



# REMEDIATION OF LEGACY WASTE

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## CONTENT

1. Introduction to legacy waste
2. Methods for Remediation of legacy waste
3. Approach & Methodology
4. Steps for Bioremediation and Biomining
5. Points to consider for seamless operations during Project Implementation
6. Models for Remediation of Legacy Waste

# WHAT IS LEGACY WASTE ?

**The previously dumped municipal solid waste that has been collected and kept for years on some barren land or landfill. It is partly or fully decomposed state with no segregation.**



**The Central Pollution Control Board (CPCB) issued a direction in 2021 to all states and union territories**

The Environment (Protection) Act, 1986

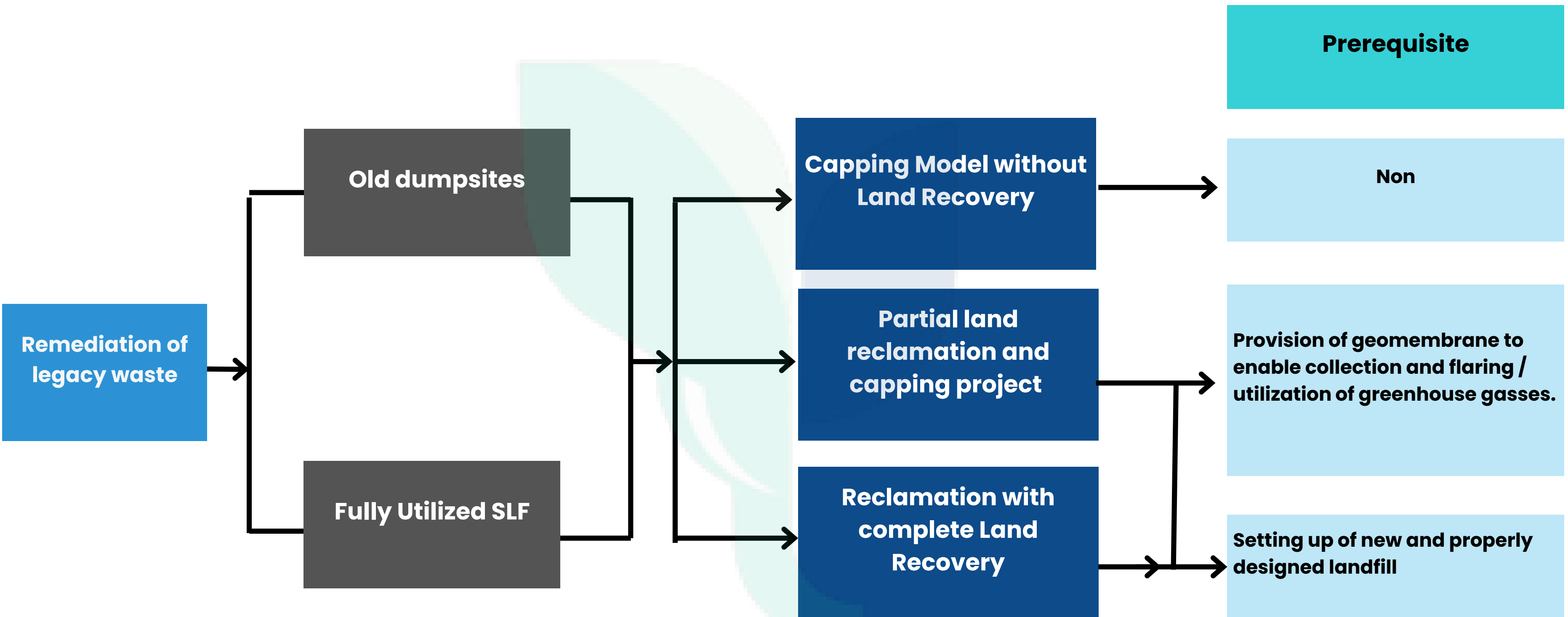
The Water (Prevention and Control of Pollution) Act, 1974

