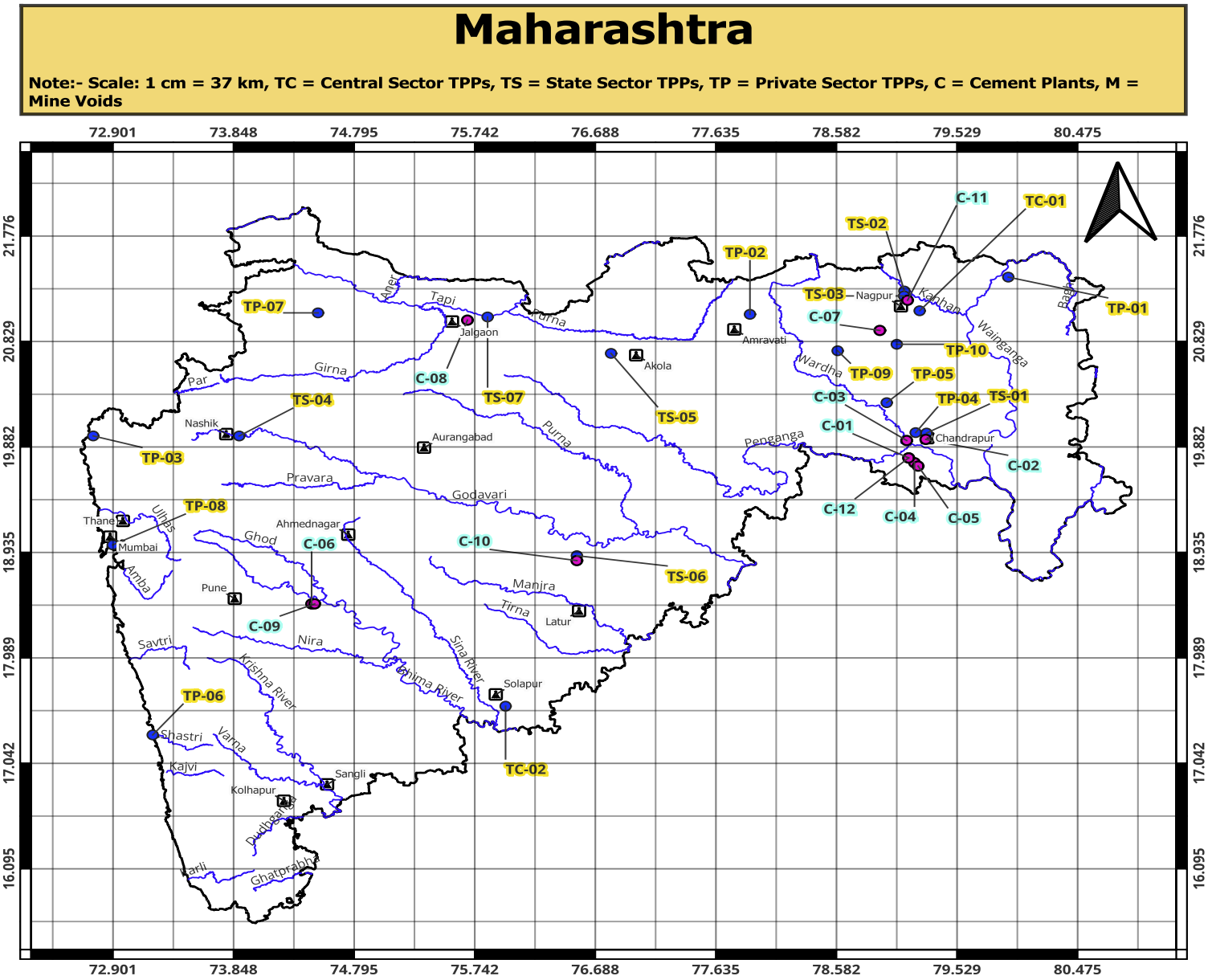
Observations:

- Over all Ash utilisation is less than 100%. Majority of ash is being used in Cement & Bricks industries.
- Ash utilization in State Sector TPPs shows comparatively lower utilisation and needs focused efforts.
- Central Sector and Private Sector TPPs achieving 100% utilization, indicates uses of previous year ash.

Table 5.8 Ash Generation and Utilization Data of Karnataka for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	KUDGI	NTPC Ltd.	2400	Karnataka	26.65	27.6	103.56
2	BALLARI	K.P.C.L	1700	Karnataka	24.56	18.56	75.56
3	RAICHUR	K.P.C.L	1720	Karnataka	26.98	32.85	121.75
4	YERMARUS THERMAL POWER STATION	K.P.C.L	1600	Karnataka	11.84	7.42	62.62
5	UDUPI	APL	1200	Karnataka	1.38	1.42	103.13
6	VIJAYANAGAR	JSW ENERGY LIMITED	860	Karnataka	1.75	1.75	100
Grand Total					**93.16**	**89.6**	**96.18**

5.9 Maharashtra

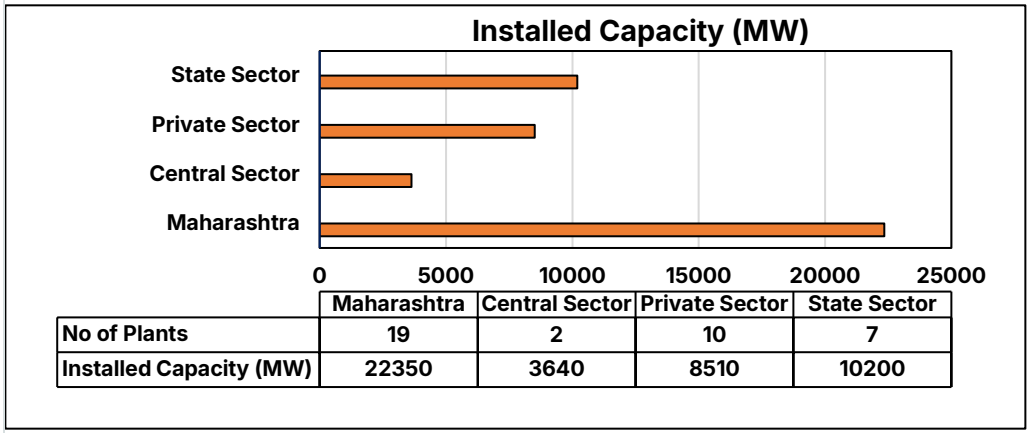


Symbol	Name of TPP
TC-01	MAUDA
TC-02	SOLAPUR
TP-01	APL TIRODA
TP-02	AMRAVATI
TP-03	DAHANU
TP-04	DHARIWAL
TP-05	GMR WARORA
TP-06	JSW RATNAGIRI
TP-07	SHIRPUR
TP-08	TROMBAY
TP-09	WARDHA WARORA
TP-10	BELA
TS-01	CHANDRAPURM(M.S.P.G.C.L)
TS-02	KHAPARKHEDA
TS-03	KORADI
TS-04	NASIK
TS-05	PARAS
TS-06	PARLI
TS-07	BHUSAWAL

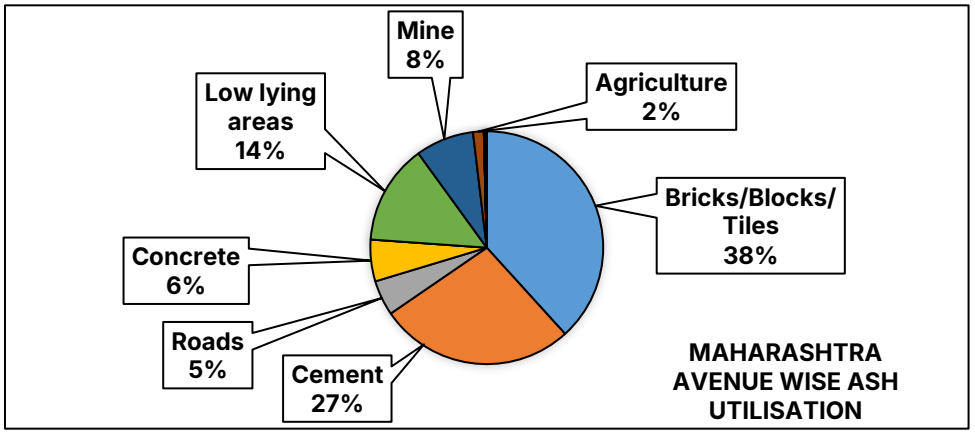
Symbol	Name of Cement Plant
C-01	UltraTech Cement Ltd (Awarpur Works)
C-02	UltraTech Cement Ltd (Chanda Works)
C-03	ACC Limited (Adani Cement) - Chanda Cement Works
C-04	UltraTech Cement Limited, Manikgarh Cement Works
C-05	Ambuja Cements Limited : Maratha Cement Works (MCW)
C-06	Shree Cement Ltd (Pune Grinding Unit)
C-07	RCCPL Pvt Ltd (Butibori Plant)
C-08	Orient Cement Ltd (Jalgaon Plant)
C-09	Ambuja Cements Limited (Adani Cement), Patas Grinding Plant
C-10	Ultratech Cement Limited, Parli
C-11	UltraTech Cement Ltd (Nagpur Unit)
C-12	UltraTech Cement (Basundhara Plant)

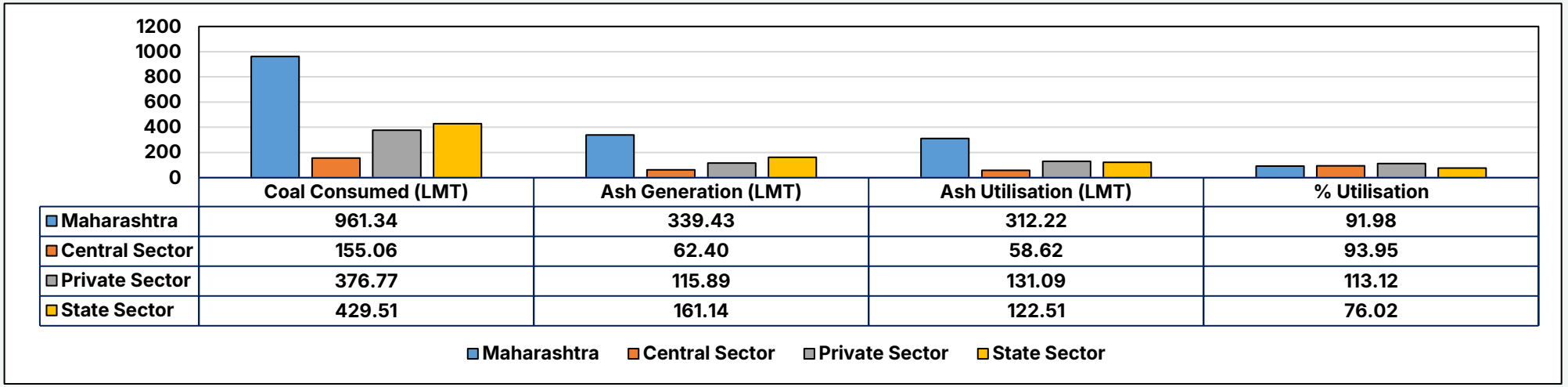
Figure 5.17 Map Showing the locations of TPPs and Major Cement Plants in Maharashtra

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Maharashtra



	Maharashtra	Central Sector	Private Sector	State Sector
No of Plants	19	2	10	7
Installed Capacity (MW)	22350	3640	8510	10200





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Maharashtra	961.34	339.43	312.22	91.98
Central Sector	155.06	62.40	58.62	93.95
Private Sector	376.77	115.89	131.09	113.12
State Sector	429.51	161.14	122.51	76.02

Figure 5.18 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Maharashtra

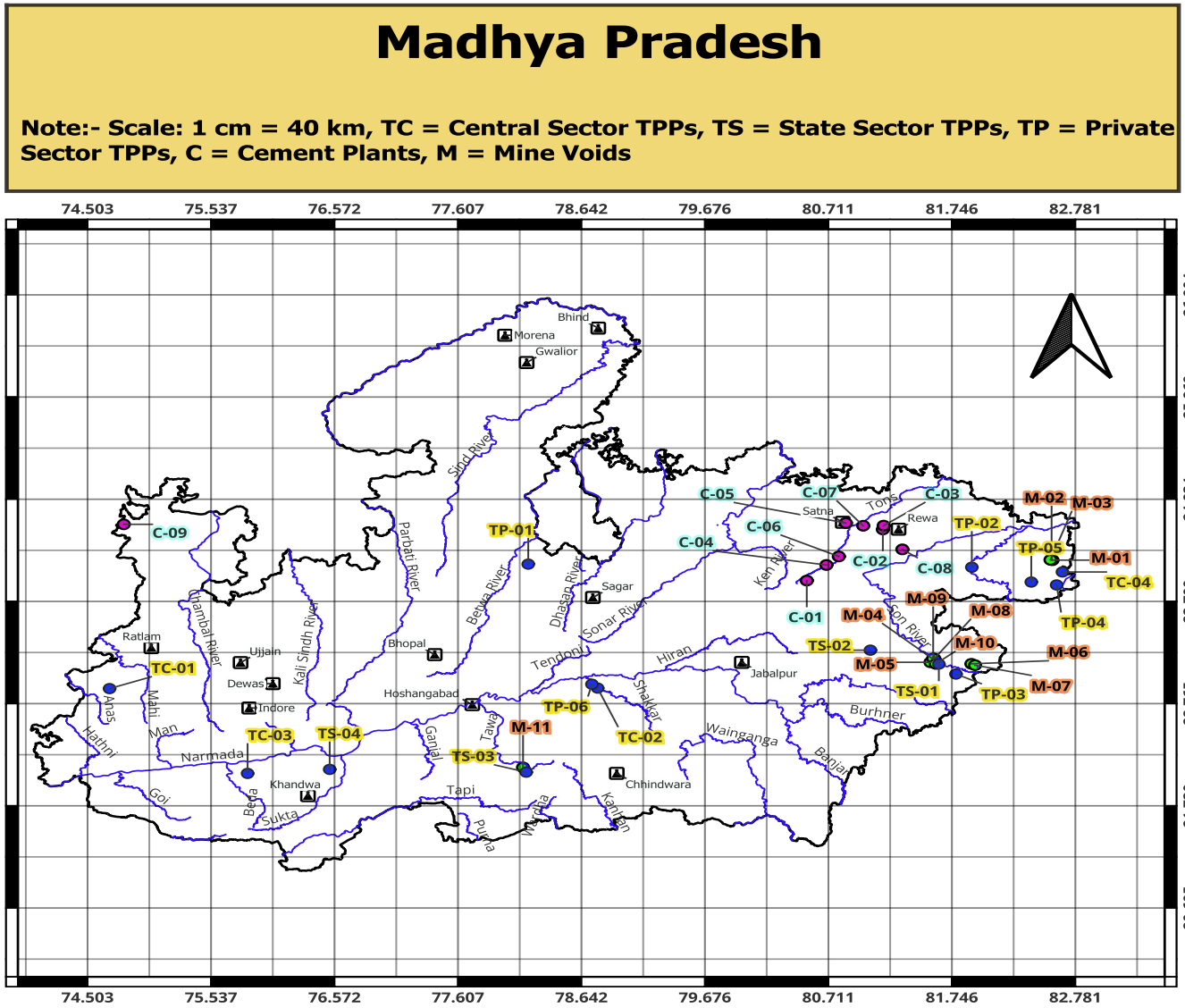
Observations:

- Over all Ash utilisation is less than 100%.
- Majority of ash is being used in Bricks industries, Cement & low-lying Area.
- Ash utilization percentage in Central Sector TPPs & State Sector TPPs is low as compared to Private Sector TPPs.
- Private Sector TPPs achieving more than 100% utilization, indicates uses of previous year ash.
- The State Sector recorded the lowest ash utilization of 76.02%, highlighting the need for urgent improvement.

Table 5.9 Ash Generation and Utilization Data of Maharashtra for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	MOUDA	NTPC Ltd.	2320	Maharashtra	41.68	38.23	91.74
2	SOLAPUR	NTPC Ltd.	1320	Maharashtra	20.72	20.38	98.38
3	CHANDRAPUR	M.S.P.G.C.L.	2920	Maharashtra	43.95	18.4	41.87
4	KHAPARKHEDA	M.S.P.G.C.L.	1340	Maharashtra	26.83	32.37	120.68
5	KORADI	M.S.P.G.C.L.	2190	Maharashtra	35.83	24.29	67.79
6	NASHIK	M.S.P.G.C.L.	630	Maharashtra	5.55	6.95	125.2
7	PARAS	M.S.P.G.C.L.	500	Maharashtra	9.28	10.17	109.6
8	PARLI	M.S.P.G.C.L.	750	Maharashtra	11.1	11.1	100
9	BHUSAWAL	M.S.P.G.C.L.	1870	Maharashtra	28.62	19.23	67.19
10	TIRODA	APL	3300	Maharashtra	45.75	59.36	129.73
11	APL	ADANI ELECTRICITY MUMBAI LIMITED	500	Maharashtra	7.79	7.79	100
12	SHIRPUR POWER PVT LTD	JINDAL POWER LTD.	300	Maharashtra	4.22	4.22	100
13	RATNAGIRI	JSW ENERGY LIMITED	300	Maharashtra	3.41	4.05	118.8
14	AMRAVATI	RATTANINDIA POWER LIMITED	1350	Maharashtra	23.53	22.75	96.68
15	DHARIWAL INFRASTRUCTURE Ltd.	DHARIWAL INFRASTRUCTURE LTD.	600	Maharashtra	10.63	10.63	100
16	GMR WARORA ENERGY LIMITED	GMR WARORA ENERGY LIMITED	600	Maharashtra	9.77	9.77	100
17	SAI WARDHA POWER Ltd. ,WARORA	WARDHA POWER COMPANY LTD	540	Maharashtra	6.47	6.47	100
18	BELA TPS	IDEAL ENERGY PROJECTS LIMITED	270	Maharashtra	3.55	5.29	148.97
19	TROMBAY	TATA POWER COMPANY LTD.	750	Maharashtra	0.77	0.77	99.88
Grand Total					**339.45**	**312.22**	**91.98**

5.10 Madhya Pradesh



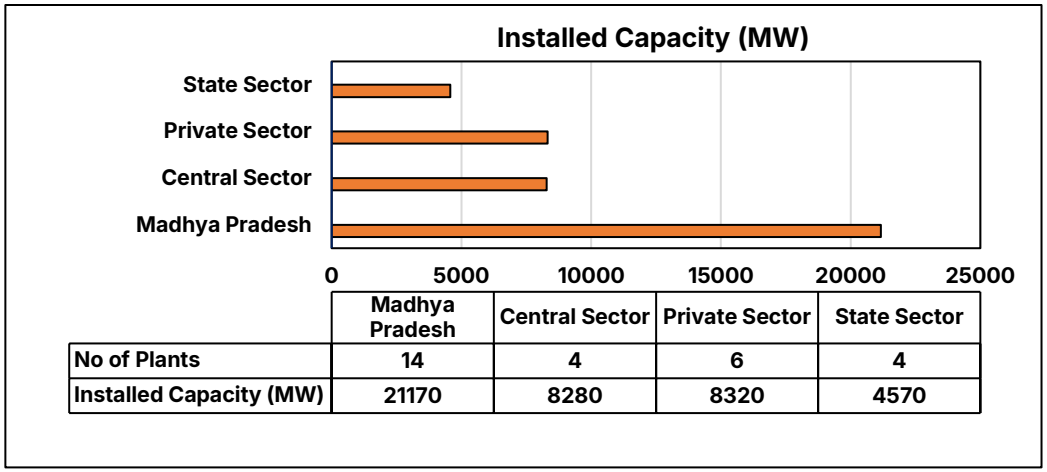
Symbol	Name of TPP
TC-01	SEIONI
TC-02	GADARWARA
TC-03	KHARGONE
TC-04	VINDHYACHAL
TP-01	BINA
TP-02	NIGRI
TP-03	ANUPPUR
TP-04	Sasan UMTPP
TP-05	Bandhoura
TP-06	Niwari TPP
TS-01	AMARKANTAK
TS-02	SANJAY GANDHI
TS-03	SATPURA
TS-04	SHREE SINGAJI

Symbol	Name of Cement Plant
C-01	ACC Ametha Cement Plant
C-02	Bela Cement Works (UltraTech Cement Ltd.)
C-03	Jaypee Rewa Cement Plant
C-04	Maihar Cement Plant (MP Birla Group)
C-05	Birla Vikas Cement (MP Birla Group)
C-06	KJS Cement Ltd.
C-07	Prism Cement Plant
C-08	Sidhi Cement Works (UltraTech Cement Ltd.)
C-09	Vikram Cement Plant (UltraTech Cement Ltd.)

