What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.



MAINS MASTERY 2026 · GS PAPER III · QUESTION 17 · STUDENT EDITION

Solid Waste Management: Delhi and Indore

THE QUESTION, AS SET IN UPSC CSE MAINS 2026

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Directive: Discuss | 15 marks | 250 words | Environment: solid waste management

1 **PYQ Deep Decode**
Demand, comparison, answer design

2 **PYQ Intelligence**
2013 to 2026: waste and cities

3 **Additional information**
Rules, Delhi, Indore, evidence

4 **Pitfalls and variations**
Corrections and changed demands

5 **The model answer**
Headed points and city comparison

6 **Other ways to write it**
Alternative answer outlines

7 **Quick recall**
Sixteen waste-management facts

8 **Write it yourself**
Seven checks and verified sources

Guranchal Ma'am, Founder, UPSC Gurus · upscgurus.in

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1 PYQ Deep Decode

Read the question the way the examiner set it: the three explicit demands in their stated order, the hidden demand behind the Delhi-Indore comparison, the structure that follows from both, and how the answer should be presented, opened and closed.

1.1 The demand

The question asks **three things in order**: India's challenges in solid waste management; the governmental policy framework addressing them; and the successes or failures of Delhi and Indore, highlighting their initiatives. **"Discuss"** requires linking challenges to policy responses and assessing each city's actual experience, rather than merely listing schemes or assigning success and failure labels. The third demand is especially important: Delhi and Indore must be examined through **their initiatives, demonstrated outcomes and remaining limitations**, not treated as simple opposites. The answer must also recognise the **Solid Waste Management Rules, 2026**, which replaced the 2016 Rules with effect from 1 April 2026.

Words in the question	What they ask you to do	What goes wrong if you miss them
What are the challenges	Identify obstacles across waste generation, segregation, collection, transportation, processing, disposal, municipal finance and implementation.	Writing only about littering, population growth and public awareness.
solid waste management in India	Cover the municipal waste-management chain, from generation to environmentally sound disposal, in the Indian institutional setting.	Confusing municipal solid waste with sewage, industrial effluents or hazardous industrial waste.
governmental policy framework	Explain the operative laws, rules, programmes, implementation institutions and regulatory instruments, including what changed in 2026.	Presenting the superseded 2016 Rules as the current framework, or merely naming Swachh Bharat Mission.
Discuss the success/failure cases	Evaluate achievements and shortcomings using comparable operational evidence. Recognise that both cities contain successes and failures.	Declaring Delhi a complete failure and Indore an unqualified success.
Delhi and Indore cities	Examine both cities individually, then compare the municipal conditions that explain their different outcomes.	Writing a generic comparison without city-specific evidence or overlooking Delhi's separate local bodies.
highlighting the salient feature of their solid waste management initiatives	Name the distinguishing operational measures: collection systems, segregation, processing infrastructure, biomining, resource recovery and citizen engagement.	Quoting cleanliness rankings without explaining how either municipal system works.
Discuss	Connect each challenge with the relevant response, test implementation against outcomes, and offer a reasoned comparative judgement.	Giving disconnected lists of problems, schemes and achievements.

THE DEMAND IN ONE LINE

Explain what prevents India from managing municipal waste scientifically, how the governmental framework responds, and why Delhi and Indore have achieved different results despite operating under the same broad national policy.

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1.2 The hidden demand

What explains differences between municipal outcomes, and can successful practices be transferred without accounting for differences in scale, capacity and public participation? The comparison is not simply about which city collects more rubbish or wins more awards. It tests whether **national rules become effective municipal systems**. Indore's results reflect sustained source segregation, organised collection, processing facilities, monitoring and citizen participation. Delhi has operational processing plants and an expanding biomining programme, yet large volumes of fresh and legacy waste continue to burden its dumpsites.

The deeper distinction is between **collecting waste and recovering resources from properly segregated waste**. It also involves metropolitan scale, institutional coordination, available land, financing, monitoring and the treatment of sanitation workers and waste pickers. Indore's practices offer lessons, but its model cannot simply be copied into Delhi without adapting operational capacity and governance arrangements. This is the **small final part** of the answer, not a fourth essay detached from the question.

An answer becomes analytical when each initiative is tested against the problem it was designed to solve and the outcome it actually produced.

Municipal intervention	Evidence to examine	What it tells us
Source segregation	Indore's nearly universal segregated door-to-door collection, compared with uneven segregation across Delhi's municipal jurisdictions.	Collection coverage and segregation quality are different measures.
Processing capacity	Delhi's April 2026 report records 12,862 tonnes per day (TPD) generated against 7,439.3 TPD processed or recycled.	Infrastructure exists, but the processing gap continues to create demand for dumpsites.
Resource recovery	Indore's 550 TPD wet-waste Bio-CNG plant and Delhi's waste-to-energy, recycling and composting infrastructure.	The technology must fit the composition and segregation quality of incoming waste.
Institutional execution	Indore's integrated municipal operating model; Delhi's MCD, NDMC and Delhi Cantonment Board jurisdictions.	Coordination and differentiated service capacity affect implementation.

WEAK

Delhi has failed because it has mountains of garbage, whereas Indore is India's cleanest city because people there are aware of cleanliness. Other cities should follow Indore.

STRONG

Delhi's April 2026 official report records a 42.2% gap between municipal waste generation and fresh-waste processing or recycling, despite operating several treatment facilities. Indore's nearly universal segregated collection and 550 TPD organic-waste Bio-CNG facility show the importance of managing waste streams before final disposal. Replication requires equivalent segregation, financing, monitoring and citizen participation.

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1.3 The structure

The question has **three explicit demands**, which must appear in the same order. The comparative city analysis deserves the largest share because it contains four distinct tasks: identifying Delhi's initiatives, judging Delhi's outcomes, identifying Indore's initiatives, and judging Indore's outcomes. The hidden demand forms a **short final part**. The shares below refer to the body between the introduction and conclusion; they are a teaching guide, not a UPSC rule.

Introduction	1. India's challenges about three-tenths	2. Policy framework about one-fifth	3. Delhi and Indore about two-fifths	4. Replication about one-tenth	Conclusion

Part 1 Challenges to solid waste management in India — about three-tenths

Generation and segregation	Rising waste quantities, mixed streams, contamination of recyclables, incomplete household participation.
Collection and transportation	Uneven service quality, re-mixing, transport costs and difficult-to-serve settlements.
Processing and disposal	Capacity deficits, unsuitable feedstock, landfill dependence, legacy dumps and pollution.
Institutional and financial	Weak municipal finances, contract monitoring, fragmented responsibilities and inadequate worker protection.

Part 2 Governmental policy framework — about one-fifth

Legal and regulatory	Environment (Protection) Act, 1986; Solid Waste Management Rules, 2026; related waste-stream rules.
National programmes	SBM-Urban 2.0; Swachh Survekshan; legacy dumpsite remediation; waste-to-wealth instruments.
Implementation	Local bodies, MoHUA, MoEFCC, CPCB, SPCBs/PCCs, waste generators and regulatory monitoring.

Part 3 Delhi and Indore: initiatives and outcomes — about two-fifths

Delhi: initiatives	Waste-to-energy plants; material recovery facilities; biomining at Ghazipur, Bhalswa and Okhla.
Delhi: achievements and failures	Growing remediation effort, but a significant fresh-processing deficit and continuing landfill dependence.
Indore: initiatives	Segregated door-to-door collection; monitored transport; MRFs; composting; Bio-CNG; citizen engagement.
Indore: achievements and limitations	Sustained cleanliness recognition and resource recovery; continued need for compliance, worker welfare and independent verification.
Comparison	Operational integration and segregation versus scale-related processing and coordination challenges.