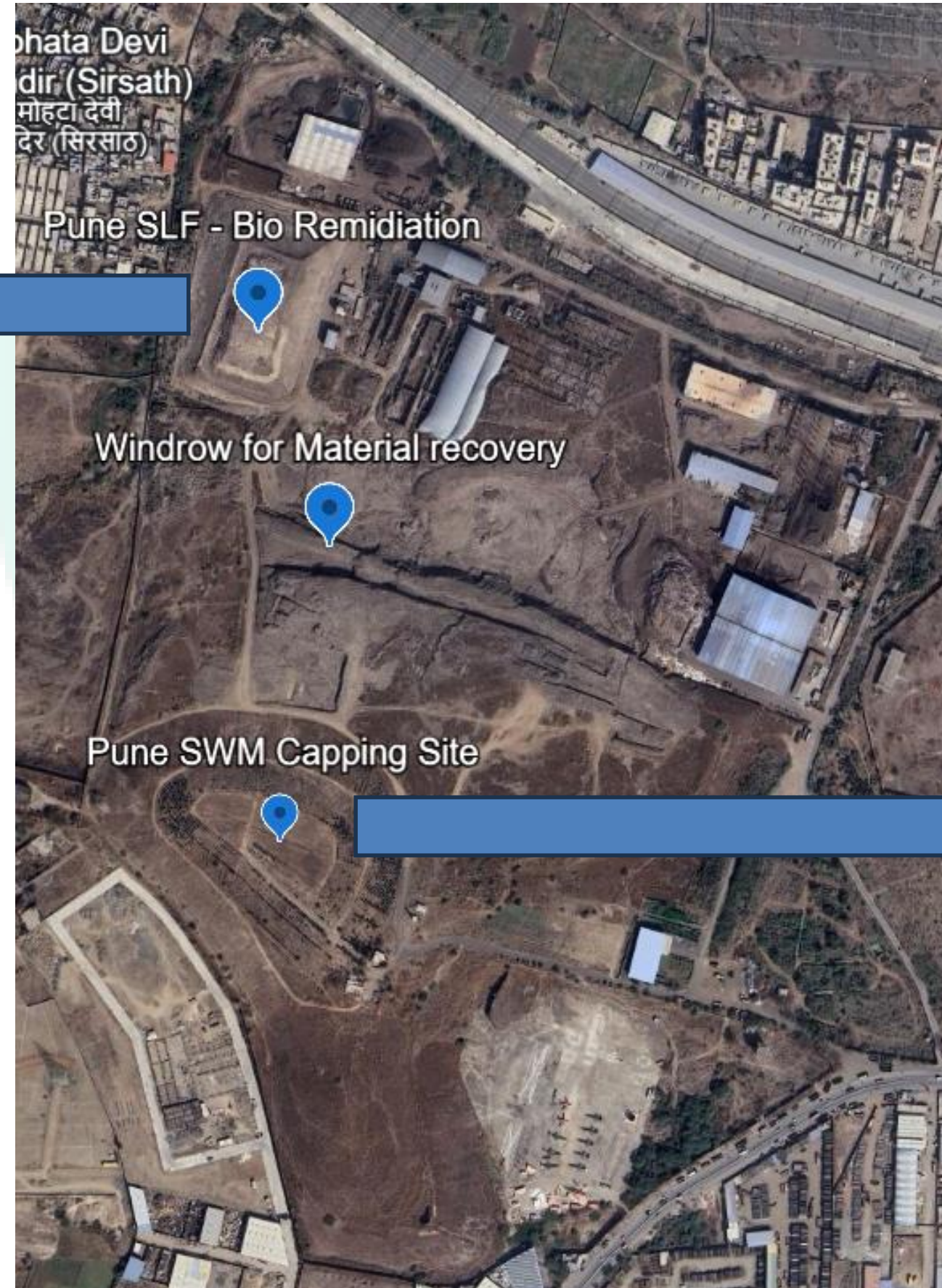
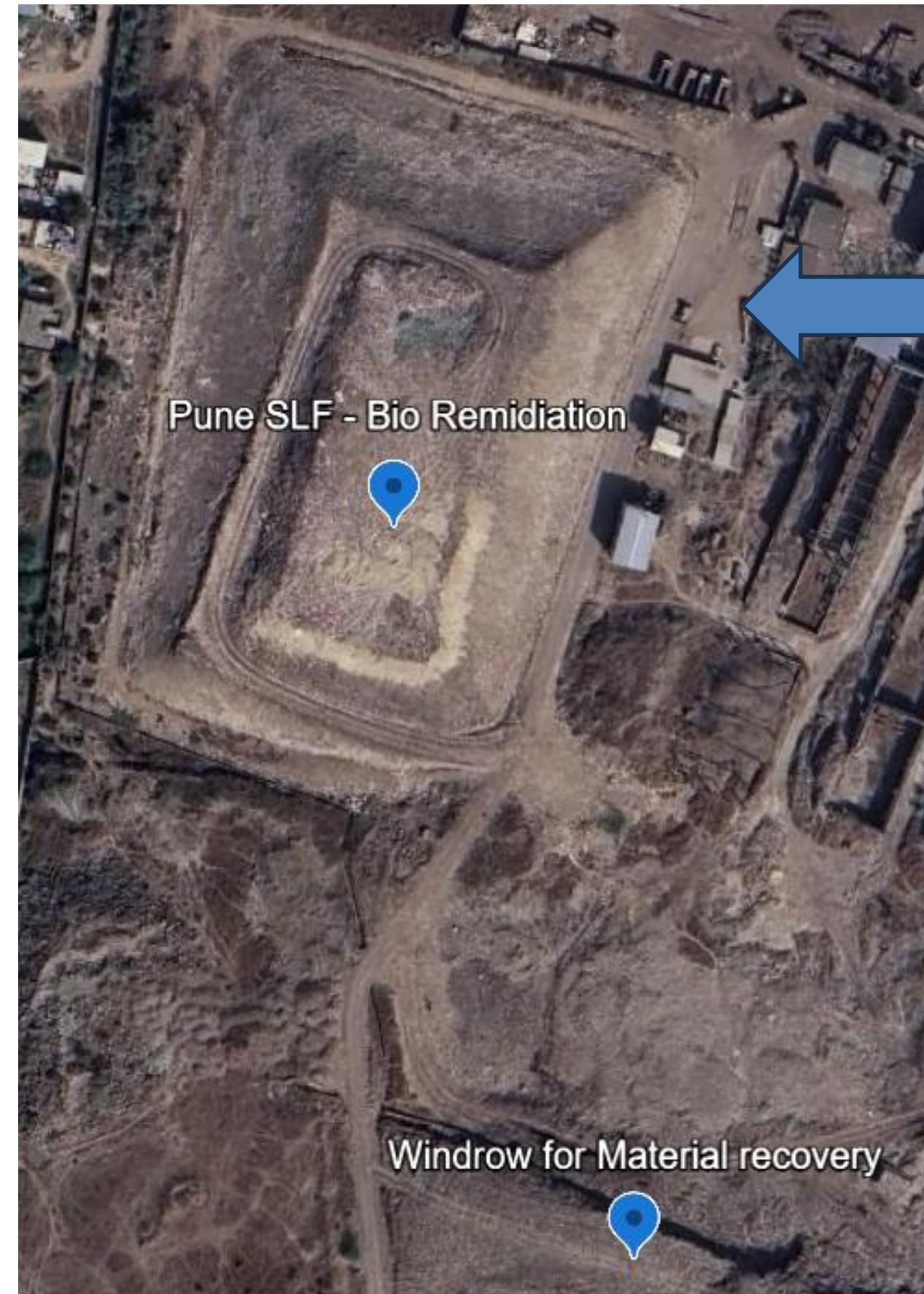
The Air (Prevention and Control of Pollution) Act, 1981