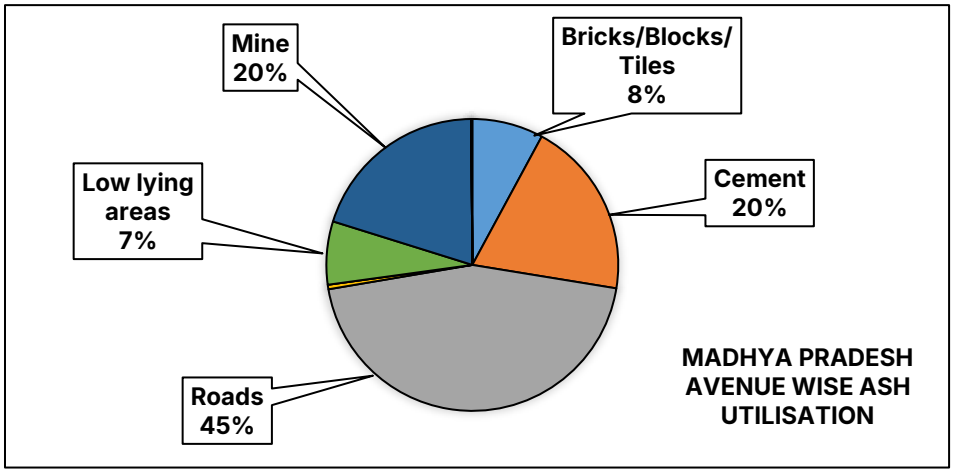
Symbol	Name of Mine Void
M-01	Gorbi mine (Pit-1)
M-02	Gorbi mine (Pit 2)
M-03	Gorbi mine (Pit 3)
M-04	Sharda OCM (OPQR patch)
M-05	Baiga OCM, Sohagpur area
M-06	Jamuna OC (Anuppur MP)
M-07	Mini OCM - Dry patch & SISF Base camp of Govinda Mine, J&K area
M-08	Trench ABCD, Sharda OCM
M-09	Trench-3 patch, Sharda OCM
M-10	Chahai OCM
M-11	Sarni UG Mine

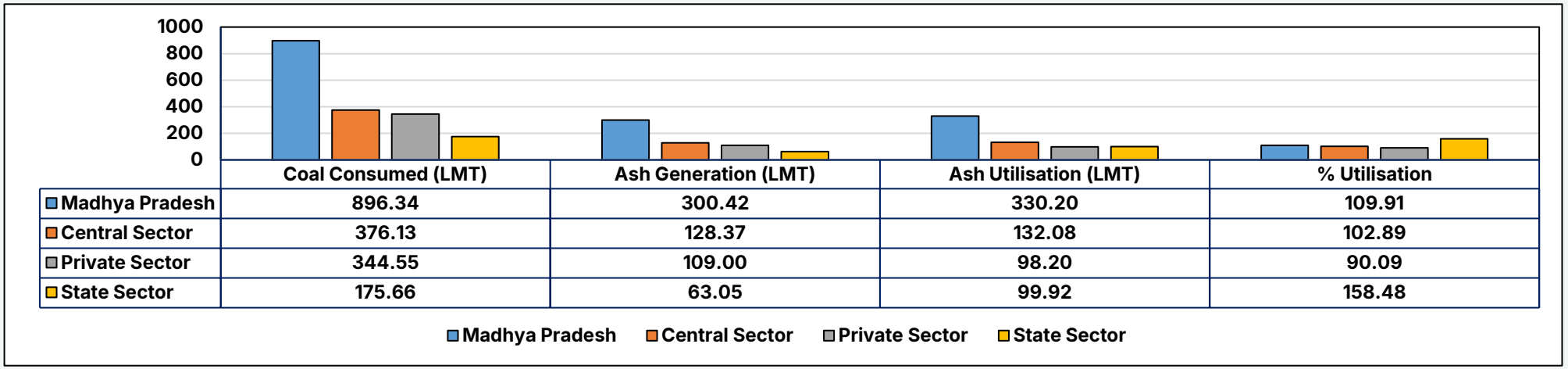
Figure 5.19 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in Maharashtra

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Madhya Pradesh



	Madhya Pradesh	Central Sector	Private Sector	State Sector
No of Plants	14	4	6	4
Installed Capacity (MW)	21170	8280	8320	4570





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Madhya Pradesh	896.34	300.42	330.20	109.91
Central Sector	376.13	128.37	132.08	102.89
Private Sector	344.55	109.00	98.20	90.09
State Sector	175.66	63.05	99.92	158.48

Figure 5.20 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Madhya Pradesh

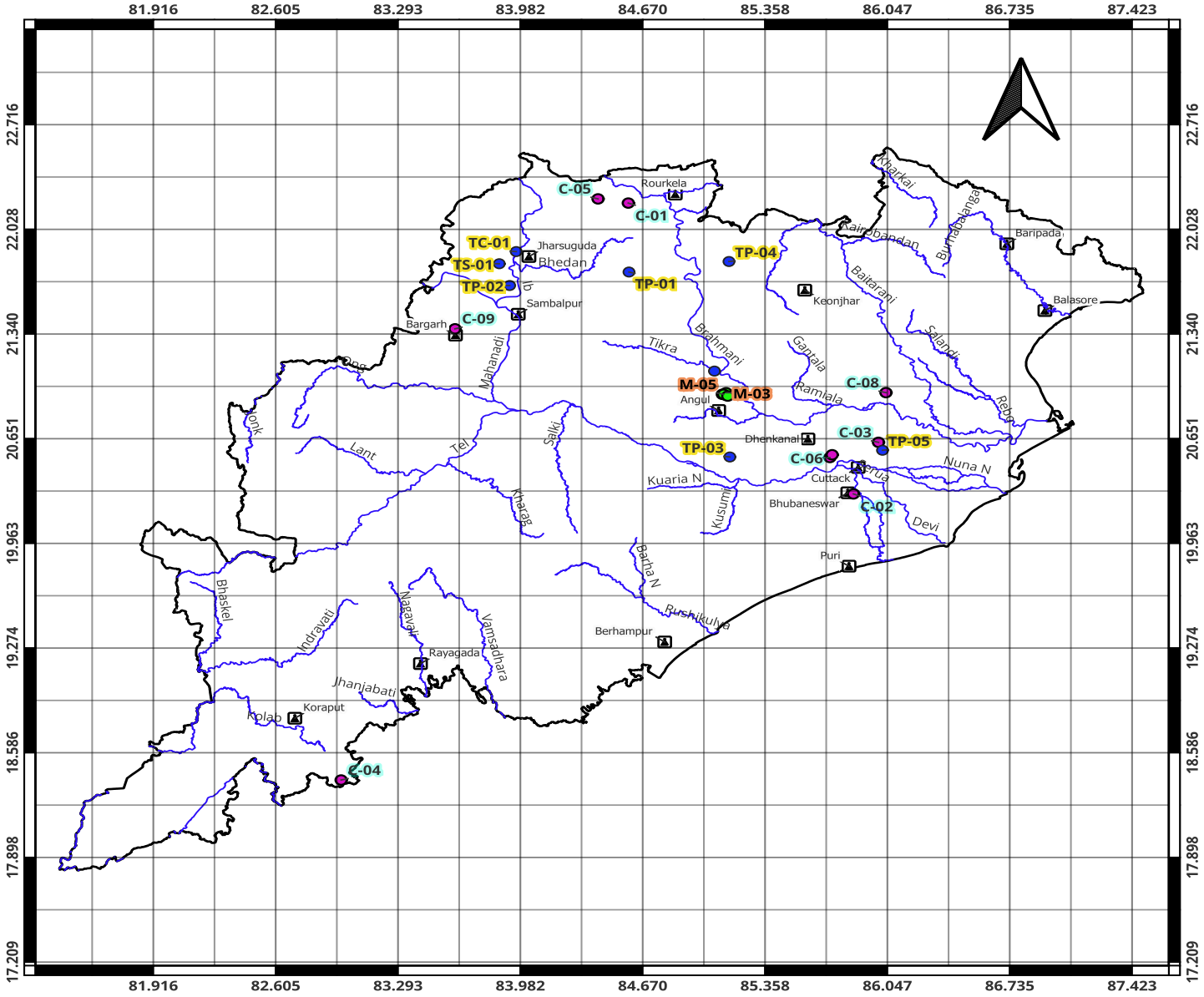
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year's ash also.
- Majority of ash is being used in Roads, Mine & Cement.
- Ash utilization percentage in Private Sector is low as compared to State TPPs and central sector.
- State Sector and Central Sector TPPs achieving more than 100% utilization, indicates uses of previous year ash.

Table 5.10 Ash Generation and Utilization Data of Madhya Pradesh for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	GADARWARA	NTPC Ltd.	1600	Madhya Pradesh	25.5	24.73	97
2	KHARGONE	NTPC Ltd.	1320	Madhya Pradesh	23.89	24.03	100.58
3	VINDHYACHAL	NTPC Ltd.	4760	Madhya Pradesh	64.96	65.17	100.31
4	JHABUA POWER LIMITED	JHABUA POWER LTD.-JV of NTPC Ltd	600	Madhya Pradesh	14.02	18.16	129.48
5	AMARKANTAK	M.P.P.G.C.L.	210	Madhya Pradesh	4.15	4.05	97.72
6	SANJAY GANDHI	M.P.P.G.C.L.	1340	Madhya Pradesh	17	31.44	184.96
7	SATPURA	M.P.P.G.C.L.	500	Madhya Pradesh	8.4	6.74	80.21
8	SHREE SINGAJI TPS	M.P.P.G.C.L.	2520	Madhya Pradesh	33.51	57.69	172.18
9	ANUPPUR TPS	MB POWER LIMITED	1250	Madhya Pradesh	19.15	19.15	100
10	JAYPEE BINA TPP	JAIPRAKASH POWER VEN-TURES LTD.	500	Madhya Pradesh	2.14	1.77	82.88
11	BANDHOURA	MAHAN ENERGEN LIMITED	1200	Madhya Pradesh	15.59	16.41	105.29
12	JAYPEE NIGRIE SUPER THER-MAL POWER PLANT	JAIPRAKASH POWER VEN-TURES LTD.	1320	Madhya Pradesh	18.36	19.08	103.93
13	NIWARI TPP	BLA POWER PVT.LTD.	90	Madhya Pradesh	1.61	1.6	99.45
14	SASAN POWER LIMITED	RELIANCE POWER LIMITED	3960	Madhya Pradesh	52.15	40.18	77.04
Grand Total					**300.43**	**330.2**	**109.91**

5.11 Odisha



Odisha

Note:- Scale: 1 cm = 27 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

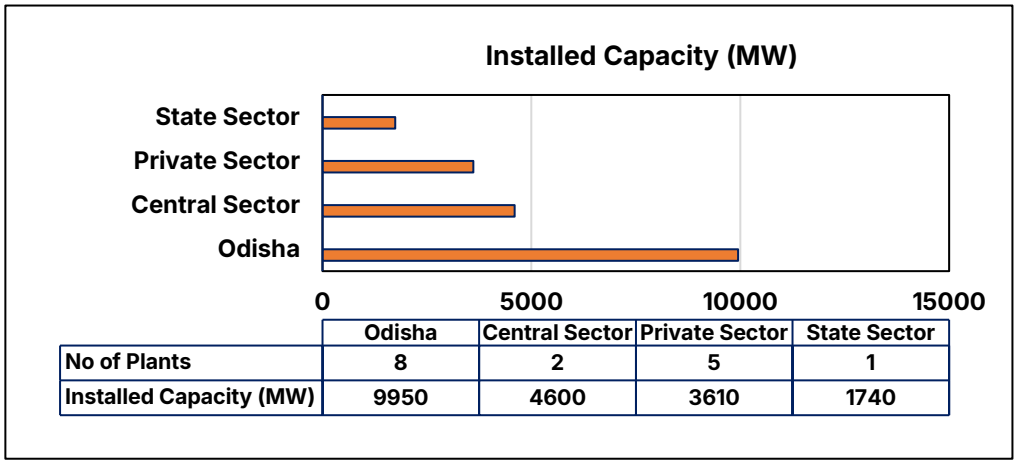
Symbol	Name of TPP
TC-01	DARLIPALLI
TC-02	TALCHER-KANIHA
TP-01	DERANG
TP-02	JSW Energy Utkal Limited
TP-03	KAMALANGA
TP-04	VEDANTA TPP
TP-05	Maadurga Thermal Power Company Ltd.
TS-01	IB VALLEY

Symbol	Name of Cement Plant
C-01	OCL India Rajgangpur Cement Plant
C-02	Ambuja Cements Odisha Cement Plant
C-03	Dalmia Cement Kapilas Cement Plant
C-04	Toshali Cement Ampavalli Cement Plant
C-05	Shiva Cement Ltd.
C-06	Odisha Cement Plant (Shree Cement Ltd.)
C-07	JK Lakshmi Cement Ltd.
C-08	JSW Cement Limited
C-09	Bargarh Cement Works

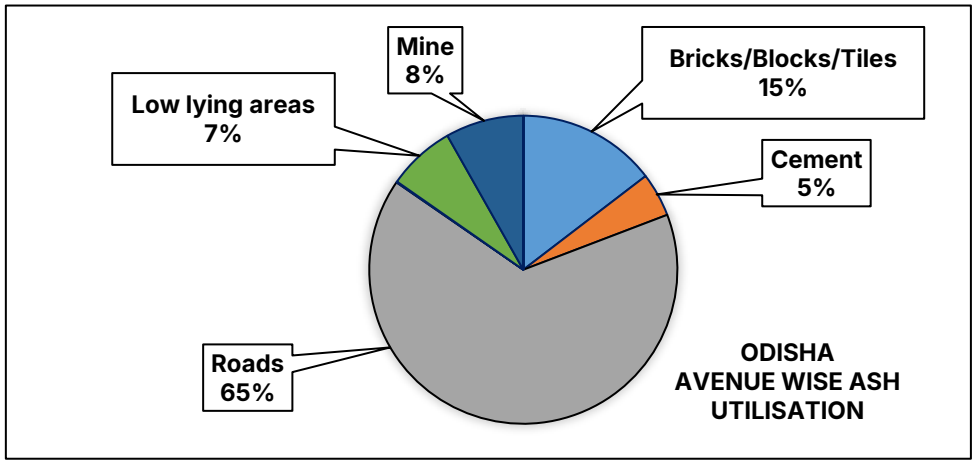
Symbol	Name of Mine Void
M-01	South Balanda Q-2 & 3
M-02	Jagannath OC, Quarry IV
M-03	Jagannath OC, Quarry VII
M-04	Jagannath OC, Quarry VIII
M-05	Bharatpur
M-06	South Balanda Q-I

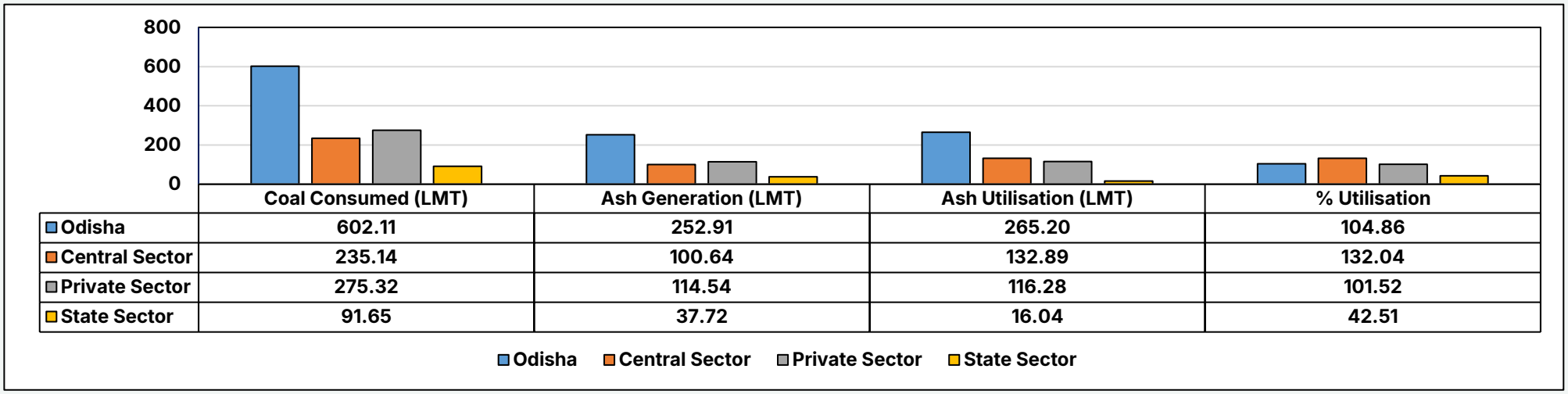
Figure 5.21 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in Odisha

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Odisha



	Odisha	Central Sector	Private Sector	State Sector
No of Plants	8	2	5	1
Installed Capacity (MW)	9950	4600	3610	1740





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Odisha	602.11	252.91	265.20	104.86
Central Sector	235.14	100.64	132.89	132.04
Private Sector	275.32	114.54	116.28	101.52
State Sector	91.65	37.72	16.04	42.51

Figure 5.22 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Odisha

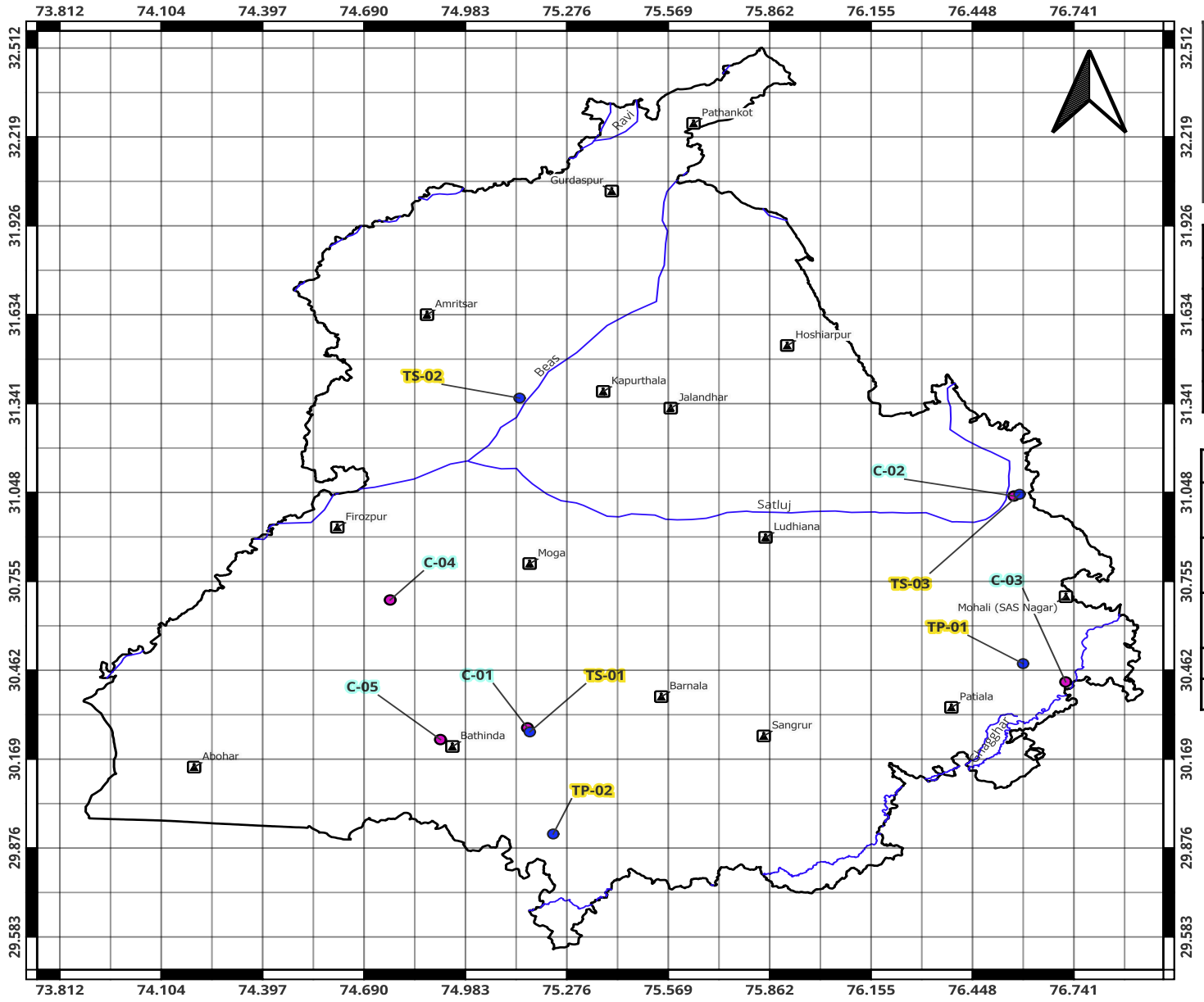
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Roads, Bricks industries & mine.
- Ash utilization percentage of State Sector TPPs is low as compared to Central Sector and Private Sector TPPs.
- Central Sector and Private Sector TPPs achieving more than 100% utilization, indicates uses of previous year ash.