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Part 4 **Conditions for replication** about one-tenth

Adapt, do not copy	Match the model to waste composition, population, land and financial resources.
Make it durable	Reliable user services, public participation, worker inclusion and independently audited performance.

1.4 How to present it

The most effective form is **headed points for the challenges and framework**, followed by a **compact Delhi-Indore comparison table**. The comparison is the distinctive feature of this question: a table prevents one city from receiving disproportionate attention and allows initiatives, achievements and limitations to be matched visibly. A long flowchart inside the 250-word answer would displace important city evidence. The additional-information section supplies a simple waste-management flow for learning.

Form	Fit here	Reason
Headed points and a two-city comparison table	**Best**	Preserves the three explicit demands, makes the contrast easy to assess, and leaves room for evidence and limitations.
Four-stage waste-management flow with city examples	Good	Shows where each intervention belongs, but must not displace the policy framework or city assessment.
Challenge-policy-response matrix	Good	Strong causal matching; requires a separate compact comparison of the two cities.
Separate descriptive essays on Delhi and Indore	Weak	Repetition, little direct comparison, and the national challenges and rules become disconnected.

1.5 The introduction and the conclusion

The introduction serves the whole question. It connects rising municipal waste with the need for scientific management, acknowledges national policy reforms, and signals that outcomes vary across cities. It does not spend the opening on a dictionary definition or Delhi's ranking alone.

The conclusion settles the entire demand. India's challenge is not merely collecting more waste or installing more plants. It is translating national rules into reliable segregation, recovery, safe residual disposal and accountable municipal delivery, with practices adapted to each city's conditions.

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2 PYQ Intelligence 2013 to 2026

The policy developments and municipal evidence that made waste management especially relevant in 2026, its relationship with earlier UPSC questions, and the adjoining themes worth preparing.

2.1 Why the subject was topical in 2026

By August 2026, India's solid waste-management framework had undergone a significant regulatory transition. **New Solid Waste Management Rules were notified on 27 January 2026 and commenced on 1 April 2026.** Meanwhile, the contrast between Indore's sustained cleanliness performance and Delhi's landfill burden was supported by official municipal data, national survey results and judicial scrutiny. GS Paper III was held on **23 August 2026**. UPSC does not disclose why it sets a particular question, so the developments below are **context, not evidence of the examiner's intention**. All events precede the examination.

When	What happened	Why it matters for this question
2 October 2014	The Government of India launches **Swachh Bharat Mission-Urban**, establishing a national programme for sanitation and improved municipal solid waste management.	Waste collection and urban cleanliness become major municipal performance priorities.
8 April 2016	MoEFCC notifies the **Solid Waste Management Rules, 2016**, replacing the earlier Municipal Solid Wastes (Management and Handling) Rules, 2000. They establish duties for generators, source segregation, scientific processing and disposal.	The predecessor framework against which later progress and regulatory change must be assessed.
1 October 2021	**SBM-Urban 2.0** is launched for a five-year period, with the vision of **Garbage-Free Cities**, waste processing, resource recovery and remediation of legacy dumpsites.	Policy focus extends beyond visible cleanliness to the treatment of fresh waste and old dumps.
19 February 2022	The Prime Minister inaugurates Indore's **GOBARdhan Bio-CNG plant**, designed to treat **550 TPD** of segregated organic waste. At inauguration, planned output was approximately 17,000 kg of Bio-CNG and 100 tonnes of compost per day.	Concrete example of resource recovery from separately collected wet waste.
21 April 2024	A major fire is reported at Delhi's **Ghazipur landfill**. The National Green Tribunal takes up the matter in O.A. No. 481/2024 and examines the associated environmental risks.	The environmental and public-health consequences of legacy dumping.
17 July 2025	**Swachh Survekshan 2024-25** awards: Indore enters the new **Super Swachh League**, alongside other consistently high-performing cities. In the separate ranking for cities above ten lakh population, **MCD ranks 31st**. NDMC also receives Super Swachh League recognition in its own population category.	The contrast is substantial but cannot be reduced to one ranking of all Delhi jurisdictions. Indore is in a separate league, not the ordinary 2024-25 ranking.
November 2025	MoHUA launches the **Dumpsite Remediation Accelerator Programme**, intended to accelerate clearance of legacy municipal waste under SBM-Urban 2.0.	Old dumpsites become a distinct implementation priority, relevant to Delhi.

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When	What happened	Why it matters for this question
27 to 28 January 2026	MoEFCC issues **S.O. 388(E), dated 27 January**, notifying the **Solid Waste Management Rules, 2026**; the Gazette is published on 28 January. The rules introduce mandatory four-stream segregation, stronger bulk-generator duties, online reporting and stricter landfill management.	The operative legal framework changes before the examination.
19 February 2026	In **Bhopal Municipal Corporation v. Dr Subhash C. Pandey & Others** and a connected appeal, the **Supreme Court** addresses nationwide implementation of the new rules. It directs four-stream segregation and time-bound measures for legacy dumpsites, among other steps, linking waste management to **Article 21**.	The transition requires enforceable municipal action, not merely fresh notifications.
March 2026	The **Economic Survey of Delhi 2025-26** documents municipal collection and segregation, processing facilities and legacy-waste remediation. For April 2025 to February 2026, it reports **74.11 lakh metric tonnes** of legacy waste remediated and **120.82 lakh metric tonnes** remaining across three major dumpsites.	Delhi demonstrates measurable remediation progress while retaining a considerable legacy burden.
1 April 2026	The **Solid Waste Management Rules, 2026** come into force, superseding the 2016 Rules. The Environment (Construction and Demolition) Waste Management Rules, 2025 also commence.	The answer must distinguish current obligations from the historical 2016 regime.
30 April 2026	The Delhi Pollution Control Committee's April 2026 report records **12,862 TPD** of municipal waste generation, **7,439.3 TPD** processed or recycled and **5,422.7 TPD** going to dumpsites.	A documented **42.2% fresh-waste processing gap**, despite operating treatment facilities.
19 to 20 May 2026	MoHUA's national review of SBM-Urban 2.0 reports that **97% of urban wards** are covered by door-to-door waste collection and national municipal waste processing has risen from **16% in 2014 to about 81% in 2026**.	National progress is real, but coverage of collection does not establish universal segregation or processing.
June 2026	Indore Municipal Corporation's adaptation to the 2026 framework is reported, including its existing **six-stream segregation** model and preparations for bulk-generator compliance and online accountability.	Even a high-performing municipality must update systems when regulation changes.

Read the statistics carefully: Delhi's March 2026 Economic Survey reports 11,862 TPD in its municipal-waste statement, whereas the DPCC's April 2026 monitoring report records 12,862 TPD. These are **different reporting snapshots**, not interchangeable figures. The city comparison in this document uses the explicitly dated April 2026 DPCC figures for fresh waste and the Economic Survey's February 2026 cut-off for legacy waste.

2.2 The skill UPSC keeps testing

UPSC has repeatedly tested environmental management as a **problem, instrument and implementation** question. Earlier papers covered hazardous waste, smart urban development, sanitation outcomes, solid-waste disposal and environmental pollution. The closest direct predecessor is **2018 GS III, Q6**. In 2026, the demand extends to the **new policy framework and a comparative assessment of two municipalities**. The question texts below are reproduced verbatim, including their original punctuation and spacing.