Table 5.11 Ash Generation and Utilization Data of Odisha for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	DARLIPALLI	NTPC Ltd.	1600	Odisha	36.69	59.31	161.65
2	TALCHER-KANIHA	NTPC Ltd.	3000	Odisha	63.96	73.58	115.05
3	IB Valley	OPGCL	1740	Odisha	37.72	16.04	42.51
4	VEDANTA LIMITED, JHARSUGUDA	VEDANTA LIMITED	600	Odisha	46.16	53.07	114.96
5	JINDAL INDIA THERMAL POWER LTD	JINDAL INDIA THERMAL POWER LTD	1200	Odisha	23.99	22.04	91.89
6	JSW ENERGY (UTKAL) LIMITED	JSW ENERGY LIMITED	700	Odisha	14.65	11.43	78.01
7	GMR KAMALANGA TPP	GMR KAMALANGA ENERGY Ltd.	1050	Odisha	28.47	28.47	100
8	MAADURGA THERMAL POWER COMPANY LTD.	GRIDCO LTD & NPCL	60	Odisha	1.27	1.27	100
Grand Total					**252.91**	**265.21**	**104.86**

5.12 Punjab



Punjab

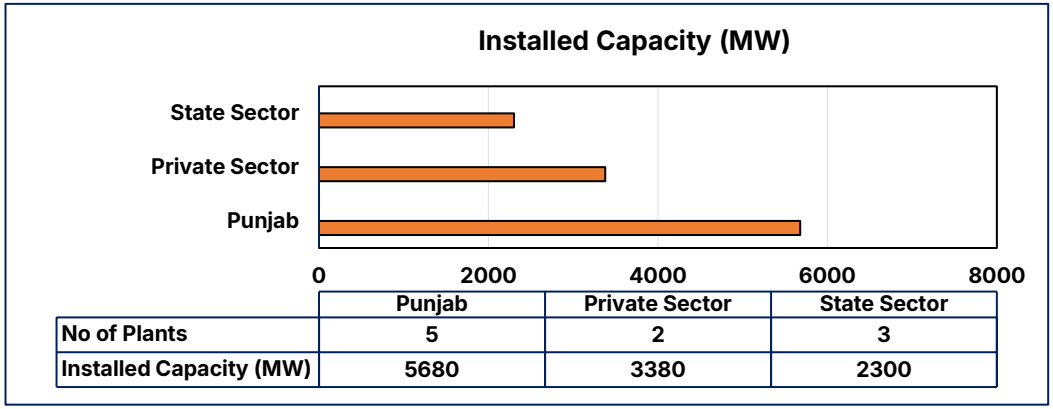
Note:- Scale: 1 cm = 11 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TP-01	RAJPURA
TP-02	TALWANDI SABO
TS-01	GHTP LEHRAMOHABAT
TS-02	GOINDWAL SAHIB
TS-03	ROPAR

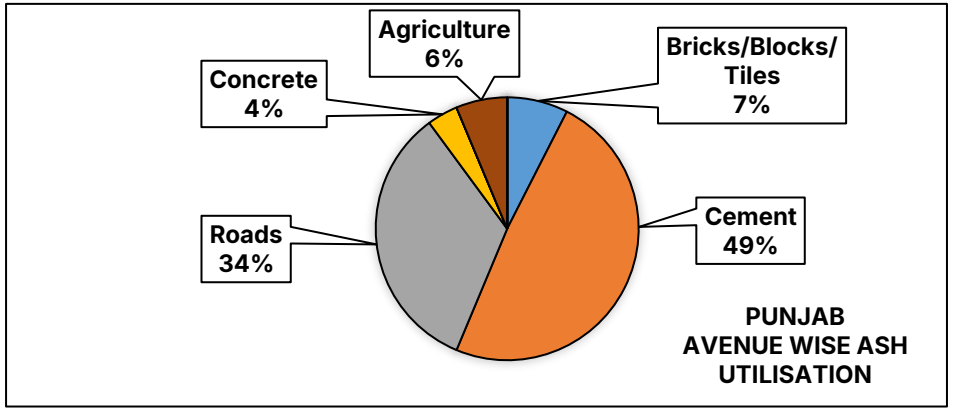
Symbol	Name of Cement Plant
C-01	UltraTech Bathinda Cement Plant
C-02	Ambuja Cements Ropar Cement Plant
C-03	Asia Fine Cements Rajpura Cement Plant
C-04	Bajaj Cement Factory
C-05	Ambuja Fly Ash Cement Plant

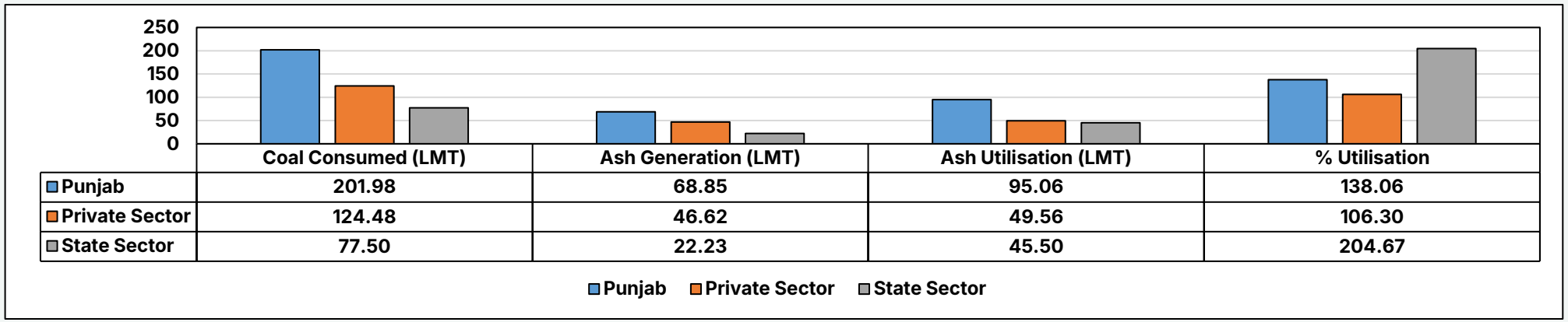
Figure 5.23 Map Showing the locations of TPPs and Major Cement Plants in Punjab

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Punjab



	Punjab	Private Sector	State Sector
No of Plants	5	2	3
Installed Capacity (MW)	5680	3380	2300





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Punjab	201.98	68.85	95.06	138.06
Private Sector	124.48	46.62	49.56	106.30
State Sector	77.50	22.23	45.50	204.67

Figure 5.24 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Punjab

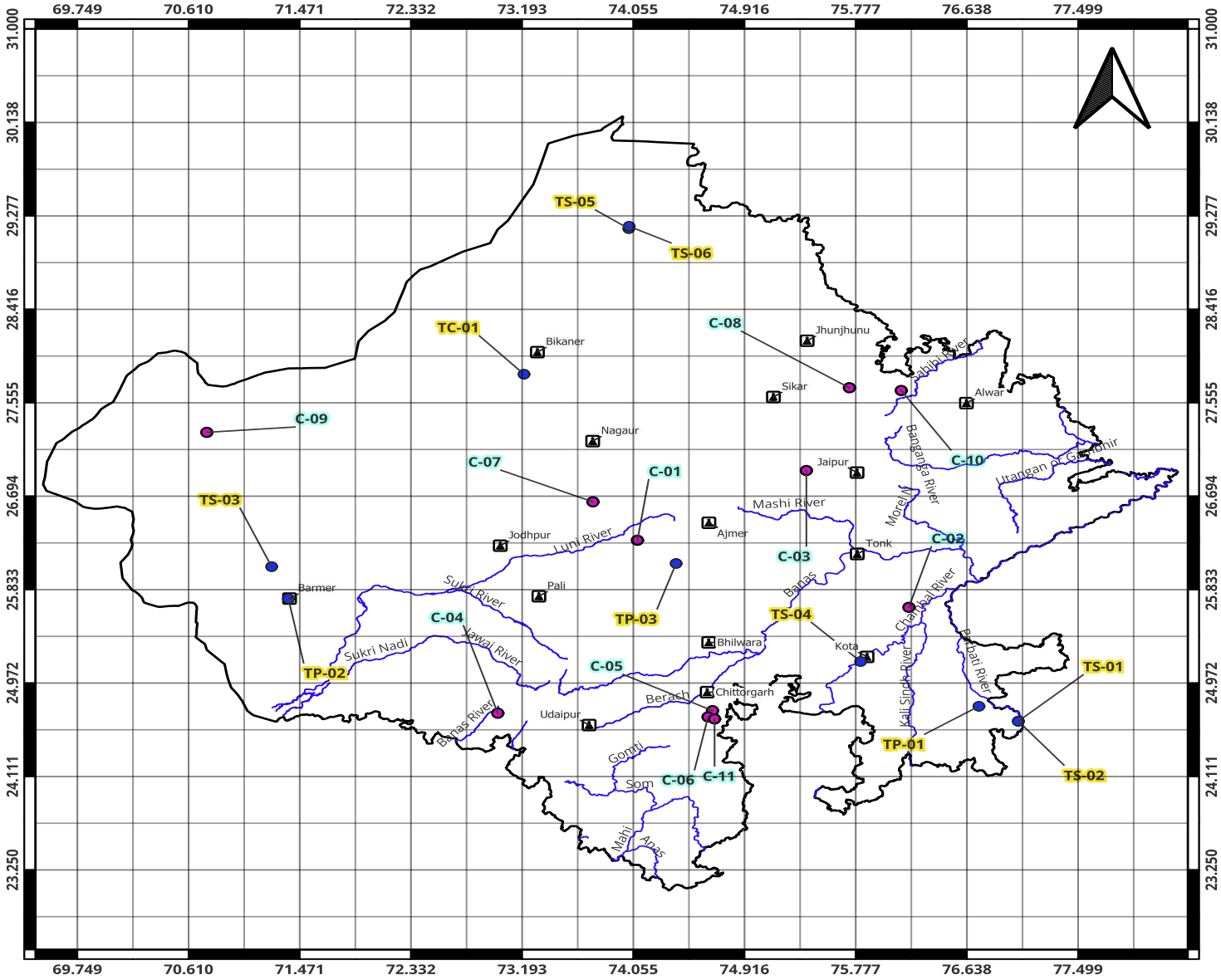
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Roads, Cement, Bricks industries & Agriculture.
- Only Private Sector and State Sector TPPs operate in Punjab, and both have demonstrated commendable ash utilization performance.

Table 5.12 Ash Generation and Utilization Data of Punjab for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	LEHRAMOHABAT	P.S.P.C.L.	920	Punjab	10.11	13.38	132.36
2	ROPAR	P.S.P.C.L.	840	Punjab	7.71	29.06	376.68
3	GVK POWER (GOINDWAL SAHIB)	GVK POWER (GOINDWAL SAHIB) LTD.	540	Punjab	4.41	3.06	69.41
4	RAJPURA	NABHA POWER LIMITED	1400	Punjab	18.82	18.81	99.95
5	TALWANDI SABO POWER LTD.	TALWANDI SABO POWER LTD.	1980	Punjab	27.8	30.75	110.6
Grand Total					**68.85**	**95.06**	**138.07**

5.13 Rajasthan



Rajasthan

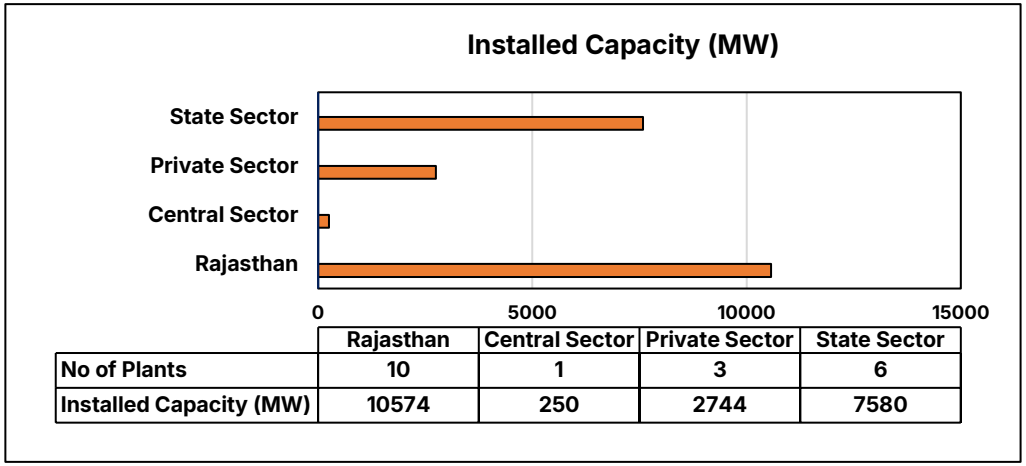
Note:- Scale: 1 cm = 34 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	BARSINGSAR
TP-01	APL KAWAI
TP-02	JALIPA KAPURDI
TP-03	SHREE CEMENT LTD
TS-01	CHHABRA-I
TS-02	CHHABRA-II
TS-03	KALISINDH TPS
TS-04	KOTA
TS-05	Surtagarh Super Critical TPP U-7&8
TS-06	SURATGARH

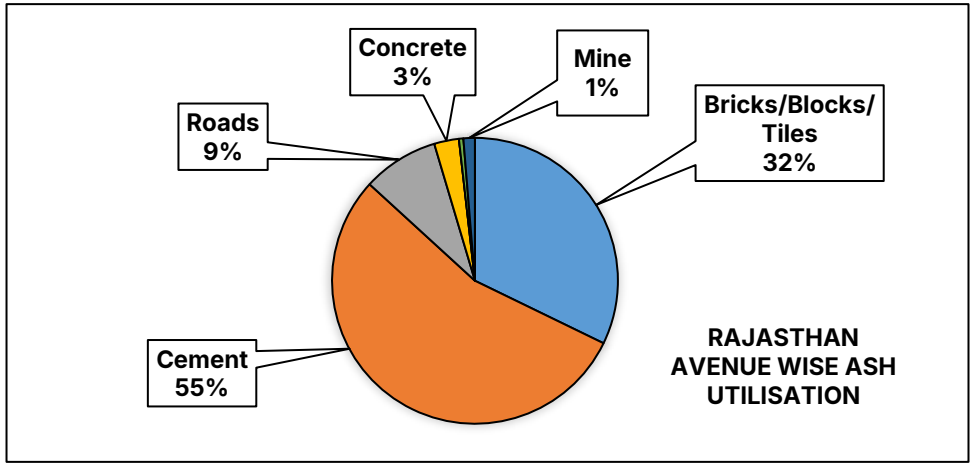
Symbol	Name of Cement Plant
C-01	UltraTech Cement Kharia Khangar Plant
C-02	ACC Lakheri Cement Plant
C-03	Shree Cement Jaipur Plant
C-04	JK Lakshmi Cement Plant
C-05	Nuvoco Vistas Chittor Cement Plant
C-06	Wonder Cement Plant
C-07	JK Cement Works Gotan
C-08	UltraTech Cement Neem Ka Thana Plant
C-09	Wonder Cement Parewar Plant
C-10	UltraTech Cement Kotputli Plant

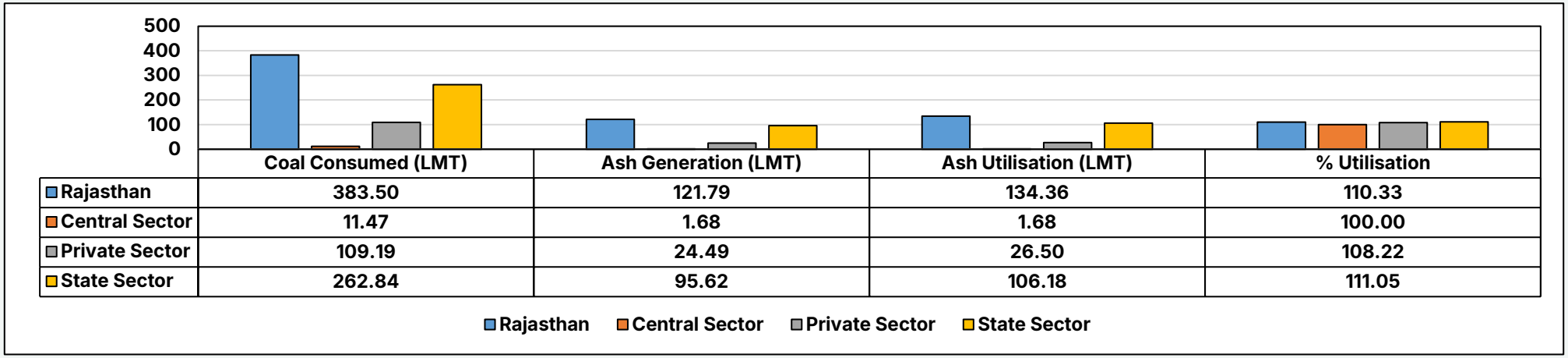
Figure 5.25 Map Showing the locations of TPPs and Major Cement Plants in Rajasthan

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Rajasthan



	Rajasthan	Central Sector	Private Sector	State Sector
No of Plants	10	1	3	6
Installed Capacity (MW)	10574	250	2744	7580





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Rajasthan	383.50	121.79	134.36	110.33
Central Sector	11.47	1.68	1.68	100.00
Private Sector	109.19	24.49	26.50	108.22
State Sector	262.84	95.62	106.18	111.05

Figure 5.26 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Rajasthan

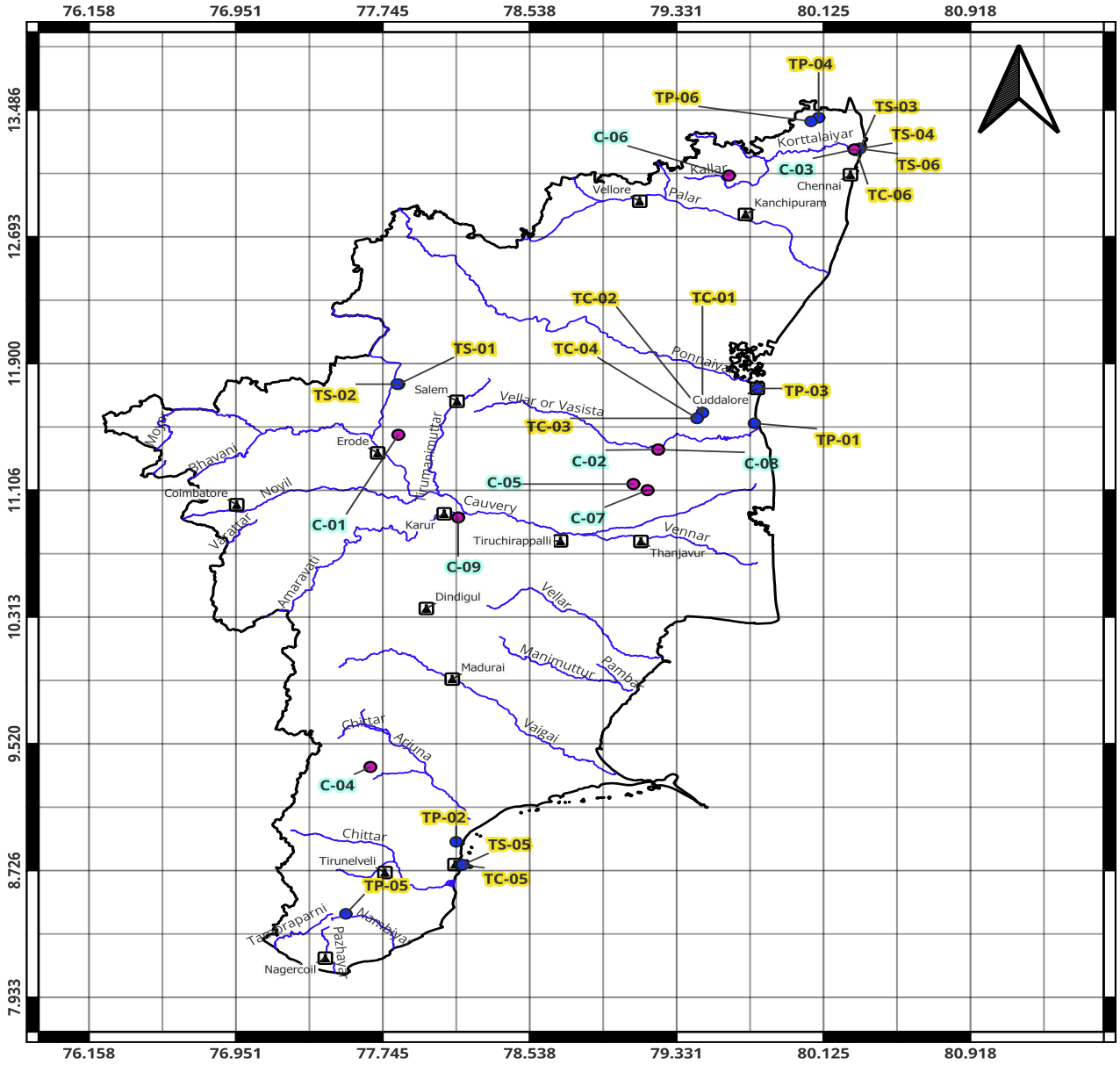
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in Cement & Bricks industries.
- Ash utilization percentage in Central Sector, Private Sector & State Sector TPPs is more than or equal to 100%.

Table 5.13 Ash Generation and Utilization Data of Rajasthan for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	BARSINGSAR LIGNITE THERMAL POWER STATION	N.L.C.LTD	250	Rajasthan	1.68	1.68	100
2	CHHABRA	RRVUNL	1000	Rajasthan	14.94	23.02	154.13
3	CHHABRA-2	RRVUNL	1320	Rajasthan	13.13	15.49	118.02
4	KALISINDH	RRVUNL	1200	Rajasthan	14.47	17.51	121.03
5	KOTA	RRVUNL	1240	Rajasthan	20.95	18.89	90.16
6	SURTAGARH SUPER CRITICAL TPP U-7&8	RRVUNL	1320	Rajasthan	15.03	12.56	83.57
7	SURATGARH	RRVUNL	1500	Rajasthan	17.1	18.7	109.35
8	KAWAI	APL	1320	Rajasthan	13.77	15.89	115.43
9	JALIPA KAPURDI	RWPL	1080	Rajasthan	9.33	9.22	98.81
10	SHREE CEMENT LTD TPS	SHREE CEMENT LTD	344	Rajasthan	1.39	1.39	100
Grand Total					**121.79**	**134.35**	**110.31**

5.14 Tamil Nadu



Tamil Nadu

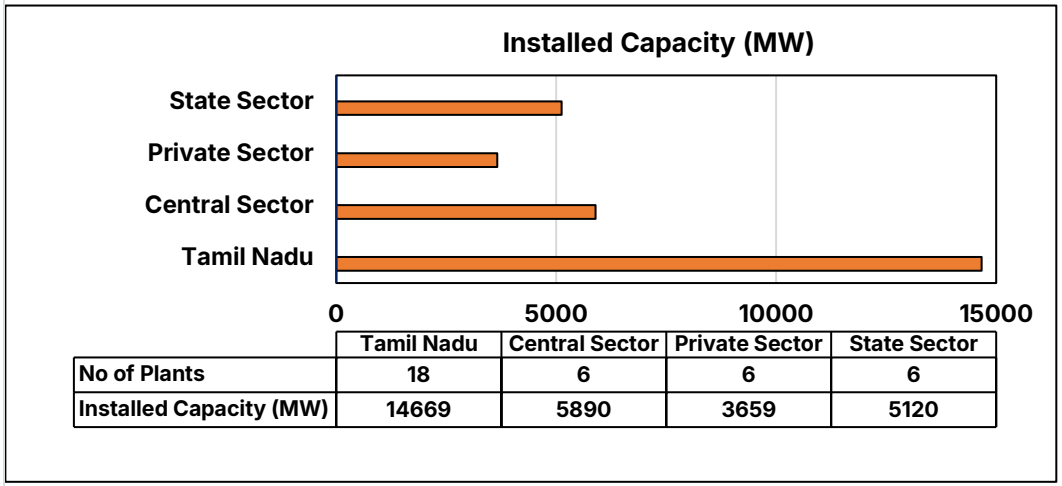
Note:- Scale: 1 cm = 31 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	NEYVELI (EXT) NLC
TC-02	NEYVELI NEW TPP NLC
TC-03	NEYVELI TPS-II
TC-04	NEYVELI TPS-II EXP
TC-05	NTPL TUTICORIN
TC-06	VALLUR
TP-01	ITPCL TPP
TP-02	MUTHIARA
TP-03	NEYVELI TAQA PC
TP-04	OPG Power Generation Private Limited
TP-05	TUTICORIN ST-IV
TP-06	Tulsyan NEC Limited
TS-01	METTUR
TS-02	METTUR-II
TS-03	NORTH CHENNAI STAGE 1
TS-04	NORTH CHENNAI STAGE 2
TS-05	TUTICORIN TPS
TS-06	NORTH CHENNAI STAGE 3

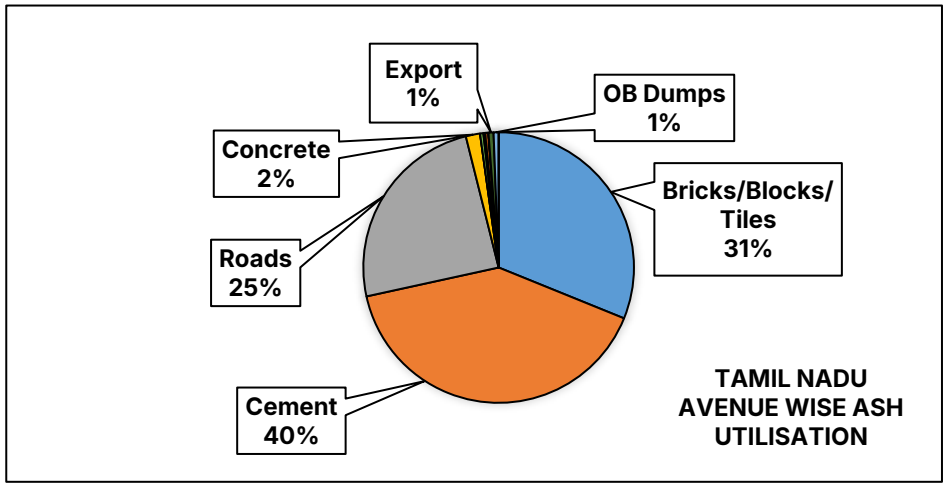
Symbol	Name of Cement Plant
C-01	India Cements Sankari West Plant
C-02	Ramco Cements Alathiyur Plant
C-03	India Cements Athipattu Plant
C-04	Tamil Nadu Cement Corporation (TANCEM)
C-05	TANCEM Ariyalur Cement Plant
C-06	Ultratech Cement Ltd, Arakonam, Vellore
C-07	UltraTech Cement Reddipalayam Plant
C-08	UltraTech Cement Alathiyur Plant
C-09	Chettinad Cement Puliyur Plant

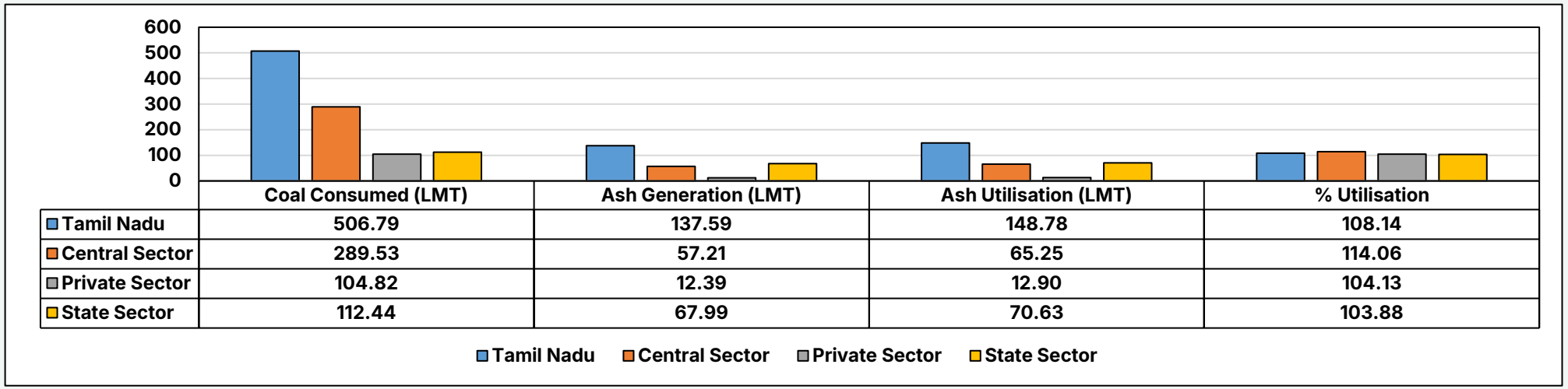
Figure 5.27 Map Showing the locations of TPPs and Major Cement Plants in Tamil Nadu

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Tamil Nadu



	Tamil Nadu	Central Sector	Private Sector	State Sector
No of Plants	18	6	6	6
Installed Capacity (MW)	14669	5890	3659	5120





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Tamil Nadu	506.79	137.59	148.78	108.14
Central Sector	289.53	57.21	65.25	114.06
Private Sector	104.82	12.39	12.90	104.13
State Sector	112.44	67.99	70.63	103.88

Figure 5.28 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Tamil Nadu

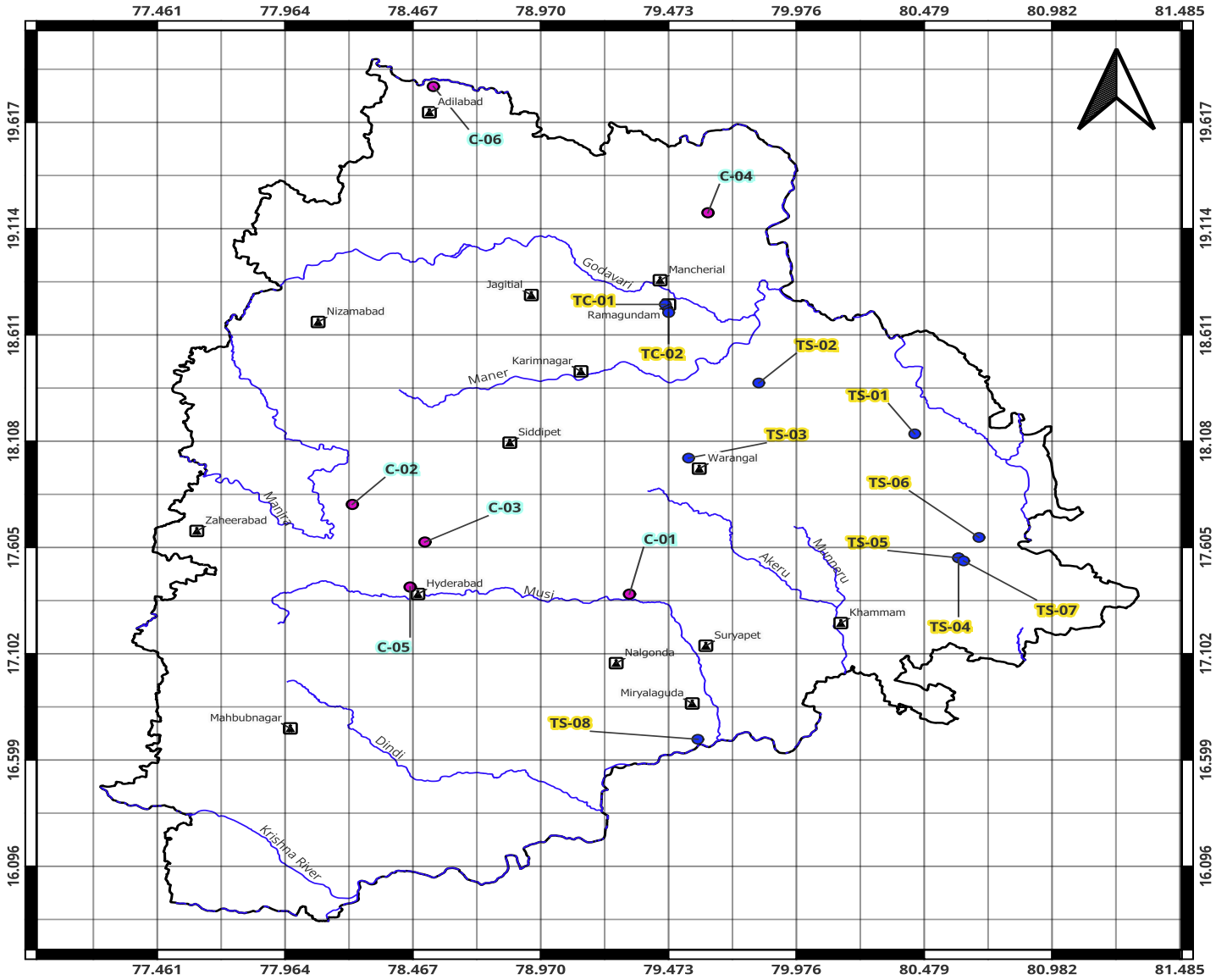
Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in cement, Roads & Bricks industries.
- All Sectors TPPs are achieving more than 100% utilization.

Table 5.14 Ash Generation and Utilization Data of Tamil Nadu for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	VALLUR	NTPC Ltd.	1500	Tamil Nadu	25.89	27.34	105.61
2	NEYVELI -I EXPN	N.L.C.LTD	420	Tamil Nadu	2.35	2.35	100
3	NEYVELI NEW THERMAL POWER STATION	N.L.C.LTD	1000	Tamil Nadu	6.83	6.83	100.01
4	THERMAL POWER STATION - II	N.L.C.LTD	1470	Tamil Nadu	6.26	11.92	190.47
5	NEYVELI - II EXPN	N.L.C.LTD	500	Tamil Nadu	1.66	1.66	100
6	NTPL-TUTICORIN THERMAL POWER PRO-JECT	NLC TAMILNADU POWER LIMITED	1000	Tamil Nadu	14.23	15.15	106.51
7	METTUR THERMAL POWER STATION I	TNPGCL	840	Tamil Nadu	15.01	18.03	120.11
8	METTUR-II	TNPGCL	600	Tamil Nadu	8.9	8.48	95.23
9	NORTH CHENNAI-I	TNPGCL	630	Tamil Nadu	10.47	12.84	122.64
10	NORTH CHENNAI-II	TNPGCL	1200	Tamil Nadu	18.86	17.33	91.9
11	TUTICORIN THERMAL POWER STATION	TNPGCL	1050	Tamil Nadu	11.85	11.06	93.36
12	NORTH CHENNAI TPS STAGE 3	TNPGCL	800	Tamil Nadu	2.89	2.88	99.66
13	ILFS TAMIL NADU POWER PLANT	ILFS TAMIL NADU POWER COMPANY LTD	1200	Tamil Nadu	1.2	1.22	101.89
14	MUTIARA	MOXIE POWER GENEA-TION LTD	1200	Tamil Nadu	4.57	4.57	100
15	TAQA NEYVELI POWER PLANT CUDDALORE	TAQA NEYVELI POWER COMPANY PRIVATE LIMITED	250	Tamil Nadu	0.93	1.42	152.61
16	OPG POWER GENERATION PRIVATE LIM-ITED	OPG POWER GENERA-TION PRIVATE LIMITED	414	Tamil Nadu	2.8	2.8	99.96
17	SEPC POWER PRIVATE LIMITED	SEPC POWER PRIVATE LIMITED	525	Tamil Nadu	2.77	2.77	100
18	TULSYAN NEC LIMITED	TULSYAN NEC LIMITED	70	Tamil Nadu	0.12	0.12	100
Grand Total					**137.59**	**148.77**	**108.13**

5.15 Telangana



Telangana

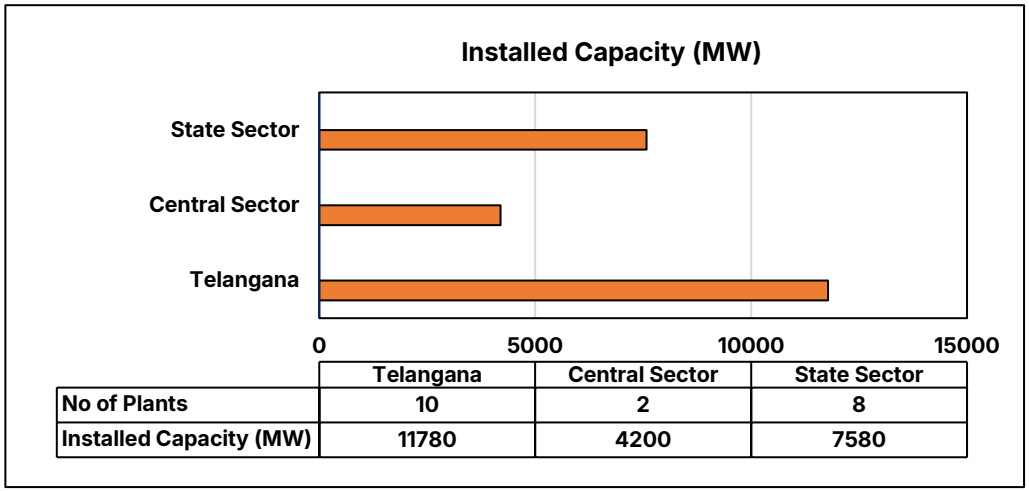
Note:- Scale: 1 cm = 20 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

Symbol	Name of TPP
TC-01	RAMAGUNDEM
TC-02	TELANGANA STPP PH-1
TS-01	BHADRADRI
TS-02	KAKATIA (Stage-I)
TS-03	KAKATIA (Stage-II)
TS-04	KOTHAGUDEM-V
TS-05	KOTHAGUDEM-VI
TS-06	KOTHAGUDEM-(Stage VII)
TS-07	SINGARENI
TS-08	YADADRI

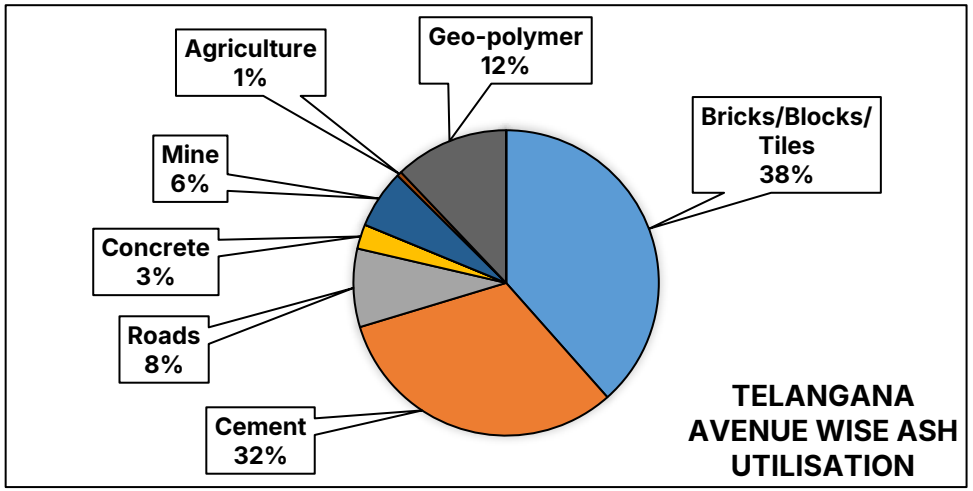
Symbol	Name of Cement Plant
C-01	Penna Cement Industries Ltd
C-02	Shree Cement Limited, Kodla Plant
C-03	SHREE CEMENT LTD, Banjara Hills
C-04	ORIENT CEMENT PLANT, Devapur
C-05	Chettinad Cement Plant
C-06	Cement Corporation of India (CCI)

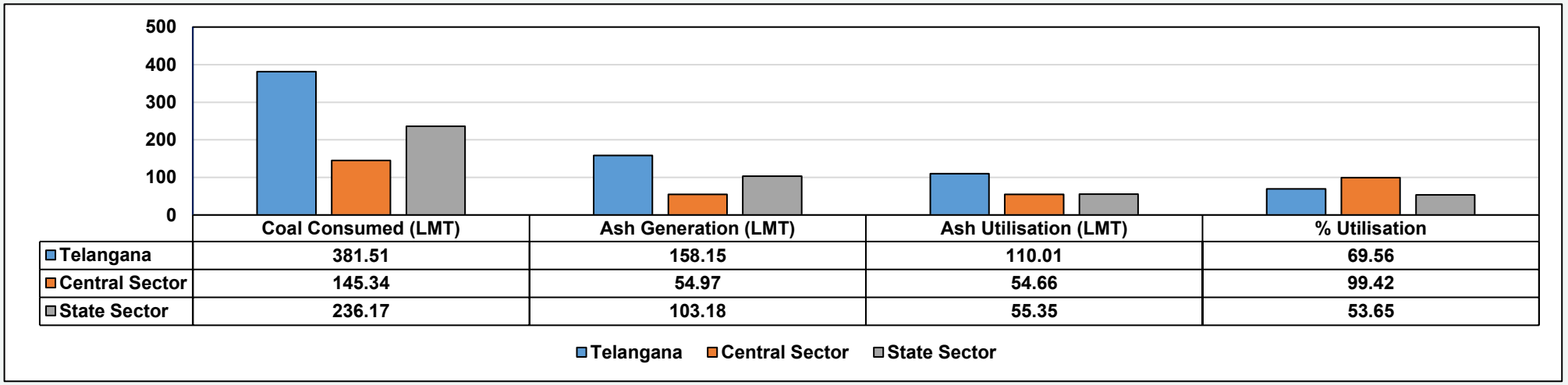
Figure 5.29 Map Showing the locations of TPPs and Major Cement Plants in Telangana

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Telangana



	Telangana	Central Sector	State Sector
No of Plants	10	2	8
Installed Capacity (MW)	11780	4200	7580





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Telangana	381.51	158.15	110.01	69.56
Central Sector	145.34	54.97	54.66	99.42
State Sector	236.17	103.18	55.35	53.65