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Year	The question as UPSC set it	What it asked of you	What changed in 2026
2013 GS III, Q20	Enumerate the National Water Policy of India. Taking river Ganges as an example, discuss the strategies which may be adopted for river water pollution control and management. What are the legal provisions of management and handling of hazardous wastes in India ?	Pollution management, policy instruments and legal provisions for hazardous wastes.	Municipal solid waste is examined through its entire management chain and the current regulatory framework.
2016 GS III, Q4	What are 'Smart Cities'? Examine their relevance for urban development in India. Will it increase rural-urban differences? Give arguments for 'Smart Villages' in the light of PURA and RURBAN Mission.	Urban governance, programme relevance and development outcomes.	Urban capacity is tested through measurable waste-management performance in named cities.
2017 GS II, Q6	"To ensure effective implementation of policies addressing water, sanitation and hygiene needs the identification of the beneficiary segments is to be synchronized with the anticipated outcomes." Examine the statement in the context of the WASH scheme.	Sanitation policy linked to implementation and actual outcomes.	The same policy-outcome discipline is applied to municipal waste management and city comparisons.
2018 GS III, Q6	What are the impediments in disposing the huge quantities of discarded solid wastes which are continuously being generated? How do we remove safely the toxic wastes that have been accumulating in our habitable environment?	Obstacles to solid-waste disposal and safe treatment of toxic accumulations.	The closest precedent expands into the 2026 rules and an evidence-based Delhi-Indore assessment.
2023 GS I, Q18	Does urbanization lead to more segregation and/or marginalization of the poor in Indian metropolises?	Urban exclusion and the conditions of vulnerable residents.	Waste-management systems also require attention to underserved settlements and informal waste workers.
2024 GS III, Q7	Industrial pollution of river water is a significant environmental issue in India. Discuss the various mitigation measures to deal with this problem and also the government's initiatives in this regard.	Environmental harm, mitigation methods and governmental action.	The same analytical sequence is extended to municipal solid waste, followed by two city-level tests.

Also related, verbatim: 2015 GS I, Q15: Mumbai, Delhi and Kolkata are the three mega cities of the country but the air pollution is much more serious problem in Delhi as compared to the other two. Why is this so ? 2024 GS III, Q18: Flooding in urban areas is an emerging climate-induced disaster. Discuss the causes of this disaster. Mention the features of two such major floods in the last two decades in India. Describe the policies and frameworks in India that aim at tackling such floods.

CARRY THIS METHOD TO ANY ENVIRONMENTAL MANAGEMENT AND CITY-COMPARISON QUESTION

1. **Identify** the stages where the environmental management chain is failing.
2. **Match** each failure with an actual law, regulatory instrument or government programme.
3. **Separate** policy design from implementation and independently observed results.
4. **Compare** named cases on equivalent indicators, with both achievements and limitations.
5. **Explain** why outcomes differ, including scale, capacity and local participation.
6. **Conclude** with the conditions that make good practice transferable.

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2.3 What to prepare next

FRAMEWORKS AND INSTITUTIONS

Environment (Protection) Act, 1986	Enabling legislation for central environmental waste-management rules.
SWM Rules, 2026	S.O. 388(E), 27 January 2026; effective 1 April; four streams; bulk-generator duties; digital reporting; legacy-waste remediation.
SBM-Urban 2.0	Launched 1 October 2021; Garbage-Free Cities, processing infrastructure and dumpsite remediation.
Related waste rules	Plastic Waste Management Rules, 2016, as amended; Environment (Construction and Demolition) Waste Management Rules, 2025, effective April 2026.
Local and regulatory institutions	Urban local bodies, CPCB, SPCBs/PCCs, district administrations, MoHUA and MoEFCC.

CONCEPTS AND ANALYTICAL DISTINCTIONS

Segregation versus collection	Collecting every household's rubbish does not mean each stream remains separated.
Processing versus installed capacity	Rated capacity, waste actually received and waste actually treated are different indicators.
Fresh versus legacy waste	New daily waste is a continuous flow; old dumps are accumulated stocks. Both require management.
Composting, biomethanation, MRFs	Different technologies for biodegradable waste and recyclable dry fractions.
Waste-to-energy	Residual-waste treatment can produce energy but needs suitable feedstock and strict emissions control.
Circular economy	Reduce waste generation, reuse materials, recover resources and reserve disposal for genuine residues.

3 Additional information

Everything needed to answer this question well. Tier 1 supplies the national challenges, the operative legal framework and the Delhi-Indore evidence. Tier 2 explores the wider economics, environmental safeguards, institutional trade-offs and conditions for successful municipal implementation.

TIER 1 · ESSENTIAL: INDIA'S CHALLENGES, POLICY FRAMEWORK AND THE DELHI-INDORE COMPARISON

The national challenge: why collection alone is insufficient

Municipal solid waste management is a **continuous service chain**, not a one-time clean-up. A city must limit waste generation, ensure separation, collect each stream reliably, recover useful material and safely dispose of what genuinely remains. Failure at the first stage makes the later stages more expensive and less effective. MoHUA's May 2026 review reported national urban waste processing at about **81%**, compared with **16% in 2014**. That is considerable progress, but it does not establish that waste generation, segregation or disposal problems have been solved.

Challenge	The operational problem	Why it matters
1. CHALLENGES TO SOLID WASTE MANAGEMENT IN INDIA		
Growing waste volumes	Urban population, consumption, packaging, commercial activity and changing material composition increase the quantity and complexity of municipal waste. The Union's January 2026 parliamentary reporting placed urban municipal waste generation at approximately **1.62 lakh TPD**.	Vehicles, facilities and budgets must expand and adapt continuously; installed capacity can become inadequate.

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Challenge	The operational problem	Why it matters
Incomplete source segregation	Wet, dry, sanitary and special-care materials may be mixed at generation or collection. Wet contamination lowers recyclables' value, while improperly handled sanitary and special-care waste creates health risks.	Mixed waste undermines recycling, composting and safe handling. This is why the 2026 Rules mandate four streams.
Collection and transportation gaps	Difficult access in informal settlements, narrow lanes, dense commercial districts and peri-urban areas; irregular schedules; inadequately segregated vehicles; transfer and transport costs.	High reported collection coverage does not guarantee universal service quality or prevent re-mixing.
Processing deficits	Shortages of suitable local facilities, poor-quality feedstock, equipment downtime, siting disputes and inconsistent operation. A plant's designed capacity does not automatically become actual treatment.	Unprocessed waste continues towards dumpsites despite investment in processing infrastructure.
Legacy dumpsites	Decades of mixed dumping create accumulated waste with risks of landfill fires, methane generation, leachate, odour, soil and groundwater contamination, and slope instability.	Biomining must remove the old stock while fresh dumping is reduced, or remediation benefits are partly offset.
Limited financial capacity	Capital-intensive processing facilities, vehicle fleets and land acquisition coexist with substantial recurrent expenditure on fuel, workers, maintenance, monitoring and residual disposal. User-fee collection may be insufficient.	A municipality can build infrastructure but struggle to maintain reliable operations.
Institutional fragmentation	Responsibility is distributed among local bodies, State agencies, contractors, waste generators and pollution-control authorities. Weak contract oversight and inconsistent reporting complicate accountability.	A statutory obligation does not translate automatically into a functioning service.
Worker safety and inclusion	Waste handlers face sharp objects, contaminated materials and unsafe working conditions. Informal waste pickers may be excluded when collection and recycling systems become more mechanised or contractual.	Scientific waste management must also protect the people who make material recovery possible.

National progress, precisely stated. MoHUA reported in May 2026 that 97% of wards were covered by door-to-door collection and approximately 81% of municipal waste was being processed. **Ward coverage is not a measure of segregated collection**, and the processing figure does not mean all recovered material is recycled.

Why mixed waste is expensive. Food waste contaminates dry recyclables; plastics and sanitary material interfere with biological treatment; hazardous household discards expose workers. Segregating before collection is normally more effective than trying to recover every stream from a mixed landfill.