Figure 5.30 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Telangana

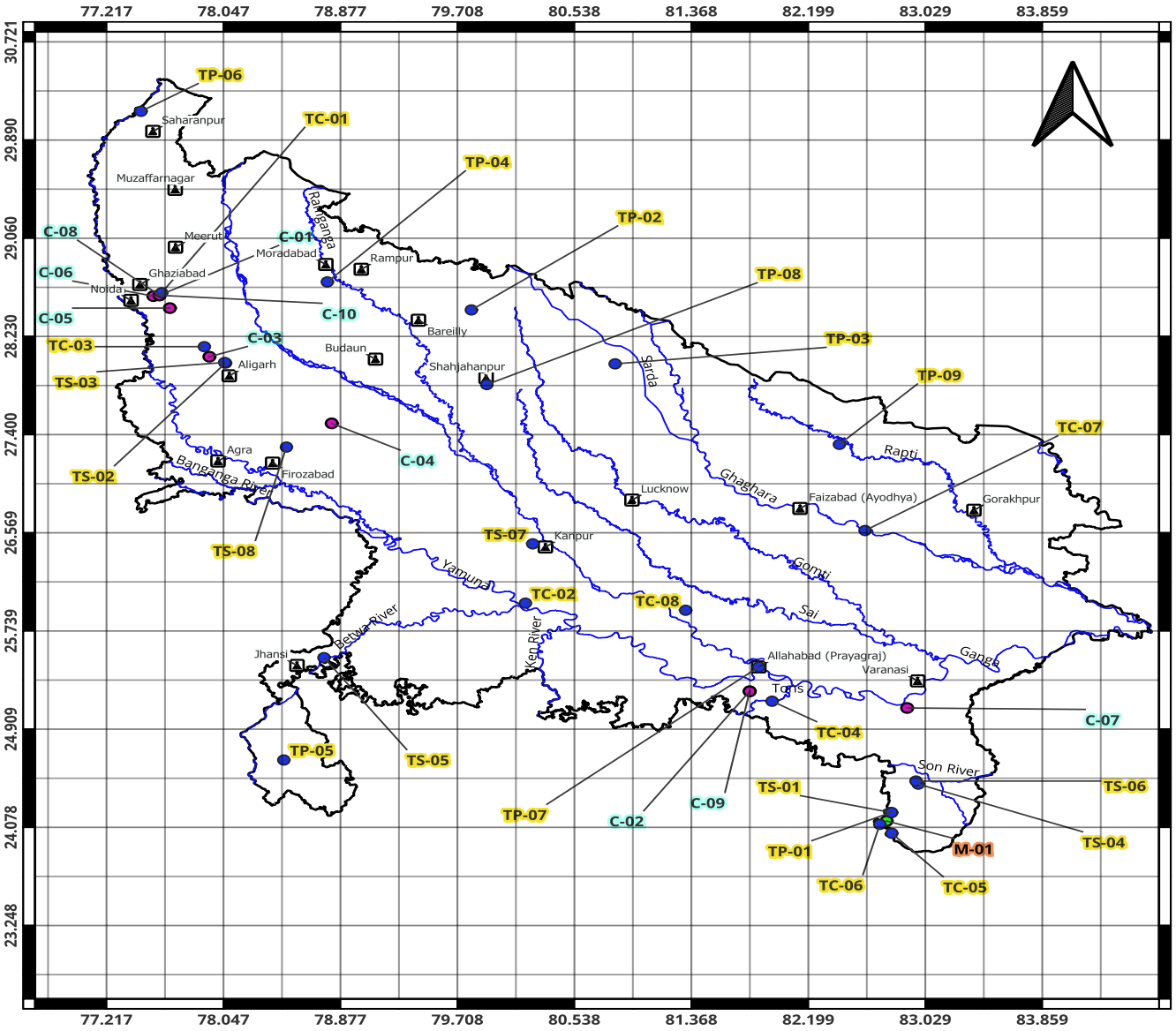
Observations:

- Over all Ash utilisation is less than 100%.
- Majority of ash is being used in Bricks industries, Cement & Geo-polymer.
- The ash utilization percentage is low in State Sector TPPs.
- The State Sector needs significant improvement with the lowest utilisation 53.65%.

Table 5.15 Ash Generation and Utilization Data of Telangana for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	RAMAGUNDAM	NTPC Ltd.	2600	Telangana	32.66	35.59	108.97
2	TELANGANA STPP	NTPC Ltd.	1600	Telangana	22.31	19.06	85.44
3	BHADRADRI THERMAL POWER STATION	T.S.G.E.N.C.O	1080	Telangana	18.28	4.37	23.94
4	KAKATIA (Stage-I)	T.S.G.E.N.C.O	500	Telangana	6.78	4.17	61.48
5	KAKATIA (Stage-II)	T.S.G.E.N.C.O	600	Telangana	8.6	4.85	56.45
6	KOTHAGUDEM-V	T.S.G.E.N.C.O	500	Telangana	11.47	7.2	62.76
7	KOTHAGUDEM-VI	T.S.G.E.N.C.O	500	Telangana	5.9	6.65	112.62
8	KOTHAGUDEM-(Stage VII)	T.S.G.E.N.C.O	800	Telangana	10.96	3.47	31.69
9	YADADRI TPS	TSGENCO	2400	Telangana	21.92	6.94	31.65
10	SCCL POWER PLANT (PEGADAPALLY)	SINGARENI COL-LIERIES COMPANY LIMITED	1200	Telangana	19.27	17.7	91.85
Grand Total					**158.15**	**110**	**69.55**

5.16 Uttar Pradesh



Uttar Pradesh

Note:- Scale: 1 cm = 32 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

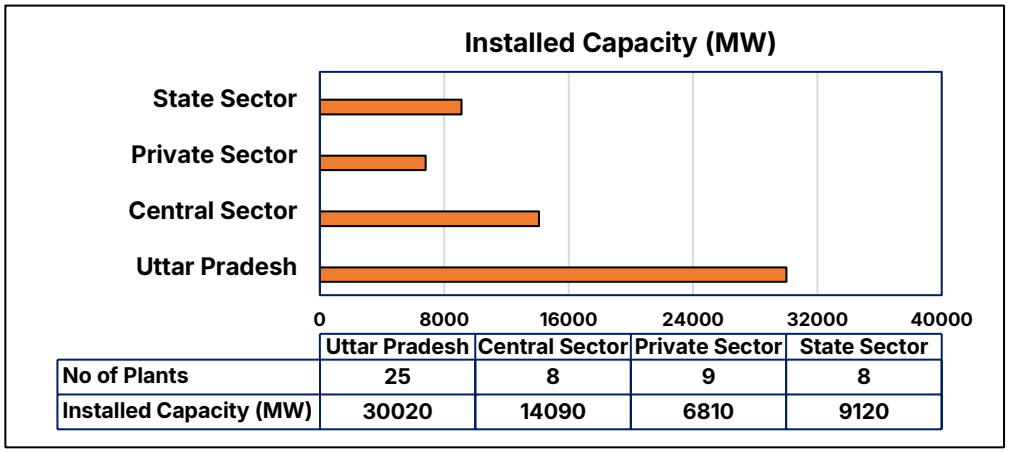
Symbol	Name of TPP
TC-01	DADRI
TC-02	GHATAMPUR
TC-03	KHURJA
TC-04	MEJA NTPC
TC-05	RIHAND
TC-06	SINGRAULI
TC-07	TANDA
TC-08	UNCHAHAR
TP-01	Lanco Anpara KPL
TP-02	BARKHERA
TP-03	KHAMBER KHERA
TP-04	KUNDARKI
TP-05	LALITPUR
TP-06	MAQSOODPUR
TP-07	PRAYAGRAJ
TP-08	ROSA TPP Ph-I
TP-09	UTRAULA
TS-01	ANPARA
TS-02	HARDUAGANJ
TS-03	HARDUAGANJ Extn.
TS-04	OBRA
TS-05	PARICHHA
TS-06	OBRA-C
TS-07	PANKI Extension
TS-08	JAWAHARPUR

Symbol	Name of Cement Plant
C-01	UltraTech Dadri Cement Plant
C-02	Jaypee Sadwa Khurd Cement Plant
C-03	Wonder Cement Aligarh Plant
C-04	Shree Cement Etah Plant
C-05	UltraTech Cement Sikandrabad Plant
C-06	Ambuja Cement Dadri Plant
C-07	Chunar Cement Factory
C-08	UltraTech Dadri Cement Plant
C-09	Jaypee Sadwa Khurd Cement Plant
C-10	Ambuja Cement Dadri Plant

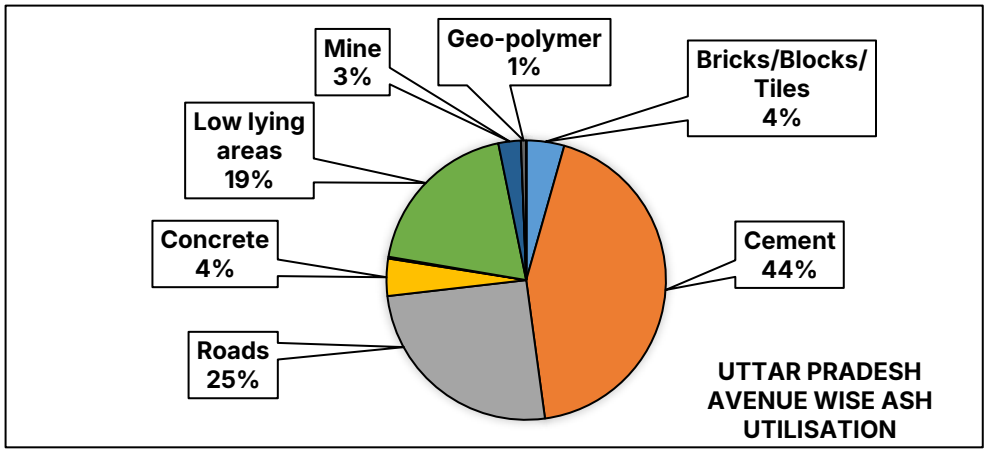
Symbol	Name of Mine Void
M-01	Krishnashila

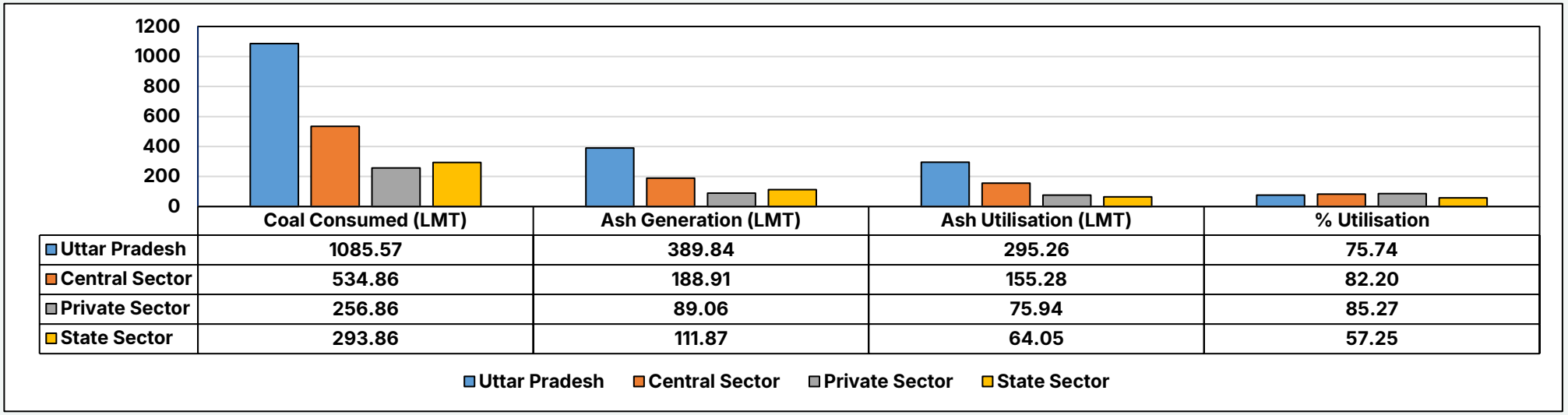
Figure 5.31 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in Uttar Pradesh

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in Uttar Pradesh



	Uttar Pradesh	Central Sector	Private Sector	State Sector
No of Plants	25	8	9	8
Installed Capacity (MW)	30020	14090	6810	9120





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
Uttar Pradesh	1085.57	389.84	295.26	75.74
Central Sector	534.86	188.91	155.28	82.20
Private Sector	256.86	89.06	75.94	85.27
State Sector	293.86	111.87	64.05	57.25

Figure 5.32 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in Uttar Pradesh

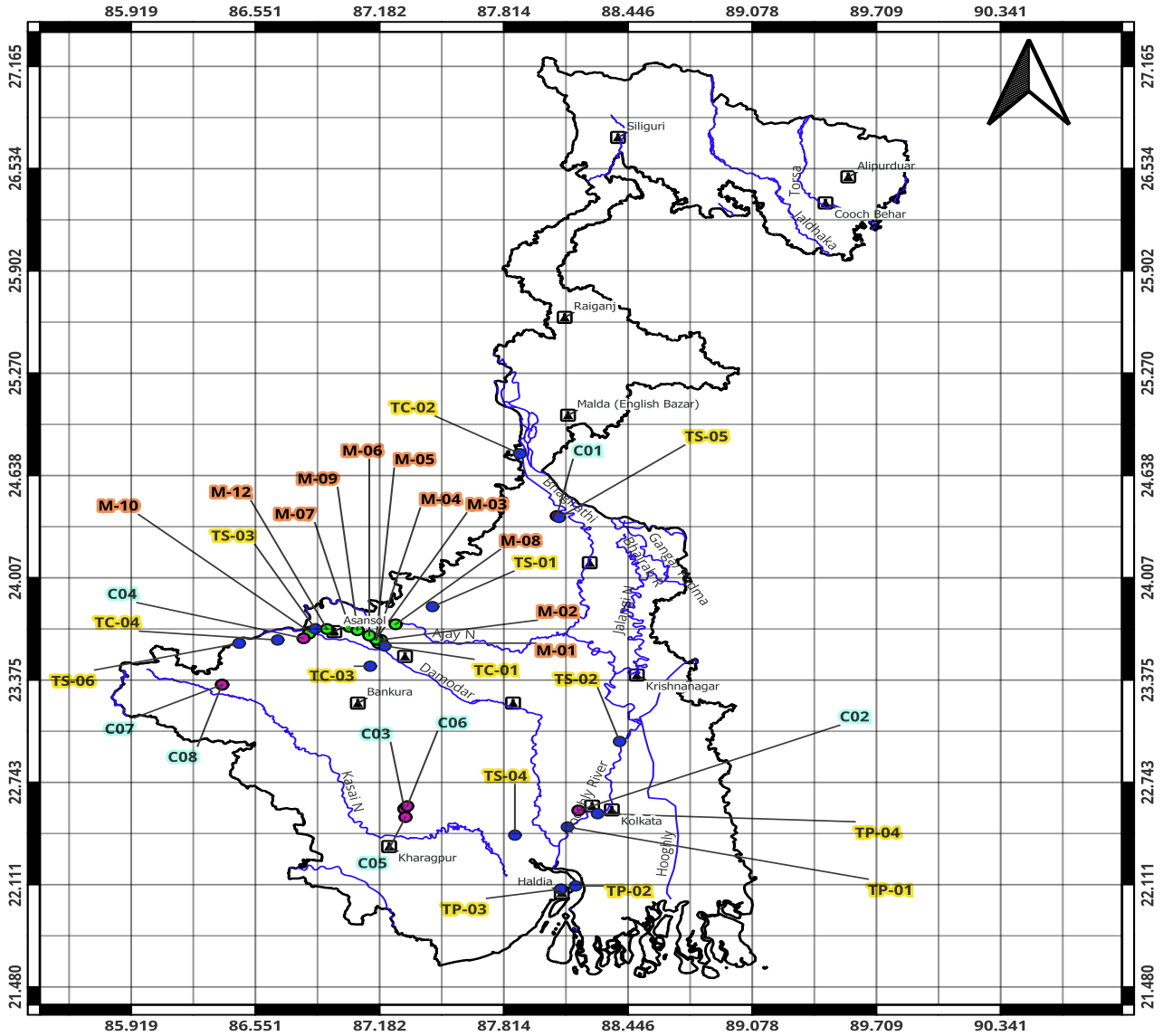
Observations:

- Overall ash utilization stands at **75.74%**, well below the mandated 100% target.
- The majority of ash has been utilized in road construction, the cement sector, and low-lying area reclamation.
- Ash utilization is suboptimal across all sectors, with the **State Sector** recording the lowest utilization at **57.25%**.
- Immediate corrective measures and a focused strategy are essential to achieve the ash utilization targets prescribed under the **MoEF&CC Notification**.

Table 5.16 Ash Generation and Utilization Data of Uttar Pradesh for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	DADRI	NTPC Ltd.	1820	Uttar Pradesh	26.81	26.87	100.25
2	MEJA TPP	NTPC Ltd.	1320	Uttar Pradesh	19.34	16.08	83.15
3	RIHAND	NTPC Ltd.	3000	Uttar Pradesh	41.09	24.83	60.43
4	SINGRAULI	NTPC Ltd.	2000	Uttar Pradesh	29.14	17.62	60.46
5	TANDA	NTPC Ltd.	1760	Uttar Pradesh	25.15	27.78	110.47
6	UNCHACHAR	NTPC Ltd.	1550	Uttar Pradesh	26.33	29.14	110.68
7	GHATAMPUR THERMAL POWER PRO-JECT	NEYVELI UTTAR PRADESH POWER LIMITED	1320	Uttar Pradesh	12.17	5.44	44.7
8	KHURJA SUPER THERMAL POWER PROJECT	THDC INDIA LIMITED	1320	Uttar Pradesh	8.88	7.5	84.53
9	ANPARA TPS (A B D)	U.P.R.V.U.N.L.	2630	Uttar Pradesh	46.38	20.77	44.78
10	HARDUAGANJ 610 MW	U.P.R.V.U.N.L.	610	Uttar Pradesh	3.65	3.6	98.67
11	HARDUAGANJ EXTN. 660 MW	U.P.R.V.U.N.L.	660	Uttar Pradesh	7.05	7.65	108.49
12	OBRA	U.P.R.V.U.N.L.	1000	Uttar Pradesh	16.17	19.91	123.15
13	PARICHHA	U.P.R.V.U.N.L.	920	Uttar Pradesh	13.34	10.02	75.09
14	OBRA-C STPP	U.P.R.V.U.N.L.	1320	Uttar Pradesh	14.5	0.73	5.03
15	PANKI TPS EXT	U.P.R.V.U.N.L.	660	Uttar Pradesh	5.69	1.19	20.84
16	JAWAHARPUR THERMAL POWER PLANT	U.P.R.V.U.N.L.	1320	Uttar Pradesh	5.09	0.18	3.56
17	BARKHERA	BAJAJ ENERGY PVT. LTD.	90	Uttar Pradesh	0.84	0.84	100
18	KHAMBER KHERA	BAJAJ ENERGY PVT. LTD.	90	Uttar Pradesh	0.87	0.87	100
19	KUNDARKI	BAJAJ ENERGY PVT. LTD.	90	Uttar Pradesh	0.82	0.82	100
20	MAQSOODAPUR	BAJAJ ENERGY PVT. LTD.	90	Uttar Pradesh	0.83	0.83	100
21	UTRAULA	BAJAJ ENERGY PVT. LTD.	90	Uttar Pradesh	0.82	0.82	100
22	LANCO ANPARA TPS	KORBA POWER LIMITED	1200	Uttar Pradesh	17.42	5.72	32.81
23	LALITPUR	LALITPU POWER GENERATION COMPANY LIMITED	1980	Uttar Pradesh	27.78	27.73	99.82
24	PAYAGRAJ TPS	PRAYAGRAJ POWER GENERA-TION COMPANY LIMITED	1980	Uttar Pradesh	23.76	22.34	94.02
25	ROSA PHASE-I	RPSCL	1200	Uttar Pradesh	15.92	15.98	100.38
Grand Total					**389.84**	**295.26**	**75.74**

5.17 West Bengal



West Bengal

Note:- Scale: 1 cm = 25 km, TC = Central Sector TPPs, TS = State Sector TPPs, TP = Private Sector TPPs, C = Cement Plants, M = Mine Voids