The governmental policy framework

Instrument or institution	Key provisions and implementation mechanisms	Which problem it addresses
2. GOVERNMENTAL POLICY FRAMEWORK ON SOLID WASTE MANAGEMENT		
Constitutional and statutory foundation	**Article 243W and the Twelfth Schedule** provide for municipal functions, including public health, sanitation and solid waste management, subject to State legislation. The **Environment (Protection) Act, 1986** provides the basis for central waste-management rules. Article 21, as interpreted by the courts, protects the right to a clean and healthy environment.	Allocates municipal responsibility and establishes the basis for enforceable environmental standards.

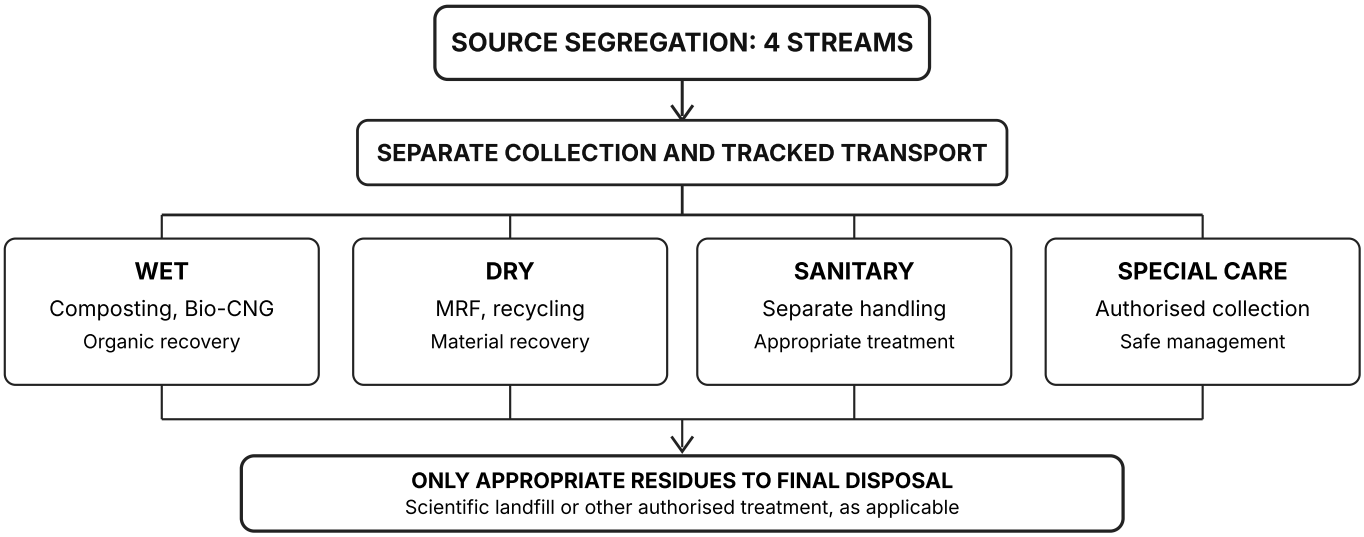
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Instrument or institution	Key provisions and implementation mechanisms	Which problem it addresses
Solid Waste Management Rules, 2026	**S.O. 388(E), dated 27 January 2026**; published in the Gazette on 28 January; effective **1 April 2026**. These supersede the Solid Waste Management Rules, 2016, except in respect of acts done or omitted before supersession. They apply broadly to urban and rural local bodies and relevant waste generators.	Creates the operative, nationwide regulatory framework as at the 2026 examination.
Four-stream segregation	Mandatory separation into **wet, dry, sanitary and special-care waste**. Wet waste is directed towards composting or biomethanation; dry recyclables towards material recovery facilities (MRFs); sanitary and special-care materials require separate, appropriate handling.	Prevents contamination, improves processing efficiency and protects workers.
Bulk waste generators	Under the 2026 Rules, qualifying thresholds include premises of at least **20,000 sq m**, water consumption of at least **40,000 litres/day**, or waste generation of at least **100 kg/day**. Extended Bulk Waste Generator Responsibility requires accountable waste management, with on-site wet-waste processing as far as possible or the prescribed certificate route where applicable.	Shifts part of the operational burden from municipalities to large generators and promotes decentralised processing.
Digital monitoring and enforcement	The 2026 Rules provide for a **centralised online portal** covering registration, authorisation, reporting, waste flows and legacy-waste remediation. Environmental compensation applies to specified violations under the polluter-pays principle. CPCB, SPCBs and PCCs have regulatory roles.	Addresses unverifiable performance, poor compliance and weak operational accountability.
Landfill restrictions and legacy waste	Landfilling is restricted to non-recyclable, non-energy-recoverable residues and inert materials. The Rules prescribe mapping, assessment, time-bound biomining or bioremediation, reporting and landfill audits. Higher fees are envisaged for unsegregated landfill disposal.	Reduces fresh dumping while requiring systematic remediation of old waste accumulations.
SBM-Urban 2.0	Launched **1 October 2021** for a five-year period, pursuing Garbage-Free Cities through source segregation, waste-to-compost, biomethanation, recycling, MRFs, waste-to-energy and legacy-dumpsite remediation. Central assistance supports eligible facilities and municipal improvements.	Supplies programme funding and implementation support for regulatory objectives.
Swachh Survekshan	MoHUA's annual cleanliness assessment measures multiple dimensions, including service delivery, sanitation and citizen engagement. **Swachh Survekshan 2024-25** introduced a separate Super Swachh League for sustained high performers.	Creates incentives for municipal performance, measurement and public participation. Rankings supplement rather than replace operational data.
Dumpsite Remediation Accelerator Programme	Launched on **8 November 2025** under SBM-Urban 2.0. A 29 January 2026 ministry release cited September 2026; a 31 January PIB backgrounder cited October 2026. Both were targets, not achieved results.	Directly targets accumulated municipal waste. The announced deadline is a programme objective, not proof that remediation has been completed.

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Instrument or institution	Key provisions and implementation mechanisms	Which problem it addresses
Related waste-stream rules	**Plastic Waste Management Rules, 2016**, as amended, provide for producer responsibility for plastic packaging. The **Environment (Construction and Demolition) Waste Management Rules, 2025**, effective 1 April 2026, strengthen management and resource recovery in that separate waste stream.	Recognises that plastics and construction debris need specialised rules rather than being treated indiscriminately as ordinary mixed municipal waste.
Institutional responsibilities	**MoEFCC**: regulatory policy; **MoHUA**: urban sanitation programmes; **CPCB**: standards, guidance and national monitoring; **SPCBs/PCCs**: authorisation and compliance; **local bodies**: collection, segregation, transportation, processing and disposal; **State governments**: coordination and enabling support.	Connects national policy with the institutions responsible for ground-level delivery.
Supreme Court, 19 February 2026	In **Bhopal Municipal Corporation v. Dr Subhash C. Pandey & Others** and the connected appeal, the Court issued directions for the nationwide transition to the 2026 framework, addressing four-stream segregation, bulk generators, legacy dumpsites and awareness measures.	Demonstrates that waste-management duties require practical compliance and judicial accountability.

One diagram: the scientific waste-management chain



A simplified teaching flow based on the Solid Waste Management Rules, 2026. The four waste streams do not necessarily use identical treatment pathways, and some materials require specialised rules. Recycling and recovery occur before final disposal; old dumpsites require a separate remediation programme. This is not an official process diagram.

Delhi: substantial initiatives, but a persistent processing and disposal deficit

Delhi must not be treated as one undifferentiated municipality. Municipal solid waste is managed across the Municipal Corporation of Delhi (MCD), New Delhi Municipal Council (NDMC) and Delhi Cantonment Board (DCB). The city has several large facilities and substantial legacy-waste operations. The difficulty lies in the continuing mismatch between fresh waste generation and effective processing, combined with the volume of historically accumulated waste.