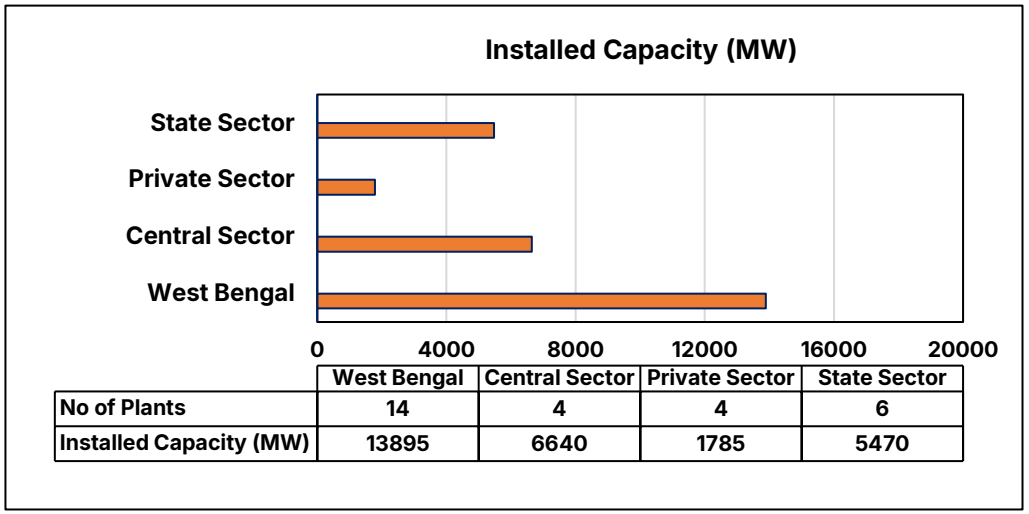
Symbol	Name of TPP
TC-01	DURGAPUR STEEL
TC-02	FARAKKA
TC-03	MEJA DVC
TC-04	RAGHUNATHPUR
TP-01	BUDGE BUDGE
TP-02	HALDIA
TP-03	HIRANMAYE
TP-04	SOUTHERN REPL. CES
TS-01	BAKRESWAR
TS-02	BANDEL
TS-03	DURGAPUR PROJECTS LIMITED
TS-04	KOLAGHAT
TS-05	SAGARDIGHI
TS-06	SANTALDIH

Symbol	Name of Mine Void
M-01	Lachipur OCP
M-02	Nabakajora OCP
M-03	Madhabpur spot 1
M-04	Madhabpur spot 2
M-05	Madhabpur spot 3
M-06	Kunustoria
M-07	Ningha UG
M-08	Pandaveshwar UG
M-09	Satgram Incline Colliery
M-10	Parbelia UG
M-11	Dubeswari UG
M-12	Narsamunda UG

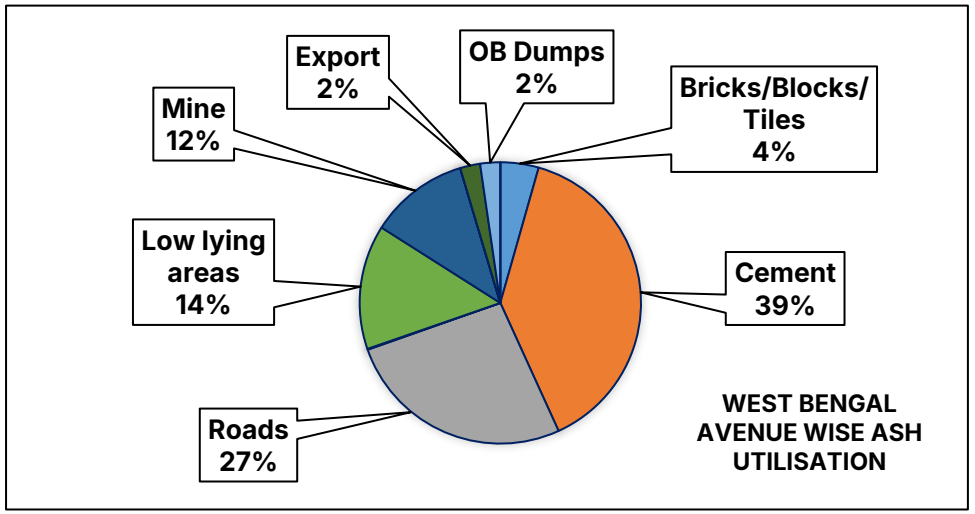
Symbol	Name of Cement Plant
C01	UltraTech Sonar Bangla Cement Works
C02	Ambuja Cements Sankrail Plant
C03	JSW Cement Salboni Plant
C04	Shree Cement Purulia Plant
C05	Dalmia Cement (Bharat) Ltd
C06	Visaka Cement Salboni Plant
C07	Bharat Hi-Tech Cement Pvt. Ltd.

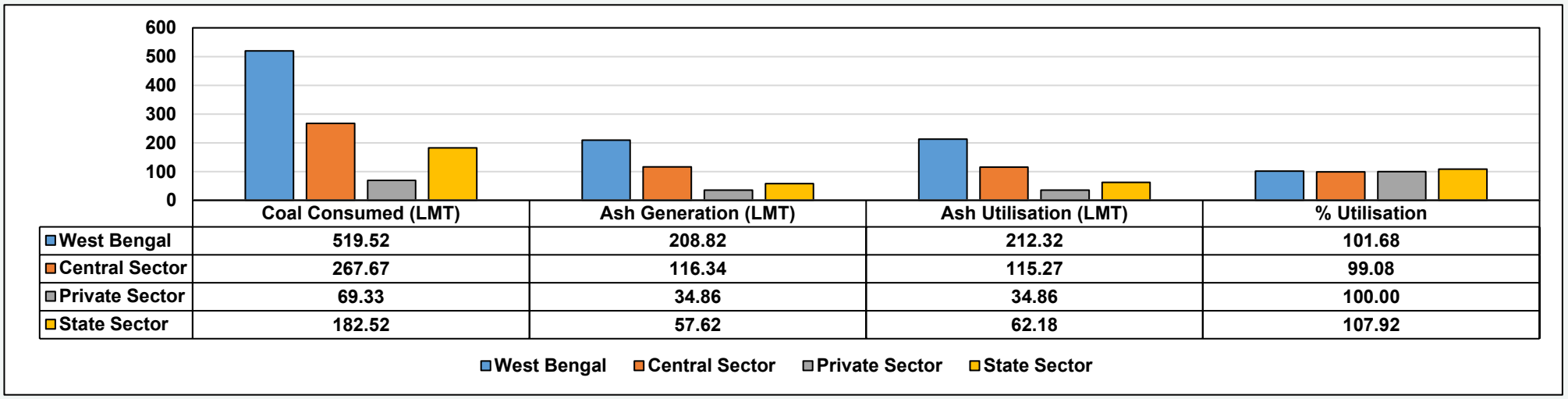
Figure 5.33 Map Showing the locations of TPPs, Major Cement Plants and Mines allocated in West Bengal

Installed Capacity, Avenue Wise and Sector Wise Generation and Utilization of Ash in West Bengal



	West Bengal	Central Sector	Private Sector	State Sector
No of Plants	14	4	4	6
Installed Capacity (MW)	13895	6640	1785	5470





	Coal Consumed (LMT)	Ash Generation (LMT)	Ash Utilisation (LMT)	% Utilisation
West Bengal	519.52	208.82	212.32	101.68
Central Sector	267.67	116.34	115.27	99.08
Private Sector	69.33	34.86	34.86	100.00
State Sector	182.52	57.62	62.18	107.92

Figure 5.34 Installed Capacity, Avenue Wise and Sector Wise Utilization of Ash in West Bengal

Observations:

- Over all Ash utilisation is more than 100% indicates uses of previous year ash.
- Majority of ash is being used in cement, Roads, Low Lying Area & Mine.
- Ash utilization percentage performance of State & Private Sector TPPs is better as compared to Central Sector TPPs.

Table 5.17 Ash Generation and Utilization Data of West Bengal for the FY 2025-26

S. No.	Plant Name	Power Utility	Installed Capacity (MW)	State	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Actual Ash Utilization (%)
1	FARAKKA	NTPC Ltd.	2100	West Bengal	31.64	32.41	102.44
2	DURGAPUR STEEL THERMAL POWER STATION	D.V.C.	1000	West Bengal	17.65	13.12	74.35
3	MEJIA	D.V.C.	2340	West Bengal	43.56	52.46	120.44
4	RAGHUNATHPUR	D.V.C.	1200	West Bengal	23.5	17.29	73.56
5	BAKRESWAR	W.B.P.D.C.L	1050	West Bengal	14.93	21.09	141.26
6	BANDEL	W.B.P.D.C.L	270	West Bengal	3.68	5.13	139.36
7	KOLAGHAT	W.B.P.D.C.L	840	West Bengal	9.27	11.15	120.2
8	SAGARDIGHI	W.B.P.D.C.L	2260	West Bengal	12.5	9.25	73.94
9	SANTALDIH	W.B.P.D.C.L	500	West Bengal	8.2	7.97	97.28
10	D.P.P.S.	D.P.L	550	West Bengal	9.03	7.59	84.1
11	BUDGE BUDGE GGENERATION STATION(BBGS)	CESC LTD.	750	West Bengal	11.56	11.56	100
12	SOUTHERN GENERATING STATION(SGS)	CESC LTD.	135	West Bengal	1.35	1.35	100
13	HALDIA ENERGY LIMITED	HALDIA ENERGY LIMITED	600	West Bengal	12.39	12.39	100
14	HIRANMAYE ENERGY LIMITED, HALDIA	HIRANMAYE ENERGY LIMITED	300	West Bengal	9.57	9.57	100
Grand Total					**208.83**	**212.33**	**101.68**

6. Innovations and New Initiatives in Ash Management

6.1 Fly Ash Handling, Storage and Dispatch Infrastructure

Efficient fly ash handling, storage, and dispatch infrastructure is essential for ensuring safe, environmentally compliant, and uninterrupted utilisation of fly ash generated by thermal power plants. Modern ash handling systems are designed to collect fly ash in a dry form and convey it pneumatically to dedicated storage silos, thereby minimizing dust emissions and material losses. Adequate storage capacity, coupled with automated loading facilities for bulk tankers, rail wagons, or other transport modes, facilitates timely and efficient dispatch to end users. Well-planned infrastructure not only improves operational efficiency but also supports higher fly ash utilisation, reduces environmental impacts, and contributes to sustainable ash management practices.

6.2 Dry Ash Extraction Systems

Dry ash extraction has emerged as one of the most effective industrial practices for maximizing fly ash utilization, minimizing environmental footprints, and enabling direct-to-consumer supply chains. In comparison with conventional wet slurry disposal systems, dry ash handling preserves the mineralogical properties of the ash, rendering it highly viable for cement formulation, brick/block manufacturing, road construction, and mine backfilling.

In compliance with the Fly Ash Notification regulatory mandates, dry ash disposal has been prioritized across utilities due to its superior economic feasibility and operational efficiency over wet handling.

Core Technical Logistics

- Collection: Electrostatic Precipitator (ESP)-based dry ash vacuum/pressure extraction.
- Conveying: Pressurized pneumatic conveying of ash from ESP hoppers to storage units.
- Storage: Controlled, moisture-insulated silo storage.
- Dispatched Loading: Bulk automated loading via specialized tankers, bulkers, or rail wagons.
- Logistics: Completely sealed and covered transportation to eliminate fugitive particulate emissions.

Industrial Implementations & Case Studies (Dry Ash Extraction Systems):-

Lalitpur Power Generation Company Limited (LPGCL): Implemented an advanced dry ash collection framework utilizing dedicated storage silos and pneumatic chute mechanisms engineered for rail rake loading. Four storage silos, each possessing a capacity of 6,000 MT, were commissioned to streamline mass rail dispatch.

NTPC Sipat: Streamlined its dry fly ash extraction via automated silos. Since April 2024, the station successfully dispatched 50 specialized Bogie Tanker for Alumina and Powder (BTAP) rakes, optimizing operations by reducing rail rake loading times from 14 hours to 8.5 hours.

6.3 Automated Silo Management

Automated silo systems modernize ash storage, alleviate dispatch bottlenecks, and drastically mitigate direct environmental exposure. These systems maintain continuous, real-time ash evacuation from ESP hoppers, preventing dangerous accumulation inside active power plant subsystems.

Key Engineering Features

- Continuous Level Monitoring: Radar or acoustic wave sensors provide real-time inventory tracking.
- Controlled Pneumatic Conveying: Automated mass-flow valves regulating ash-to-air ratios to prevent pipeline choking.

- Automated Loading & Dust Suppression: Utilization of specialized anti-dust telescopic chutes at truck loading points (e.g., deployed at Panipat TPS) to eliminate ambient dust generation during high-velocity dispatches.

Operational & Environmental Benefits

- Preserved Ash Quality (Protected from moisture and contamination).
- Reduced Fugitive Emissions (Closed-loop mechanics).
- Enhanced Operational Reliability (Lower manual intervention & rapid truck turnaround).

6.4 Ash Quality Monitoring Systems

To sustain a dependable supply chain for high-tier industries (such as ready-mix concrete and infrastructure developers), fly ash must exhibit highly consistent physical and chemical properties (e.g., fineness, loss on ignition, and silica content). Power utilities sustain rigid quality assurance frameworks through:

- Dedicated Environmental Laboratories: On-site testing setups for real-time physical-chemical profiling.
- Pre-Dispatch Verification: Regular batch-testing against national standards prior to logistics release.
- Stakeholder Coordination: Plant-level committees acting in tandem with institutional end-users to match specific industrial grade needs.

6.5 Digital Monitoring, Dashboards, and Fleet Tracking Systems

Modern thermal power plants have transitioned away from manual documentation into fully automated, transparent digital ecosystems. By integrating GPS tracking, electronic portals, automated weighbridges, and cloud dashboards, utilities optimize logistics while ensuring unalterable compliance trails.

Table 6.1

Plant / Utility	Digital Tool / System	Core Operational Function
ACB India Ltd. & Maruti Clean Coal	AIS-140 Compliant GPS + State IWMMS	Integrated fleet tracking tied directly into State Pollution Control Board networks to verify legal transit.
Lalitpur Power Gen. (LPGCL)	Integrated Digital Logistics Dashboards	Streamlines long-term dispatch data logging and eliminates transport bottlenecks.
NTPC Sipat & NSPCL Rourkela	"AstraM" (Ash Transportation & Monitoring Portal)	In-house digital platform built to eliminate illegal dumping via real-time geo-referencing.
Damodar Valley Corp. (DVC)	DVC-EBA System + RFID Weighbridges	Automates distance tracking and weighbridge data to compute automated billing, eliminating manual fraud.
Kothagundem TPS (V & VI)	Silo-integrated Digital Tracking	Captures real-time dispatch mass and consumer utilization metrics directly at the point of origin.
Wanakbori & Gandhinagar TPS	MSTC e-Auction Platform	Standardizes market allocation via transparent bidding, tracked daily via automated gate-pass tracking.
Santaldih TPS	Geotagged Bowsers	Manages logistics transparency for low-lying land reclamation activities.
Bajaj Energy	MSME Digital Dispatch Portal	Combines commercial ash ledger logging with local small-scale industry coordination.

6.6 Innovation in Utilization of Fly Ash: Construction and Building Materials

The evolution of building materials has transitioned significantly from conventional clay-fired bricks toward high-strength, carbon-negative, and mineral-blended structural elements. By altering the mineralogical binding pathways of fly ash, power utilities and research institutions have developed sustainable civil components that meet or exceed standard structural requirements.

National Council for Cement and Building Materials (NCCBM)

- The revision of IS 1489 (Part 1):2015, increases the permissible fly ash content in Portland Pozzolana Cement (PPC) from 25% to 35%, enabling higher fly ash utilisation in the cement industry.
- Formulation of IS 17452:2020 on alkali-activated concrete and development of fly ash-based geopolymer concrete and precast products.
- Successfully demonstrated the field application of ambient-cured geopolymer concrete using fly ash and Ground Granulated Blast Furnace Slag (GGBS) through a full-scale building project.
- Undertaking research on utilisation of fly ash from biomass co-firing in coal-fired thermal power plants and on high-volume fly ash cements to promote sustainable construction and the circular economy.

Constructions

- **Fly Ash–Lime–Gypsum (FALG) Technology:** This technology utilizes a steam-curing process to trigger a pozzolanic reaction between fly ash, lime, and gypsum, forming a dense matrix of calcium silicate hydrate. This approach eliminates the high-temperature kilns required for traditional clay bricks, drastically reducing carbon emissions.

Industrial Case Study (FALG) (NTPC Korba): NTPC Korba (Chhattisgarh) operates a dedicated FALG manufacturing unit with an annual capacity of 30,000 cubic meter per year. The plant consumes approximately 125 metric tonnes per day (TPD) of fly ash and 17 TPD of lime, producing high-strength bricks that achieve a compressive strength profile of 17 MPa.





Carbonated Fly Ash Bricks (C-Bricks): Designed as an eco-friendly carbon-negative alternative, this process injects and permanently captures mineralized carbon dioxide (CO_2) within a fresh fly ash slurry during the curing cycle.

Industrial Case Study (C-Bricks) (NTPC NETRA & Ramagundam): NTPC NETRA has successfully scaled this process, deploying an industrial-scale manufacturing unit at NTPC Ramagundam capable of outputting 2 lakh carbonated units per day.



Advanced Geopolymer Civil Frameworks: Geopolymer technology replaces standard Portland cement with chemical binders composed of fly ash, slag, caustic soda, and sodium silicate. When mixed, these components form an inorganic polymer chain that provides superior fire resistance, quick curing times, and low thermal conductivity.

Industrial Case Study: GMR Kamalanga Energy Limited (GKEL) operates an in-house fly ash brick production plant yielding 3.0 lakh bricks monthly. This unit works alongside a local community infrastructure support loop and has achieved a verified Zero



NTPC has pioneered cement-free geopolymer binders—which substitute conventional carbon-intensive Portland cement—across several stations including Ramagundam, NETRA, Rihand, Farakka, Dadri, and Sipat.





Pavement Quality Concrete (PQC) Roads: The incorporation of bottom ash and fine fly ash into heavy-duty concrete pavement designs increases long-term compressive and flexural strength, helping prevent premature road cracks and surface deformation under heavy freight loads.

Industrial Case Study (PQC) (Dhariwal Infrastructure Limited): DIL, under CESC, partnered with SDG Consultants to validate bottom ash concrete blends (Grades M-15 to M-40). This technology achieved a commercial milestone by constructing a 200-meter stretch of M-40 grade PQC road between Dighori and Indora under the direct supervision of the National Highways Authority of India (NHAI) and the Ministry of Road Transport and Highways (MoRTH) in February 2026.



Geopolymer Marine Structural Artifacts (Tetrapods): Conventional concrete structures degrade quickly in coastal conditions due to saltwater and chemical weathering. Geopolymer-based tetrapods resist marine sulfate and chloride attacks, making them highly durable options for coastal protection.

Industrial Case Study (NTPC Simhadri & Koldam): NTPC Simhadri and NTPC Koldam have engineered cement-free, M30-grade geopolymer tetrapods weighing up to 2 tonnes to provide breakwater solutions along wave-exposed coastal borders.







Geopolymer Hume Pipes and Structural Pavers: These industrial components utilize fly ash-slag binders mixed with chemical alkaline activators to eliminate traditional curing processes while achieving high mechanical strength.

Industrial Case Study (NTPC NETRA): Developed by NTPC NETRA, these geopolymer Hume pipes consume roughly 250 kg of raw fly ash per 1,000 mm diameter pipe section. Accompanying paver blocks achieve industrial structural grades ranging from M30 to M65 within a short 7-day curing window.



Geo-polymer concrete pavers developed by NETRA



6.7 Innovation in Utilization of Fly Ash: Agricultural Applications and Low-Lying Areas

Beyond civil construction, structural and chemical innovations allow for the safe, large-scale application of fly ash in land reclamation and soil modification programs.

Controlled Agricultural Dispersal and Soil Modification: Because fly ash contains essential secondary nutrients and micronutrients (such as silica, calcium, iron, and magnesium), it can function as an effective soil conditioner. It modifies the texture of heavy clay soils, improves water-retention capacity in sandy terrains, and neutralizes acidic agricultural plots.

Research Framework & Multi-Station Trials: Active agro-chemical field investigations are underway across five distinct agro-climatic research stations (Bhopal, New Delhi, Jhansi, Mohanpur, and Bhubaneswar). These multi-year programs rigorously evaluate crop yield impacts, track long-term heavy metal bioaccumulation matrices, monitor changes in soil structures, and assess groundwater safety to establish national application guidelines.

Slag and Fly ash based green products for Acid soil Reclamation (SAFAR) Project by ICAR–Central Rice Research Institute (CRRI) / ICAR–National Rice Research Institute (NRRI)-

The SAFAR project was launched in 2024 and it promotes the sustainable utilisation of industrial by-products, including fly ash, basic slag, and compost, for the reclamation of acidic soils under a "Waste to Wealth" approach. The project developed EcoLime**+**, an optimized soil amendment comprising fly ash/basic slag and compost, to neutralize soil acidity and improve soil health. Field demonstrations have shown significant improvements in soil pH, nutrient availability, and crop productivity, demonstrating the potential of fly ash-based soil amendments.

Soil Amendments: Controlled application of fly ash improves soil texture, porosity, and nutrient content, especially in barren or degraded lands. NTPC, in collaboration with the Indian Institute of Soil Science (IISS), Bhopal, is running a long-term project on the “Use of Fly Ash in Agriculture for Sustainable Crop Production and Environmental Protection.”

Low-Lying Land Reclamation and Geotagged Logistics: Reclaiming low-lying areas and abandoned mine voids requires strict logistical oversight to ensure environmental safety and prevent the contamination of local water supplies.

Industrial Case Study (Santaldih TPS): Santaldih TPS manages its low-lying land reclamation activities using a dedicated fleet of specialized bowsers. Every transport vehicle is equipped with an integrated AIS-140 GPS geotagging system, which provides real-time tracking data to verify transparent end-use and eliminate unauthorized mid-route dumping.