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Initiative or indicator	Verified evidence	Achievement and limitation
3A. DELHI: PRINCIPAL INITIATIVES, ACHIEVEMENTS AND FAILURES		
Fresh-waste generation and processing	DPCC, April 2026: **12,862 TPD** generated; **7,439.3 TPD** processed or recycled; **5,422.7 TPD** disposed at dumpsites. Actual processing or recycling amounted to **57.8%** of reported generation.	**Failure:** a 42.2% deficit remains despite substantial treatment capacity. This is an observed operational gap, not merely a projection.
Waste-to-energy facilities	Delhi operates major waste-to-energy facilities at **Okhla, Ghazipur, Bawana and Tehkhand**. The April 2026 DPCC report also lists smaller composting and biomethanation operations and additional proposed capacity.	**Achievement:** diversified treatment infrastructure. **Limitation:** the existing network does not process all fresh waste; environmental performance and suitability of feedstock remain important safeguards.
Material recovery facilities	The April 2026 DPCC report records **176 MRFs** and approximately **298 TPD** of reported recycling through them.	**Achievement:** infrastructure for dry-material recovery. **Limitation:** the scale of reported MRF recycling is small relative to total municipal waste generation.
Source segregation	Delhi's Economic Survey 2025-26 reports **59% average source segregation in MCD**, around **92% in NDMC**, and differentiated performance in Delhi Cantonment's civil and Army areas.	**Mixed outcome:** collection may be extensive, but separation at source remains uneven. Better-performing NDMC areas should not be taken as representative of MCD.
Biomining at three major dumpsites	Delhi's Economic Survey 2025-26 tracks **Ghazipur, Bhalswa and Okhla**. The June 2022 above-ground baseline was **203 lakh metric tonnes**. During April 2025 to February 2026, **74.11 lakh metric tonnes** were remediated; the reported balance in February 2026 was **120.82 lakh metric tonnes**, after accounting for fresh dumping.	**Achievement:** accelerated remediation and substantial removal of old waste. **Limitation:** an enormous balance remains, while continued fresh disposal offsets part of the effort.
Landfill fire prevention	Delhi's Environment Department documents surveillance, firefighting arrangements, access control and monitoring of landfill conditions. A major Ghazipur fire in April 2024 attracted NGT scrutiny.	**Mixed outcome:** fire-control measures exist, but accumulated mixed waste remains a long-term environmental and safety risk.
Cleanliness assessment	**MCD ranked 31st** in the million-plus population category of Swachh Survekshan 2024-25. **NDMC entered the Super Swachh League** in a separate population category.	**Mixed outcome:** institutional performance within Delhi is heterogeneous. It is inaccurate to label every Delhi municipal area a cleanliness failure.

The critical Delhi distinction: the **5,422.7 TPD** in DPCC's April 2026 report represents fresh municipal waste not processed or recycled through the reported facilities. The **120.82 lakh metric tonnes** in the Economic Survey represents the balance of legacy waste at three dumpsites as of February 2026. One is a **daily flow**; the other is an **accumulated stock**. They must not be added or compared as though they were the same measure.

Indore: segregation-led collection and waste-to-resource recovery

Indore's strongest lesson is that **waste management starts before the collection vehicle arrives**. Indore Municipal Corporation built a system around repeated household-level engagement, separated collection, monitored transportation and material-specific processing. It progressed from segregating wet and dry waste to a more differentiated system, allowing recyclable and biodegradable streams to reach appropriate facilities.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Initiative or indicator	Verified evidence	Achievement and limitation
3B. INDORE: PRINCIPAL INITIATIVES, ACHIEVEMENTS AND LIMITATIONS		
Door-to-door segregated collection	Indore Municipal Corporation reports **nearly 100% segregated door-to-door collection** from households, commercial establishments and institutions. The system evolved through pilot wards and citywide expansion.	**Achievement:** waste reaches processing systems with fewer mixed fractions. **Limitation:** the reported figure describes collection performance, not independently verified recycling of every kilogram.
Multiple waste streams	The city operates a differentiated segregation model covering wet waste, dry fractions, sanitary waste, domestic hazardous waste and e-waste. Its **six-stream approach** was reported in 2026 as the city adapted to the new national rules.	**Achievement:** exceeds the statutory four-stream minimum in collection design. **Limitation:** consistent household compliance and correct downstream handling remain necessary.
Collection logistics and monitoring	Indore uses segregated collection vehicles, garbage transfer stations, digital tracking and municipal monitoring. The National Institute of Urban Affairs documents vehicle systems, transfer infrastructure and the role of NGOs in source-segregation awareness.	**Achievement:** operational monitoring and systematic transport reduce avoidable mixing and service failures. **Limitation:** technology depends on maintenance, enforcement and staff capacity.
Wet-waste processing	Indore's **GOBARdhan Bio-CNG facility**, inaugurated on **19 February 2022**, was designed for **550 TPD of segregated wet organic waste**. Announced production estimates were about **17,000 kg of Bio-CNG** and **100 tonnes of compost daily**.	**Achievement:** an important waste-to-resource model, including fuel for urban transport. **Limitation:** design capacity and stated output estimates should not be mistaken for continuous independently measured production.
Dry-waste recovery and legacy remediation	MRFs and other recycling infrastructure handle recoverable dry materials. The municipal corporation and related institutional case studies document rehabilitation of old dumping areas and recovery of land.	**Achievement:** moves material away from open dumping towards recovery. **Limitation:** the proportion truly recycled, residual rejects and long-term end-use need continued tracking.
Behavioural change	Awareness campaigns, community participation, local monitoring, user charges and NGO-supported outreach accompany municipal operations. Independent case-study literature describes phased expansion from initial pilot wards.	**Achievement:** turns source segregation into a routine service expectation. **Limitation:** continued outreach and equitable enforcement are required.
Sustained cleanliness recognition	Indore held the leading cleanliness position for **seven consecutive Swachh Survekshan editions from 2017 through 2023** and entered the new **Super Swachh League in 2024-25**.	**Achievement:** sustained recognition over several years. **Limitation:** cleanliness awards do not prove perfect environmental performance in every waste stream.
Compliance and inclusion	In June 2026, Indore was reported to be updating its administrative and digital processes for the new bulk-waste-generator obligations. As elsewhere, worker welfare, safe handling and end-to-end material accounting remain relevant.	**Continuing task:** maintain standards as waste volumes, regulation and urban conditions change, without excluding vulnerable workers.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Delhi versus Indore: what the comparison actually establishes

Dimension	Delhi	Indore	Analytical inference
Waste generation and scale	Large metropolitan waste flows and multiple municipal jurisdictions.	Smaller and more integrated municipal operating scale.	The size of a fleet or plant cannot be copied without accounting for population and waste load.
Source segregation	Uneven, especially across MCD and NDMC.	Nearly universal segregated collection reported.	**Upstream separation** supports downstream treatment.
Treatment strategy	Substantial waste-to-energy, composting, MRFs and biomining.	Source separation coupled with composting, biomethanation and dry-material recovery.	Processing technology must fit the composition and quality of incoming waste.
Legacy waste	Very large balance at three major dumpsites, despite accelerated biomining.	Substantial reported recovery and redevelopment of older dumping land.	Old accumulated waste and daily fresh waste need separate strategies.
Citizen participation	Uneven across a large, socially and administratively diverse metropolis.	Repeated outreach and municipal engagement form part of the operating model.	Behavioural change is a recurrent investment, not a one-time campaign.
Evidence of success	Facility operations and higher biomining rates, alongside a persistent treatment gap.	Sustained cleanliness recognition and high segregated collection.	Neither ranking nor infrastructure alone measures the whole waste-management system.

Delhi is not a story of no action. It has major processing facilities, multiple MRFs, measurable legacy-waste remediation and high-performing sub-jurisdictions. The problem is that **investment and activity have not yet eliminated the fresh-processing deficit or the accumulated dumpsite burden**.

Indore is not a claim of zero problems. Sustained segregation and recovery are meaningful achievements. However, **rankings and claimed collection coverage are not substitutes for verified material flows, emissions compliance, worker safety, costs and treatment of residual waste**.

4. Conditions for replicating successful municipal practices

Transferable practice	What must be adapted locally	How to judge success
Mandatory segregation	Housing density, informal settlements, household behaviour, available containers and collection schedules.	Actual quality of segregated waste arriving at treatment facilities.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Transferable practice	What must be adapted locally	How to judge success
Reliable door-to-door collection	Urban geography, fleet requirements, transfer distances, staffing and access to underserved areas.	Regular service coverage without mixing separated streams.
Appropriate waste treatment	Local waste composition, land availability, operating finance, offtake for compost, gas and recyclables.	Verified processing, resource recovery, safe residues and environmental compliance.
Municipal accountability	Administrative fragmentation, contractor capacity, user-fee systems and independent audit arrangements.	Published mass-balance data, service reliability and declining disposal volumes.
Participation and inclusion	Public awareness, local organisations, affordability, informal waste-worker livelihoods and occupational safety.	Lasting citizen participation and safe, fair employment throughout the waste chain.

TIER 2 · EXTENDED UNDERSTANDING: THE WHOLE TOPIC AROUND IT

The economics of municipal waste

1. **Capital versus recurrent cost:** vehicles and plants may receive project funding, while fuel, wages, repairs, monitoring and plant operation require dependable annual expenditure.
2. **User charges:** help finance recurrent services, but their design must reflect affordability and transparent service standards.
3. **Resource revenue:** compost, recyclable materials and Bio-CNG may offset costs, but price volatility and demand determine actual returns.
4. **Producer responsibility:** EPR for plastic packaging places defined recovery obligations upstream, complementing municipal services.
5. **Polluter-pays enforcement:** can discourage non-compliance, but penalties work only when monitoring and collection are credible.
6. **Lifecycle costs:** a cheap dumping practice may impose substantial later expenditure through fire response, leachate management, health risks and remediation.

Technology: choose by waste stream

1. **Composting:** suitable for properly segregated biodegradable waste where compost quality and offtake can be maintained.
2. **Biomethanation:** converts suitable organic waste into biogas or Bio-CNG and digestate, subject to feedstock and operational controls.
3. **Material recovery facilities:** sort dry materials for recycling; contaminated inputs lower recovery and value.
4. **Waste-to-energy:** can treat selected residual fractions but requires appropriate calorific value, emissions controls and safe handling of ash and residues.
5. **Biomining:** excavates and separates legacy waste; recovered fractions require scientifically appropriate end-use or disposal.
6. **Sanitary landfills:** remain necessary for permitted non-recoverable residuals; the aim is to minimise, not pretend to abolish, the need for safe final disposal.

Why a waste-management system needs a mass balance

A scientifically credible municipal account should distinguish **waste generated, waste collected, input received at processing facilities, material actually recovered, processing rejects and residual waste finally disposed**. If generation estimates rely on one method and facility outputs on another, percentages can give a misleading impression. A plant processing mixed waste is not automatically recycling all of it. Likewise, a tonne of legacy waste excavated is not necessarily a tonne of material made environmentally harmless.

Indicator	What it measures	What it does not prove
Collection coverage	Households, establishments or wards served by regular collection.	That the waste was collected in separate streams.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Indicator	What it measures	What it does not prove
Source-segregation rate	Extent of separation of required waste categories.	That all separated waste was subsequently recovered.
Installed capacity	Rated maximum throughput of facilities.	That facilities operate continuously at that capacity.
Waste processed	Waste treated under a stated reporting definition.	That treatment produced only saleable resources and no rejects.
Legacy waste remediated	Old waste excavated and treated or separated under the remediation programme.	That the site is fully restored or fresh dumping has ceased.
Cleanliness ranking	Performance under the survey's assessment and certification framework.	Perfect emissions compliance, zero landfill waste or equivalent results across different population categories.

Environmental, health and social dimensions

ENVIRONMENTAL SAFEGUARDS

Landfill methane	A greenhouse gas and fire-related hazard; manage organic waste and landfill gas.
Leachate	Contaminated liquid from waste; require containment and treatment to protect water and soil.
Air emissions	Waste fires and thermal treatment can create air pollutants; monitor and enforce standards.
Plastic leakage	Uncollected plastics enter drains, waterways and ecosystems; use EPR and reliable collection.
Climate benefits	Waste prevention, organic-waste treatment and resource recovery can avoid emissions, depending on system design.

HUMAN AND INSTITUTIONAL SAFEGUARDS

Waste workers	PPE, safe equipment, health protection, training and dependable compensation.
Informal waste pickers	Livelihood-sensitive integration into formal collection and material recovery systems.
Households	Regular service, understandable waste categories and meaningful feedback channels.
Large generators	Direct responsibility for segregation, processing and regulatory reporting.
Independent evaluation	Audits of material recovery, plant operations, emissions, financial efficiency and disposal.

How the 2026 rules change the administrative task

The 2026 framework goes beyond instructing households to separate rubbish. It requires a **coordinated compliance system**: local bodies must organise separate collection and treatment; large generators must meet defined responsibilities; processing facilities must register and report; regulators must supervise compliance; and legacy dumpsites must be mapped and remediated through time-bound measures. The centralised portal is intended to make the waste chain more auditable. However, **digital reporting is valuable only if underlying measurements are reliable**. Municipal staffing, field inspection and transparent independent verification remain indispensable.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Two debates worth knowing

Centralised waste-to-energy or decentralised resource recovery?

One view supports larger facilities because they can treat substantial waste volumes and exploit economies of scale. Delhi's waste-to-energy infrastructure illustrates this approach. Another emphasises segregation, composting, local biomethanation and MRFs, reducing transport and preserving recyclable material. Indore demonstrates important elements of this approach. Neither technology choice is automatically superior in every setting. The balanced reading is to **prioritise prevention, separation and material recovery, then choose suitable treatment for remaining streams**, with strict environmental safeguards and verified mass balances.

Should a city's cleanliness rank define success?

Rankings generate competition, visibility and citizen engagement. Indore's sustained recognition is meaningful evidence of institutional consistency. The opposing concern is that a composite score may conceal local variation, worker conditions, the destination of treatment rejects or problems in waste streams not adequately represented by headline indicators. Delhi's NDMC-MCD contrast reinforces this concern. The balanced reading is to **use rankings as signals, but judge environmental outcomes through measured segregation, recovery, residual disposal, emissions, costs and inclusion**.

4 Pitfalls and variations

Six frequent errors in answering this question, claims that should not appear in the answer, and how its structure changes when the examiner changes the demand.

4.1 Six pitfalls, each with its correction

Making the challenges generic

~~India has a large population, people litter and garbage causes pollution.~~

Explain four operational constraints: generation and segregation, collection, processing and disposal, and municipal finance and institutions.

Using an outdated policy framework

~~Solid Waste Management Rules, 2016, are the present legal framework.~~

Use the Solid Waste Management Rules, 2026, notified on 27 January and effective from 1 April 2026; mention the 2016 Rules as their predecessor.

Equating collection with processing

~~Delhi collects municipal waste, so waste management is largely successful.~~

Distinguish collection, segregation and treatment. DPCC's April 2026 data show 42.2% of reported fresh waste was not processed or recycled through the stated facilities.