6.8 Innovation in Utilization of Fly Ash & Transportation and Handling

Efficient and sustainable transport of fly ash is critical for achieving 100% utilization across diverse industrial sectors and distant markets. NTPC and associated industries have implemented multiple innovations in logistics to minimize environmental impact, reduce costs, and ensure reliable supply chains for fly ash movement. Key advancements include:

Rail Transport in Bulk Wagons: - NTPC uses BOXN and BTAP wagon rakes (≈3,500 ton per rake) to move fly ash to distant cement plants—e.g., from Rihand to Maihar, from Kahalgaon to the Northeast, and from Mouda to Gulbarga. Under the Special Freight Train Operator (SFTO) scheme, NTPC owns three BTAP rakes, ensuring closed, environment-friendly transport at low cost.

Inland Waterways (Barge Transport):- In partnership with the Inland Waterways Authority of India (IWAI), NTPC carried out pilot shipments of fly ash from Kahalgaon (Bihar) to Pandu (Assam) via the Ganga–Brahmaputra route (~2,000 km). Barge transport offers lower carbon emissions and cost per tonne-km for long distances.

Electric Vehicle (EV) Bulkers: - Hindalco's Aditya Aluminium (Odisha) has deployed electric bulkers with on-site charging stations for fly ash transport, cutting CO_2 emissions by ~3,500 t per year. This demonstrates the feasibility of decarbonized logistics.

Pneumatic Conveying & Slurry Systems: -Thermal power plants use dense-phase pneumatic systems for dry ash and high-concentration slurry disposal (HCSD) pipelines for bottom or mixed ash. These enclosed systems reduce dust, water loss, and environmental risks.

6.9 New Research and Development Initiatives in Fly Ash Use

Advanced circular economy frameworks focus on developing high-performance synthetic materials from residual matrices, the innovative and potentially high-value ways in which Fly Ash is being used:

a. **Critical Mineral and Rare Earth Element (REE) Extraction:** Residual ash matrices contain trace amounts of highly valuable minerals. Developing methods to harvest these elements locally helps secure domestic supply chains for high-tech industries and reduces dependence on foreign mineral imports.
b. **Gypsum Vermiculate Plaster (GVP):** NTPC Joint R&D with CSIR-CBRI for internal plaster applications using fly ash
c. **Carbon-Capturing Construction Blocks** Incorporate fly ash into blocks that actively absorb and mineralize CO_2 during curing, creating low-carbon building materials.
d. **Geopolymer 3D Printing Material** Use fly ash-based geopolymers as sustainable feedstock for 3D-printed homes and infrastructure, reducing reliance on Portland cement.
e. **Rare Earth Element Recovery** Extract valuable rare earth elements (e.g., neodymium, scandium) from fly ash for use in batteries, wind turbines, and electronics.
f. **Soil Remediation Amendments** Engineer fly ash formulations that bind heavy metals and pollutants in contaminated soils, helping restore industrial sites.
g. **Thermal Energy Storage Media** Convert fly ash into ceramic-like materials capable of storing heat for concentrated solar power plants and industrial energy systems.
h. **Lightweight Aerospace Composites** Use fly ash cenospheres (hollow microspheres) as fillers in lightweight composites for aerospace, automotive, and marine applications.
i. **Water Purification Filters** Create activated fly ash adsorbents to remove arsenic, phosphates, dyes, and industrial contaminants from wastewater.
j. **Smart Road Surfaces** Develop fly ash-based pavement materials embedded with sensors that monitor traffic loads, temperature, and structural health.
k. **Agricultural Nutrient Carriers** Process fly ash into controlled-release carriers for micronutrients, improving fertilizer efficiency while recycling industrial waste.
l. **Artificial Reef Structures** Manufacture marine-safe fly ash geopolymers for artificial reefs that encourage coral growth and provide habitat for aquatic life.
m. **Fly Ash to Battery Materials:** Researchers are exploring whether silica- and alumina-rich fly ash can be transformed into components for advanced batteries and energy-storage systems, turning waste into strategic materials.

7. BIS & IRC Standards for Fly Ash Utilization

7.1 Bureau of Indian Standards (BIS)

The development of technical standards and guidelines by the Bureau of Indian Standards (BIS) and the Indian Roads Congress (IRC) has played a significant role in facilitating the safe, efficient, and large-scale utilization of fly ash in construction and infrastructure projects across the country.

BIS has established a comprehensive framework of standards governing the quality, testing, and utilization of fly ash and fly ash-based products. Notable among these are IS 3812 (Part 1): 2013, which specifies requirements for pulverized fuel ash used as a pozzolana in cement, cement mortar, and concrete, and IS 3812 (Part 2): 2013, which covers the use of pulverized fuel ash as an admixture in cement mortar and concrete. These standards prescribe physical and chemical requirements, testing procedures, sampling methods, storage practices, and quality assurance provisions for fly ash utilization. In addition, BIS has formulated standards for fly ash-based building materials such as Portland Pozzolana Cement (PPC), fly ash-lime bricks, fly ash blocks, and other construction products, thereby promoting wider acceptance of fly ash as a sustainable construction material.

7.2 Indian Roads Congress (IRC)

The Indian Roads Congress (IRC) promotes the use of fly ash in road infrastructure through IRC: SP: 58 – Guidelines for Use of Fly Ash in Road Embankments. The guidelines provide technical recommendations for the design, construction, quality control, and maintenance of fly ash embankments in highway projects.

IRC:SP:58 recognizes fly ash as a suitable alternative to conventional earth fill materials due to its low density, ease of compaction, and ready availability near thermal power plants. The guidelines cover material characterization, embankment design, drainage, slope protection, and environmental safeguards to ensure safe and durable performance.

The adoption of IRC guidelines has facilitated the large-scale utilization of fly ash in road embankments, bridge approaches, and highway projects, thereby conserving natural soil resources and promoting sustainable ash management.

7.3 Fly Ash Based Products (Quality Control) Order, 2023

The Government of India, through the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, has introduced the Fly Ash Based Products (Quality Control) Order, 2023 to promote quality assurance and standardization of fly ash-based products. The Order mandates that specified fly ash-based products conform to the relevant Indian Standards and bear the Standard Mark under a licence granted by the Bureau of Indian Standards (BIS).

The Quality Control Order aims to ensure product quality, enhance consumer confidence, facilitate wider market acceptance of fly ash-based products, and support sustainable utilization of fly ash in the construction sector. The Order also encourages manufacturers to adopt standardized production practices and comply with prescribed quality requirements.

BIS Standards Cross-Reference for Fly Ash

S. No.	BIS Standard (Latest)	Title	Scope / Coverage	Key Parameters / Requirements	Application / Use
A. Fly Ash – Specification Standards					
1.	IS 3812:2013 (Part-I and Part-II)	Pulverized Fuel Ash Specification	Specifies requirements for pulverized fuel ash	Chemical composition, LOI, Fineness, SO_3, Moisture, Soundness	General use in cement, concrete, masonry, etc.
2.	IS 1727:1967	Specification for Pozzolana	Pozzolanic materials including fly ash	SiO_2 + Al_2O_3 + Fe_2O_3, Fineness, Moisture, L.O.I., Strength activity	Use in cement, mortar, plaster, pozzolanic products
3.	IS 1727:2013	Supplementary Cementitious Materials – Specification	General requirements for SCMs including fly ash	Chemical, physical & performance requirements	Use in blended cement & concrete
B. Fly Ash Based Products – Specification Standards					
4.	IS 1489 (Part 1):1991	Portland Pozzolana Cement Specification	PPC – Fly ash based blended cement	Clinker, fly ash proportions, strength, setting time, soundness	Construction – general purpose
5.	IS 1489 (Part 2):2015	Portland Pozzolana Cement Specification (Reaffirmed)	Updated requirements for PPC	Strength classes, fineness, chemical limits	Construction – general purpose
6.	IS 455:1989	Fly Ash Lime Gypsum Bricks (Lime : Gypsum : Fly Ash Bricks)	Specification for bricks made from fly ash	Compressive strength, water absorption, efflorescence, dimensions	Masonry – non load bearing
7.	IS 12894:2002	Autoclaved Aerated Concrete Blocks and Panels	AAC products using fly ash as raw material	Density, compressive strength, drying shrinkage	Walling & partitioning
8.	IS 15658:2006	Precast Concrete Blocks (Using Fly Ash)	Hollow & solid blocks with fly ash	Strength, water absorption, dimensions, durability	Walling, paving, load bearing / non-load bearing
9.	IS 16014:2012	Fly Ash Based Geopolymer Products – Specification	Geopolymer binders and products	Compressive strength, setting time, chemical resistance	Structural & non-structural applications
10.	IS 16589:2016	Mortar and Concrete Using Fly Ash – Specification	Requirements for mortar and concrete	Workability, strength, durability, permeability	Structural concrete works
C. Test Methods Standards					
11.	IS 4031 (Part 1):1988	Methods of Physical Tests for Hydraulic Cement	General test methods (applicable to fly ash)	Fineness, setting time, soundness, compressive strength	Testing of fly ash / cements
12.	IS 4031 (Part 2):1988	Methods of Chemical Analysis of Hydraulic Cement	Chemical test methods (applicable to fly ash)	SiO_2, Al_2O_3, Fe_2O_3, CaO, SO_3, Loss on ignition, Chlorides	Chemical characterization
13.	IS 1727:1967	Methods of Test for Pozzolana	Test methods for pozzolanic materials (including fly ash)	Strength activity index, consistency, fineness	Determination of pozzolanic activity
14.	IS 1489 (Appendix A)	Tests for Pozzolana Cement	Test methods specific to PPC	Compressive strength, setting, soundness	Quality control of PPC
15.	IS 516:1959	Methods of Test for Strength of Concrete	General method for concrete strength testing	Compressive, flexural, tensile strength	Concrete & mortar testing (with fly ash)

8. Revenue from Fly Ash Utilization

8.1 General

The data received from selected thermal power stations indicate that fly ash is being monetised through a long-term tie up with bulk consumers like cement manufactures, fly ash-based products manufacturers etc and combination of open auction, MSME allocation, and MoU-based supply to end users such as brick/block/tile manufacturers, cement industries and road construction agencies. The realised price of fly ash varies significantly across utilities depending on the mode of allocation, regional demand, quality of ash, and transportation arrangements, and proximity to consuming industries.

In several stations, fly ash supplied to brick and MSME units was provided at nominal or concessional rates to promote ash utilisation, whereas substantially higher prices were realised through competitive auctions, particularly for supplies to the cement sector. Some stations also reported free or zero-priced supply in line with prevailing policy provisions and promotional measures for enhancing ash utilisation.

The data submitted by approximately 30 thermal power stations indicate a combined reported revenue of about ₹435.31 crore (₹43530.62 lakh) from sale of 226.60 LMT of fly ash generated. However, revenue generation is highly skewed, with a few stations accounting for a major share of the total receipts. The highest reported revenues are listed below: -

Thermal Power Station	Quantity of Ash sale (LMT)	Approx. Revenue (₹ crore)
GSECL Ukai	4.99	68.40
Panipat TPS	19.19	48.07
Kota STPS	16.23	43.50
Khurja STPS	7.50	39.94
Kolaghat TPS	8.51	22.86
Sagardighi TPS	23.17	19.23
Bandel TPS	2.60	18.44
Suratgarh TPS	11.92	17.38
KTPS Stage-V	10.84	15.04
Harduaganj Extension	6.46	13.23
Guru Gobind Singh STP	21.28	11.60

Overall, the available data demonstrate that transparent auction mechanisms, sustained demand from the cement and construction sectors, and efficient logistics have considerable potential to enhance the commercial value of fly ash while simultaneously promoting its environmentally sustainable utilisation. The findings also indicate that fly ash is increasingly emerging as a valuable industrial by-product rather than a waste material.

To facilitate meaningful comparison across thermal power stations and improve policy assessment, there is a need for standardised reporting of:

1. Quantity of fly ash sold;
2. Average realised sale price (₹/tonne);
3. Revenue realised;
4. Mode of allocation (auction, MoU, MSE allocation, etc.); and
5. Transportation responsibility and associated costs.

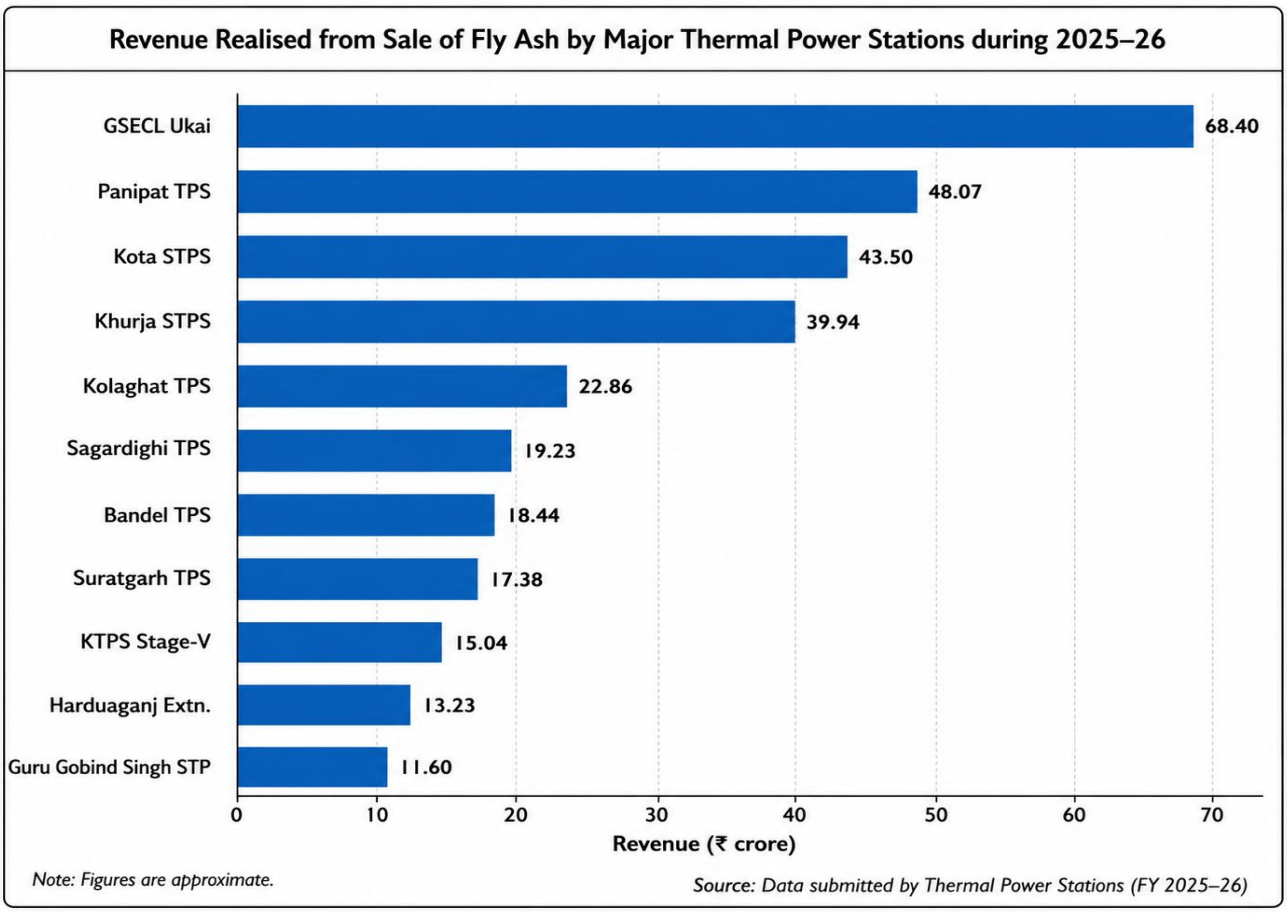


Figure 8.1 Revenue from Sale of Fly Ash by Major Thermal Power Stations (2025–26)

8.2 Revenue Potential from Monetisation of Fly Ash

Total fly ash generated during 2025–26: 3,129.19 LMT

Quantity of fly ash from which revenue was realised: 226.60 LMT (from approx. 30 TTP)

Balance quantity of fly ash supplied free of cost/concessionally or utilised without revenue realisation/ stored in pond/ data not reported for revenue generation: 2902.59 LMT

Assuming that the remaining quantity of fly ash could also be marketed through transparent commercial mechanisms at the average realised sale price, thermal power stations have the potential to generate additional revenue of approximately ₹ 5576 crore. While complete monetisation may not be feasible due to statutory obligations for concessional supply to certain sectors, improved market development, logistics, and pricing mechanisms could substantially enhance revenue realisation. The current market value of fly ash products is huge, and the fly ash need to be taken as a commercial value product.

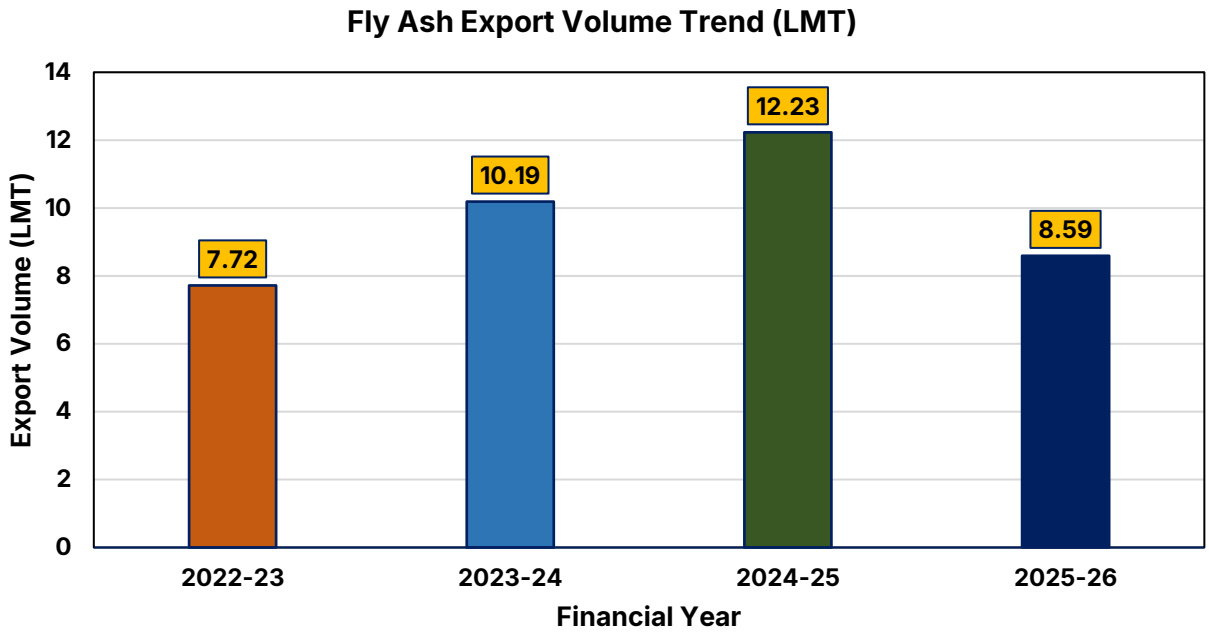


Figure 8.2 Fly Ash Export Volume Trend (LMT)

8.3 Key Challenges in Monetisation of Fly Ash

Despite significant progress in fly ash utilisation, thermal power stations continue to face several challenges in realising commercial value from fly ash:

- **Limited demand in selected areas**- Pit-head thermal power plants often face limited market demand for fly ash as they are generally located in remote mining areas with relatively low industrial activity and fewer nearby cement plants or fly ash-based manufacturing units. Similarly, non-pit-head thermal power plants situated in regions with a low concentration of cement industries and other fly ash-consuming sectors also encounter constraints in marketing and monetising fly ash.
- **Variations in fly ash quality:** The commercial value of fly ash depends on its quality parameters, including fineness, loss on ignition (LOI), moisture content, and chemical composition. Fly ash that does not meet the quality requirements of cement manufacturers and other industrial users often attracts lower prices or remains unsold. Variations in coal characteristics, combustion conditions, and ash handling systems can lead to inconsistent quality, thereby reducing market acceptance and limiting revenue generation.
- **Seasonal fluctuations in demand:** Demand for fly ash is closely linked to the level of construction activity, particularly in the cement, ready-mix concrete (RMC), brick manufacturing, and infrastructure sectors. During the monsoon season and periods of reduced construction activity, the consumption of fly ash declines significantly, resulting in lower off-take from thermal power plants. Such seasonal variations lead to temporary accumulation of fly ash at plant premises, reduce competition in auctions, and adversely affect price realisation. Since thermal power plants generate fly ash continuously throughout the year, while demand remains cyclical, maintaining a steady balance between generation and utilisation poses a significant challenge for effective monetisation.
- **High transportation costs:** Transportation cost is a major factor influencing the commercial viability of fly ash. Pit-head thermal power plants, which are generally located in remote mining areas, are often situated far from major consumption centres such as cement plants, construction hubs, and fly ash-based industries. Consequently, the cost of transporting fly ash over long distances by road or rail significantly increases the delivered cost, reducing its competitiveness and marketability. Non-pit-head thermal power plants, although generally located closer to industrial and urban centres, also face transportation-related challenges when local demand is inadequate and fly ash has to be supplied to distant consumers. In both cases,

transportation costs frequently exceed the sale value of fly ash, discouraging potential buyers, limiting participation in auctions, and adversely affecting revenue realisation. Strengthening multimodal logistics, improving rail connectivity, and expanding the network of nearby fly ash-consuming industries would help improve the commercial viability and monetisation of fly ash.