Turning Delhi and Indore into caricatures

~~Delhi is a complete failure; Indore has solved all its waste problems.~~

Delhi has processing and biomining achievements but major remaining gaps. Indore has strong segregation and recovery systems, yet requires continuing verification and compliance.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Using rankings without understanding categories

~~Indore came first in the ordinary Swachh Survekshan 2024-25 ranking, while all of Delhi performed poorly.~~

Indore entered the separate Super Swachh League. MCD ranked 31st among million-plus cities; NDMC was recognised separately in its population category.

Ignoring the hidden demand

~~All Indian cities should copy Indore's cleanliness model.~~

Specify the conditions for replication: source segregation, suitable processing capacity, municipal finance, institutional coordination, citizen participation and worker inclusion, adapted to local scale.

4.2 Never write these

- "The Solid Waste Management Rules, 2016, are the latest rules."
  The 2026 Rules, notified on 27 January, superseded them with effect from 1 April 2026.
- "The 2026 Rules require only wet and dry segregation."
  They mandate four streams: wet, dry, sanitary and special-care waste.
- "All establishments generating more than 100 kg of waste daily are the only bulk waste generators."
  The 2026 framework also contains floor-area and water-consumption criteria, with alternative qualifying thresholds.
- "Delhi does not have waste-processing plants."
  Okhla, Ghazipur, Bawana and Tehkhand are established major treatment locations; insufficient overall treatment, not the complete absence of plants, is the documented problem.
- "Delhi dumps 12,862 tonnes of fresh waste every day."
  That is DPCC's April 2026 total generation estimate, not the quantity dumped. The reported unprocessed or unrecycled quantity going to dumpsites was 5,422.7 TPD.
- "Delhi had cleared its three landfill mountains by February 2026."
  The Economic Survey reports 120.82 lakh metric tonnes of legacy waste still remaining at the three sites.
- "Indore was ranked India's cleanest city for the eighth consecutive year in Swachh Survekshan 2024-25."
  It led seven consecutive editions through 2023 and entered a separate Super Swachh League in 2024-25.
- "Indore's Bio-CNG plant processes exactly 550 tonnes every day and produces exactly 17,000 kg of gas every day."
  550 TPD is the stated design treatment capacity; the 17,000 kg figure was an announced output estimate at inauguration, not proof of uninterrupted daily production.
- "Delhi's NDMC and MCD received identical Swachh Survekshan results."
  They are distinct local bodies, assessed in different population categories in 2024-25.
- "India's 81% waste-processing figure means 81% of waste is recycled."
  Reported processing covers multiple treatment technologies and is not identical to material recycling.
- "Waste-to-energy plants eliminate the need for landfills."
  Thermal treatment can produce residues and ash requiring appropriate management and disposal; performance depends on feedstock and emissions controls.
- "The Solid Waste Management Rules, 2026, have already eliminated legacy dumpsites."
  The rules impose obligations and remediation processes; legal commencement does not establish completion of physical remediation.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

4.3 If the question changes

If it asks	The structure becomes	What must change
Critically evaluate the Solid Waste Management Rules, 2026	Objectives and legal changes; advances over 2016; implementation barriers; institutional capacity; reforms and judgement.	Put the new regulatory framework at the centre and use Delhi and Indore only as supporting cases.
Examine the **Indore model** of urban waste management	Municipal challenges; segregation and collection model; processing innovations; measured achievements; limitations; replication.	Indore becomes the principal case, with detailed operational processes and evidence.
Why has **Delhi failed to eliminate its landfills?**	Scale and legacy waste; fresh-processing deficit; segregation; existing facilities; biomining progress; financing and coordination; corrective measures.	Distinguish accumulated waste from fresh daily dumping, and recognise progress alongside persistent failures.
Compare **centralised and decentralised** waste treatment	Waste composition; technology pathways; capital and operating costs; environmental effects; Delhi and Indore examples; conditional choice.	The comparison becomes technology-centred rather than a general municipal ranking exercise.
Discuss **circular economy** in municipal waste management	Waste prevention and reuse; source segregation; material recovery; organic processing; EPR; residual disposal; implementation constraints.	Give higher priority to recovered materials and avoided waste, not merely treatment capacity.
Explain **legacy dumpsite remediation** in India	Environmental and health risks; inventory and mapping; biomining; fraction management; site rehabilitation; funding and compliance.	Use Delhi's three dumpsites prominently, with dates and reported remediation balances.
Assess the role of **urban local bodies** in scientific waste management	Constitutional responsibilities; finances; service delivery; contract management; regulatory compliance; citizen participation; city examples.	Institutional design and municipal capacity become the main analytical focus.
Discuss **public participation and informal waste workers**	Household segregation; awareness and incentives; worker safety and formal integration; community monitoring; service accountability.	Put the social and behavioural dimensions at the centre, with technology as a supporting element.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

5

The model answer

One model answer, written to the UPSC Gurus house range of 250 to 253 words (**252 words**, counting every whitespace-separated token, including section numerals, headings, point labels and all table cells; UPSC's printed limit is 250 words). The answer uses headed points for India's challenges and the governmental framework, followed by a compact Delhi-Indore comparison covering initiatives, achievements and limitations. A short final part explains the conditions for replication. The introduction addresses the whole question; the conclusion settles its demand.

Model answer ### Headed points and a two-city comparison **252 words**

India's municipal waste requires segregation, treatment and safe disposal; national rules provide a framework, but Delhi and Indore reveal uneven municipal execution.

1. Challenges in India

- **Generation and segregation:** Mixed wet, dry, sanitary and special-care waste contaminates recoverable material.
- **Collection:** Irregular collection, re-mixing and transport costs hurt underserved settlements.
- **Processing and disposal:** Capacity shortfalls, polluted compost and dumpsite fires, methane and leachate persist.
- **Governance:** Weak municipal finances, fragmented responsibilities, poor contractor oversight and unsafe informal work undermine continuity.

2. Governmental framework

- **Law:** Environment (Protection) Act, 1986; Solid Waste Management Rules, 2026, effective 1 April, mandate four-stream segregation, bulk-generator accountability, online reporting and scientific residual disposal.
- **Programmes:** SBM-Urban 2.0 funds processing and dumpsite remediation; Swachh Survekshan incentivises performance. Local bodies deliver services; CPCB and State boards supervise compliance.

3. Delhi and Indore: initiatives and outcomes

Aspect	Delhi	Indore
Initiatives	Four waste-to-energy plants; MRFs; Ghazipur, Bhalswa and Okhla biomining.	Segregated collection, tracked transport, recycling, composting and 550-TPD Bio-CNG.
Achievements	April 2026: 7,439.3 TPD processed/recycled; accelerated biomining.	Seven consecutive top cleanliness finishes through 2023; Super Swachh League entry in 2024-25.
Gaps	5,422.7 TPD still reached dumpsites; 120.82 lakh tonnes legacy waste remained in February.	Awards do not establish zero residual waste or guarantee worker inclusion and emissions compliance.

4. Conditions for replication

Indore's upstream discipline is transferable, but Delhi needs scale-appropriate facilities, financing, coordinated institutions, audited flows and participation.

Success requires treating segregation, recovery and worker safety as municipal services, while restricting landfills to safe residual disposal rather than shifting today's waste into tomorrow's legacy.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

DEMAND
India's four main waste-management challenges, the operative 2026 governmental framework, and Delhi-Indore initiatives with achievements and limitations

HIDDEN DEMAND
Municipal outcomes depend on segregation, capacity, financing, coordinated implementation and participation; Indore's practices require adaptation to Delhi's scale

STRUCTURE
About three-tenths on challenges, one-fifth on the policy framework, two-fifths on Delhi and Indore, and a short final part on replication

BALANCE
Introduction 22 words, conclusion 26 words; 252 words in all

Why it works: The introduction links the national waste-management challenge to the governmental framework and divergent municipal outcomes. Part 1 identifies four operational obstacles rather than relying on generic statements about littering. Part 2 uses the **Solid Waste Management Rules, 2026**, effective from 1 April 2026, together with SBM-Urban 2.0, Swachh Survekshan and implementation institutions. Part 3, the largest substantive component, compares **initiatives, achievements and limitations** for both Delhi and Indore, using DPCC's April 2026 fresh-waste figures, Delhi's February 2026 legacy-waste balance, Indore's 550 TPD Bio-CNG facility and the 2024-25 Super Swachh League. Part 4 answers the hidden demand by explaining why municipal practices must be adapted to local scale, capacity and participation. The conclusion connects the entire response to scientific processing and prevention of future legacy waste.

6 Other ways to write it

The model answer above remains the answer. These alternatives show how the same demands can be answered through different organisational choices. None changes the required order: challenges, governmental framework, Delhi and Indore, followed by a short assessment of replication.

Approach	How it is built	When it works
Challenge-policy-city matrix	Identify segregation, collection, processing and disposal problems; show the relevant regulatory response beside each; then compare Delhi and Indore through achievements and failures.	When the main strength of the answer is connecting policy instruments to the problems they address.
Waste-management chain	Use a compact sequence: source segregation, collection, treatment and final disposal. Explain where India faces bottlenecks, add the 2026 rules, and use both cities to show contrasting execution.	When a clear process flow helps organise the evidence without crowding out the city comparison.
Two municipal case studies	Give the national challenges and framework first. Then present separate short paragraphs on Delhi's infrastructure and gaps, and Indore's segregation, resource recovery and limitations. End with a direct comparison.	When a table is difficult to draw neatly or when city-specific evidence needs slightly more explanation.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

Approach	How it is built	When it works
Performance-indicator approach	Compare collection, source segregation, processing, residual disposal, legacy remediation and institutional accountability. Attach Delhi's measured processing gap and Indore's operational practices to the appropriate indicators.	When avoiding misleading cleanliness-rank comparisons is the priority.
Open with national progress	Begin with MoHUA's May 2026 figures of 97% ward-level door-to-door collection coverage and 81% municipal waste processing. Contrast this with remaining systemic gaps, then proceed through the three demands.	When a verified national statistic provides a strong opening without becoming a substitute for analysis.
Open with the Delhi-Indore contrast	Introduce Delhi's 42.2% fresh-processing gap against Indore's sustained segregated collection. Explain that differing local outcomes warrant analysis of national problems, the framework and institutional practice.	When the case comparison is used as a concise analytical hook while the body still follows the question's order.

Best alternative to the model answer. A challenge-policy-city matrix offers the strongest causal explanation. It can show why source segregation, financing and processing capacity matter before presenting the different results achieved in Delhi and Indore. Keep the city evidence prominent.

When to avoid a table. If writing speed or handwriting makes a comparison table untidy, use two clearly headed city paragraphs. Maintain equivalent evidence: each must identify initiatives, achievements and limitations, followed by the reasons for different outcomes.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

7 Quick recall and Prelims crossover

Sixteen high-value facts, covering the operative legal framework, national performance indicators and the principal evidence for Delhi and Indore. Dates and figures refer to the specific notifications and reporting periods stated below.

1. **Solid Waste Management Rules, 2026:** notified on **27 January 2026**, S.O. 388(E); effective **1 April 2026**; superseded the 2016 Rules.
2. **Mandatory source segregation: four streams**, wet, dry, sanitary and special-care waste, under the 2026 Rules.
3. **Bulk Waste Generators:** qualifying thresholds include floor area of at least **20,000 sq m**, water consumption of at least **40,000 litres/day**, or waste generation of at least **100 kg/day**.
4. **Regulatory institutions:** CPCB provides central oversight and guidance; SPCBs/PCCs supervise compliance; local bodies organise municipal waste services.
5. **SBM-Urban 2.0:** launched **1 October 2021**; vision of **Garbage-Free Cities**, improved processing and legacy-dumpsite remediation.
6. **Dumpsite Remediation Accelerator Programme:** launched on **8 November 2025** under SBM-Urban 2.0 to accelerate legacy-waste clearance.
7. **National performance:** MoHUA reported **97%** of urban wards covered by door-to-door collection and approximately **81%** municipal waste processing in May 2026.
8. **Indore's collection model:** reported segregation into **six categories**, with door-to-door collection and differentiated treatment of organic, recyclable and other streams.
9. **Delhi's fresh waste generation: 12,862 TPD**, DPCC monthly report for April 2026.
10. **Delhi's reported processing and recycling: 7,439.3 TPD**, or **57.8%** of generation, April 2026.
11. **Delhi's fresh-processing gap: 5,422.7 TPD**, or **42.2%**, going to dumpsites, April 2026.
12. **Source segregation in Delhi:** MCD averaged **59%**; NDMC approximately **92%**, Economic Survey 2025-26.
13. **Delhi's three principal dumpsites: Ghazipur, Bhalswa and Okhla**; **120.82 lakh metric tonnes** remaining in February 2026.
14. **Indore's Bio-CNG plant:** inaugurated **19 February 2022**; designed to treat **550 TPD** of segregated wet organic waste.
15. **Indore's cleanliness recognition:** seven consecutive leading editions, **2017 to 2023**; entered the **Super Swachh League** in 2024-25.
16. **Delhi's processing infrastructure:** four major waste-to-energy facilities at **Okhla, Ghazipur, Bawana and Tehkhand**, alongside MRFs and other processing systems.

THE ONE SENTENCE TO CARRY OUT OF THIS DOCUMENT

Indore shows what disciplined segregation and municipal execution can achieve; Delhi shows why processing capacity, financing and governance must keep pace with the waste a city generates.

What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

8 Write it yourself

Write the answer in 250 words without looking back. Use the same order as the question: challenges, governmental policy framework, Delhi and Indore, and a short final part on replication. Then check it against every line below.

	Check	Yes / No
1	Does the introduction connect **India's municipal waste challenge, the policy framework and differing city outcomes**, without spending too many words on a definition?	
2	Have I covered the four required challenge groups: **generation and segregation; collection and transport; processing and disposal; institutional and financial constraints**?	
3	Have I used the **Solid Waste Management Rules, 2026**, effective 1 April 2026, together with SBM-Urban 2.0 and the responsibilities of implementing institutions?	
4	Does the Delhi part mention **actual initiatives and achievements** as well as the fresh-processing deficit and the remaining legacy dumpsites, with properly dated evidence?	
5	Does the Indore part identify **segregated collection, resource recovery and the Bio-CNG facility**, while distinguishing documented achievements from continuing limitations?	
6	Have I answered the hidden demand by explaining **why outcomes differ and what is necessary to replicate successful practices**, taking account of scale, capacity and participation? Does my conclusion settle the whole question?	
7	Is the answer **250 words or only slightly over**, counting every heading, section numeral, point label and table cell, and have I avoided every inaccurate claim in section 4.2?	

Sources

- **Ministry of Environment, Forest and Climate Change:** Solid Waste Management Rules, 2026, notification S.O. 388(E), dated 27 January 2026, published on 28 January, effective 1 April 2026. Official announcement, including four-stream segregation, bulk waste generators, online monitoring, environmental compensation and institutional responsibilities: pib.gov.in. CPCB's official 2026 Rules portal: swmp.cpcb.gov.in.
- **MoEFCC, parliamentary reply, 30 March 2026:** the 2026 Rules, their commencement date, supersession of the 2016 Rules and the revised regulatory framework: pib.gov.in.
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What are the challenges to solid waste management in India ? Discuss the governmental policy framework on solid waste management. Discuss the success/failure cases of Delhi and Indore cities highlighting the salient feature of their solid waste management initiatives.

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