- **Preference for free or concessional fly ash:** Under the existing policy framework, thermal power plants are required to supply fly ash free of cost or at concessional rates to certain categories of users, such as Micro and Small Enterprises (MSEs), brick/block/tile manufacturers, and agencies undertaking public infrastructure and road construction projects, subject to the provisions of the applicable guidelines. While these measures promote wider utilisation of fly ash and support environmentally sustainable disposal, they also limit the quantity of fly ash available for commercial sale through competitive auctions or long-term commercial agreements. Consequently, many consumers prefer to procure fly ash under concessional or free supply arrangements rather than through market-based mechanisms, thereby reducing price discovery, auction competitiveness, and the overall revenue potential for thermal power plants. Balancing the objective of promoting fly ash utilisation with the need for sustainable monetisation remains a key challenge for power utilities.
- **Competition among nearby thermal power stations:** In regions where multiple thermal power stations are located in close proximity, fly ash consumers have the flexibility to procure ash from different suppliers. This increased competition often results in aggressive bidding, lower auction prices, and reduced bargaining power for individual thermal power stations. Consumers generally evaluate multiple factors, including fly ash quality, transportation distance, reliability of supply, and commercial terms, before selecting a supplier. Consequently, thermal power stations may be compelled to offer lower reserve prices, concessional terms, or more favourable contractual conditions to secure buyers. The challenge is particularly pronounced in industrial clusters where several thermal power plants compete to supply fly ash to the same cement plants and other bulk consumers, thereby limiting the revenue realisation potential despite adequate market demand.

8.4 Way Forward for making Fly Ash an Economic Good

- Development of regional markets, particularly around pit-head thermal power plants,
- by encouraging fly ash-consuming industries.
- Improvement of rail and road logistics to reduce transportation costs and enhance market reach.
- Ensure consistent fly ash quality through improved ash handling and quality control to enhance marketability.
- Promote long-term supply agreements with cement plants, fly ash-based industries, and infrastructure agencies to ensure assured off-take.
- Standardise reporting of fly ash sale quantity, realised price, and revenue across thermal power plants for better benchmarking and policy assessment.
- Strengthen transparent e-auction mechanisms to improve price discovery and maximise revenue realisation.
- Promote value-added applications and innovative uses of fly ash to enhance its commercial value.
- Strengthen stakeholder coordination among thermal power plants, consumers, and government agencies to facilitate efficient marketing and achieve sustainable monetisation while supporting 100% fly ash utilisation.

Annexures

ANNEXURE NO.	PARTICULAR
ANNEXURE-I	State-wise and Sector-wise Major Ash Utilization Avenues (%) for the FY 2025-26.
ANNEXURE-II	Details of Avenue-wise quantity of ash utilised by TPPs during the FY 2024-25 vs 2025-26.
ANNEXURE-III	Ash Pond/Ash containment facilities in TPPs in 2025-26
ANNEXURE-IV	List of Various coal mines allotted to different TPPS
ANNEXURE-V	Notifications, Guidelines and SOPs Governing Ash Management and Utilisation.

Annexure-I: State-wise/ Sector-wise Ash Utilization in FY 2025-26

State and sector	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)	Major Ash Utilisation Avenues (in %)					
Andhra Pradesh	183.06	181.53	99.16	Cement	40.01	Road	28.69	Bricks	21.06
Central	35.74	37.82	105.83	Road	79.49	Bricks	11.93	Cement	7.05
Private	63.52	61.71	97.15	Cement	45.34	Road	26.64	Bricks	13.27
State	83.80	82.00	97.84	Cement	51.20	Bricks	31.14	Road	6.81
Assam	9.87	17.95	181.86	Road	64.75	Cement	25.12	Bricks	10.13
Central	9.87	17.95	181.86	Road	64.75	Cement	25.12	Bricks	10.13
Bihar	165.00	222.57	134.89	Road	79.80	Cement	17.65	Bricks	2.46
Central	165.00	222.57	134.89	Road	79.80	Cement	17.65	Bricks	2.46
Chhattis-garh	467.12	504.96	108.10	Mine	42.80	Low lying areas	21.44	Road	20.06
Central	143.29	145.55	101.57	Road	51.00	Low lying areas	17.09	Mine	14.05
Private	286.91	312.87	109.05	Mine	62.24	Low lying areas	19.01	Cement	13.01
State	36.92	46.54	126.06	Low lying areas	51.40	Road	32.88	Cement	9.36
Gujarat	46.70	55.26	118.35	Bricks	45.02	Cement	26.53	Concrete	16.97
Private	18.51	20.62	111.41	Concrete	28.76	Cement	28.34	Bricks	17.50
State	28.18	34.64	122.91	Bricks	61.41	Cement	25.45	Concrete	9.96
Haryana	73.89	83.24	112.67	Cement	54.41	Bricks	21.23	Concrete	15.92
Central	20.48	23.92	116.80	Bricks	34.96	Cement	34.32	Concrete	30.72
Private	18.91	18.83	99.58	Cement	90.20	Bricks	5.39	Concrete	4.40
State	34.50	40.49	117.39	Cement	49.64	Bricks	20.48	Road	17.34
Jhar-khand	112.60	111.94	99.42	Road	42.81	Cement	28.18	Low lying areas	17.96
Central	70.31	63.93	90.93	Road	74.44	Cement	12.48	Low lying areas	9.92
Private	36.98	41.24	111.52	Cement	54.12	Low lying areas	19.97	Mine	15.34
State	5.32	6.78	127.46	Low lying areas	81.61	Cement	18.37	Bricks	0.02
Karna-taka	93.17	89.60	96.17	Bricks	56.66	Cement	40.79	Concrete	1.91
Central	26.65	27.60	103.56	Bricks	56.69	Cement	37.40	Concrete	5.70

State and sector	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)	Major Ash Utilisation Avenues (in %)					
Private	3.13	3.17	101.38	Cement	59.09	Bricks	21.15	Road	15.55
State	63.38	58.82	92.80	Bricks	58.56	Cement	41.39	Road	0.05
Madhya Pradesh	300.42	330.20	109.91	Road	44.80	Mine	20.06	Cement	19.72
Central	128.37	132.08	102.89	Road	62.58	Mine	13.66	Cement	12.79
Private	109.00	98.20	90.09	Mine	46.68	Cement	27.35	Bricks	11.14
State	63.05	99.92	158.48	Road	61.37	Cement	21.37	Bricks	9.44
Maha-rashtra	339.43	312.22	91.98	Bricks	38.30	Cement	27.17	Low lying areas	13.87
Central	62.40	58.62	93.95	Mine	28.08	Cement	25.01	Bricks	24.59
Private	115.89	131.09	113.12	Low lying areas	31.84	Cement	26.99	Bricks	21.83
State	161.14	122.51	76.02	Bricks	62.49	Cement	28.39	Concrete	3.74
Odisha	252.91	265.20	104.86	Road	65.37	Bricks	14.57	Mine	8.21
Central	100.64	132.89	132.04	Road	85.94	Mine	13.70	Bricks	0.35
Private	114.54	116.28	101.52	Road	40.08	Bricks	32.63	Low lying areas	16.25
State	37.72	16.04	42.51	Road	78.35	Cement	20.15	Bricks	1.50
Punjab	68.85	95.06	138.06	Cement	48.80	Road	33.64	Bricks	7.48
Private	46.62	49.56	106.30	Cement	67.44	Road	21.65	Concrete	7.25
State	22.23	45.50	204.67	Road	46.69	Cement	28.49	Agricul-ture	13.15
Rajasthan	121.79	134.36	110.33	Cement	54.58	Bricks	32.23	Road	8.57
Central	1.68	1.68	100.00	Bricks	65.60	Mine	22.97	Cement	11.43
Private	24.49	26.50	108.22	Cement	68.64	Bricks	23.49	Road	5.42
State	95.62	106.18	111.05	Cement	51.76	Bricks	33.88	Road	9.50
Tamil Nadu	137.59	148.78	108.14	Cement	40.44	Bricks	31.11	Road	24.47
Central	57.21	65.25	114.06	Road	43.32	Cement	27.72	Bricks	22.02
Private	12.39	12.90	104.13	Bricks	51.97	Cement	37.59	Road	3.98
State	67.99	70.63	103.88	Cement	52.71	Bricks	35.69	Road	10.80
Tel-angana	158.15	110.01	69.56	Bricks	38.47	Cement	31.91	Geo-poly-mer	12.10
Central	54.97	54.66	99.42	Bricks	32.05	Geo-poly-mer	24.35	Cement	23.87

State and sector	Total Ash Generation (LMT)	Total Ash Utilization (LMT)	Utilization (%)	Major Ash Utilisation Avenues (in %)					
State	103.18	55.35	53.65	Bricks	44.82	Cement	39.84	Mine	12.25
Uttar Pra-desh	389.84	295.26	75.74	Cement	43.42	Road	25.34	Low lying areas	19.11
Central	188.91	155.28	82.20	Road	43.11	Cement	38.64	Bricks	6.68
Private	89.06	75.94	85.27	Cement	65.66	Low lying areas	19.93	Road	9.14
State	111.87	64.05	57.25	Low lying areas	54.37	Cement	28.62	Mine	12.12
West Bengal	208.82	212.32	101.68	Cement	38.84	Road	26.42	Low lying areas	14.30
Central	116.34	115.27	99.08	Road	43.95	Cement	25.04	Mine	20.97
Private	34.86	34.86	100.00	Cement	83.40	Low lying areas	9.69	Road	4.20
State	57.62	62.18	107.92	Cement	39.44	Low lying areas	31.48	Export	7.79
Grand Total	3129.19	3170.48	101.32	Road	30.15	Cement	27.86	Bricks	15.89

Annexure-II: Avenue-wise ash utilised by TPPs FY 2024-25 vs FY 2025-26

S. No.	Avenue of Ash Utilization	Total Ash Utilization (LMT)	
		FY 2024-25 (For 189 Plants)	FY 2025-26 (For 196 Plants)
1.	Making of Fly Ash based/Brick/Blocks /Tiles etc.	405.44	503.93
2.	Manufacturing of Portland Pozzolana Cement	857.72	883.17
3.	Construction of Highways & Roads including flyovers	1040.04	956.01
4.	Part replacement of cement in concrete	66.77	75.06
5.	Hydro power sector (RCC Dam construction)	3.04	0.59
6.	Reclamation of low-lying Area	318.93	312.82
7.	Mining filling	306.65	378.94
8.	Agriculture/ wasteland development	24.45	16.78
9.	Making of Ash and Geo-polymer-based construction material	21.34	25.74
10.	Manufacturing of sintered or cold bonded ash aggregate	0.07	0.06
11.	Construction of Shoreline protection	0.13	0.00
12.	Export of Ash	10.44	8.59
13.	Overburden dumps	10.44	8.59
14.	Others	5.92	0.21
	Total Ash Utilization (LMT)	**3071.38**	**3170.48**

Annexure-III: Ash Pond/Ash containment facilities in TPPs in 2025-26

S. No.	Name of State	Total No. of TPPs	No. of TPPS for which Ash Pond Data was available on CPP Portal	No. of Ash Ponds
1	Andhra Pradesh	9	8	9
2	Assam	1	1	2
3	Bihar	7	7	19
4	Chhattisgarh	24	20	42
5	Gujarat	12	10	24
6	Haryana	5	5	10
7	Jharkhand	9	7	13
8	Karnataka	6	4	6
9	Maharashtra	19	13	25
10	Madhya Pradesh	14	13	30
11	Odisha	8	7	14
12	Punjab	5	4	6
13	Rajasthan	10	5	6
14	Tamil Nadu	18	11	16
15	Telangana	10	9	14
16	Uttar Pradesh	25	22	38
17	West Bengal	14	11	30
	Total	**196**	**157**	**304**

Annexure-IV : List of Various Coal Mines allotted to different TPPs

A. List of mines allotted to different TPPs through CLWG meetings as on 14/08/2026

S. No.	Company/ Subsidiary	Name of Mine	Total TPPs	Name of TPP	CLWG/ Non-CLWG	Void Volume allocated (LCM)
1	MCL	Jagannath OC, Quarry IV	2	NTPC Talcher	CLWG	64.3
				JITPL	CLWG	60
2	ECL	Parbelia Colliery (UG),	1	DVC- RTPS	CLWG	3.5
3	ECL	Dubeswari (UG)	1	DVC- RTPS	CLWG	1
4	ECL	Nasramuda (UG)	1	DVC- RTPS	CLWG	1.09
5	ECL	Kunustoria (UG)	1	DVC- DSTPS	CLWG	2
6	ECL	Ningha Mines (UG)	1	DVC- DSTPS	CLWG	10
7	ECL	Pandebeshwar Mines (UG)	1	DVC- DSTPS	CLWG	2.5
8	ECL	Satgram Incline Colliery (UG)	1	DVC-MTPS	CLWG	0.01
9	SECL	Dugga	1	NTPC, Darlipalli	CLWG	32.33
10	SECL	Bishrampur OC	1	NTPC Darlipalli	CLWG	3.29
11	SECL	Manikpur, western quarry (Korba OC)	1	NTPC Darlipalli	CLWG	Sharing with NTPC Korba and NTPC Sipat
12	SECL	Baiga OCM, Sohagpur area	1	Amarkantak TPS (MPPGCL)	CLWG	5.0
13	SECL	Trench ABCD, Sharda OCM	1	Amarkantak TPS (MPPGCL)	CLWG	8.0
14	SECL	Trench-3 patch, Sharda OCM	1	Amarkantak TPS (MPPGCL)	CLWG	11.0
15	SECL	Mini OCM - Dry patch & SISF Base camp of Govinda Mine, J&K area	1	M/S M B Power (MP)	CLWG	25.0
16	NCL	Gorbi minePit-1	2	NTPC- Singrauli	CLWG	60
17	NCL	Gorbi mine (Pit – 2)	2	NTPC Vindhyachal	CLWG	80
				NTPC- Singrauli	CLWG	
18	NCL	Gorbi mine (Pit – 3)	1	Anpara Thermal Project-UP-RVUNL	CLWG	130
19	NCL	Krishnashila	1	NTPC- Singrauli	CLWG	
20	CCL	Dakra-Bukbuka mine	2	NTPC (Patratu TPP)	CLWG	20
				NTPC North Karanpura	CLWG	20
21	WCL	Sarni (UG)	1	MPPGCL- STPS	CLWG	4.5
22	ECL	Spot 1, 2 & 3 of Madhabpur OC	1	DVC- DSTPS	CLWG	15
23	SECL	Kusmunda OCP mine	1	BALCO	CLWG	1

B. List of mine allotted to various TPPs prior to CLWG

S. No	Company/ Subsidiary	Name of Mine	Total TPPs	Name of TPP	CLWG/ Non CLWG	Void Volume allocated (LCM)
1	MCL	South Balanda Q-2 & 3	1	TTPS (NTPC)	Non- CLWG	147.3
2	MCL	Jagannath OC, Quarry IV	2	Bhusan steel	Non- CLWG	0
				TFL	Non- CLWG	105.8
3	MCL	Jagannath OC, Quarry VII	1	TTPS (NTPC)	Non- CLWG	39.6
4	MCL	Jagannath OC, Quarry VIII	1	TTPS (NTPC)	Non- CLWG	178
5	MCL	Bharatpur	1	Nalco	Non- CLWG	139
6	MCL	South Balanda Q-I	1	NBVL	Non- CLWG	8.83
7	ECL	Pusai	1	MPL, Maithon	Non- CLWG	12
8	ECL	Lachipur	1	DVC- DSTPS	Non- CLWG	3.5
9	ECL	Naba Kajora	1	DVC- DSTPS	Non- CLWG	4
10	SECL	Surakachhar 3&4 pit (Korba CG)	1	NTPC, Korba	Non- CLWG	3.29
11	SECL	ShardaOC (OPQR patch)	2	Amarkantak TPS (MPPGCL)	Non- CLWG	1.6
				M/S M B Power (MP)	Non- CLWG	10.77
12	SECL	Jamuna OC (Anuppur MP)	1	M/S M B Power (MP)	Non- CLWG	12.00
13	SECL	Dugga	4	NTPC Korba	Non- CLWG	42.66
				NTPC Sipat	Non- CLWG	48.9
				NTPC Lara	Non- CLWG	26.25
				Atal Bihari Vajpaye Thermal Power station, Mandwa	Non- CLWG	16.41
14	SECL	Bishrampur OC	4	NTPC Korba	Non- CLWG	4.35
				NTPC Sipat	Non- CLWG	4.99
				NTPC Lara	Non- CLWG	2.68
				Atal Bihari Vajpaye Thermal Power station, Mandwa	Non- CLWG	1.67
15	SECL	Chahai	1	Amarkantak TPS (MPPGCL)	Non- CLWG	1.5
16	SECL	Domnara OC	4	DB Ltd.	Non- CLWG	0.208907
				SKS Power generation	Non- CLWG	0.1044534
				TRN Energy Pvt. Ltd	Non- CLWG	0.1044534
				MSP Steel & power ltd.	Non- CLWG	0.00766
				Singhal Enterprises Pvt. Ltd.	Non- CLWG	0.00452
17	SECL	Manikpur, western quarry (Korba OC)	6	NTPC Korba	Non- CLWG	105.00
				CSPGCL	Non- CLWG	105.00
				Balco	Non- CLWG	16.86
				NTPC sipat	Non- CLWG	28.88
				ACB India	Non- CLWG	2.61
				Lanco	Non- CLWG	5.81

S. No	Company/ Subsidiary	Name of Mine	Total TPPs	Name of TPP	CLWG/ Non CLWG	Void Volume allocated (LCM)
				Maruti clean coal	Non- CLWG	5.81
18	BCCL	Murlidih (Cluster-XIII)	1	Chandrapura Thermal Power plant (CTPP), DVC	Non- CLWG	1.5
19	NCL	Gorbi minePit-1	1	NTPC Vindhyachal	Non- CLWG	140

Summary:

Mine Voids Allocated to TPPs	TPPs with Allocations	Mine Voids where filling has been commenced
37	**35**	**26**

Annexure-V: Notifications, Guidelines and SOPs Governing Ash Management and Utilisation.

S. No	Particulars	Issuing Authority	Link	QR Code
1.	Fly Ash Notification (2021 onwards).	MoEF & CC	https://cpcb.gov.in/uploads/flyash/Ash_Notification_dated_31.12.2021.pdf	MOEF&CC Ash Notification
2.	Guidelines for Utilisation of ash.	Ministry of Power	https://cea.nic.in/api/dashboardReports/viewpdf/en/8ec77f99-234e-490d-b689-0380c56fde50	MoP Ash Guidelines
3.	SOP for allocation of Mines for Fly Ash filling (Both UG/OC).	Ministry of Coal	https://cpcb.gov.in/uploads/flyash/SOP_for_allocation_Mines_for_fly_ash.pdf	Mines Allocation SOP
4.	SOP for carrying out feasibility studies for mixing of ash with OB/ backfilling in operational mines in case of opencast/underground mines, as the case may be.	Ministry of Coal	https://cpcb.gov.in/uploads/flyash/SOP_carrying_out_feasibility_studies_for_mixing.pdf	Ash Mixing in Mine Backfilling
5.	SOP for signing MOU between identified mines and TPPs (Both UG/OC).	Ministry of Coal	https://cpcb.gov.in/uploads/flyash/SOP_signing_MOU_between_identified_mines_and_TPPs.pdf	MOU Signing SOP

FLY ASH YEAR BOOK 2026

From Ash to Resource — Advancing Sustainable Utilization

Fly Ash Year Book 2026 presents the national scenario of ash generation and utilization during FY 2025–26, highlighting the continuing transformation of ash from a material requiring disposal into a valuable industrial resource. The Year Book covers data pertaining to 196 grid-connected Thermal Power Plants (TPPs), which together contribute around 90% of India's total ash generation.

During FY 2025–26, the covered thermal power plants generated 3,129.19 Lakh Metric Tonne (LMT) of ash, while 3,170.48 LMT was utilized, achieving an overall ash utilization rate of 101.32%. This achievement reflects the growing adoption of fly ash-based applications, increased market demand, regulatory interventions and concerted efforts towards reducing accumulated ash inventories, including ash from storage facilities.

The Year Book captures the progress made towards sustainable ash management and provides a consolidated picture of national trends in ash generation and utilization. Continued policy support, infrastructure demand and coordinated efforts among stakeholders are expected to further strengthen the utilization of fly ash and contribute towards the national objective of 100% sustainable ash utilization.

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For download of this Year Book

Fly Ash Year Book 2026