The Public Liability Insurance Act, 1991

The National Green Tribunal Act, 2010

# METHODS FOR REMEDIATION OF LEGACY WASTE





## Reclamation with complete Land Recovery Ahmedabad





**Ahmedabad the entire area was recovered for further processing of waste..**

## Reclamation with complete Land Recovery – Pune



**Pune the legacy waste management Material was recovered and than the balance Inert waste was again filled sent to the SLF.**

# METHODS FOR REMEDIATION OF LEGACY WASTE

Type of Remediation	Advantages	Disadvantages
<p><b>Capping Model without Land Recovery</b></p> 	<ul style="list-style-type: none"> <li>• Can be completed fast</li> <li>• Process requires less environmental clearances</li> <li>• Relatively cheaper</li> <li>• Land capped can be developed into parks/recreational areas</li> </ul>	<ul style="list-style-type: none"> <li>• No land recovery, no financial benefit from land capped (except parks/ recreation)</li> <li>• Regular operation and maintenance required, thus recurring expenditure</li> <li>• Problems with leachate collection and gas generation</li> <li>• Post closure O&amp;M</li> </ul>
<p><b>Partial land reclamation and capping project</b></p> 	<ul style="list-style-type: none"> <li>• Cheaper than 100% reclamation</li> <li>• Can be faster than 100% reclamation</li> <li>• Volume of waste is reduced</li> <li>• Waste segregated is utilized</li> <li>• Improvement in aesthetics and quality of life &amp; health</li> <li>• Land capped can be developed into parks/recreational areas</li> </ul>	<ul style="list-style-type: none"> <li>• Only partial compliance to SWM Rules and NGT orders</li> <li>• Only partial land recovery</li> <li>• Methodology is time taking, extensive work</li> <li>• Disposal of segregated portions is a challenge (transportation etc.)</li> <li>• Industry expertise is limited (only a few contractors)</li> <li>• Difficult to quantify the waste</li> </ul>

## Complete Recovery of Land

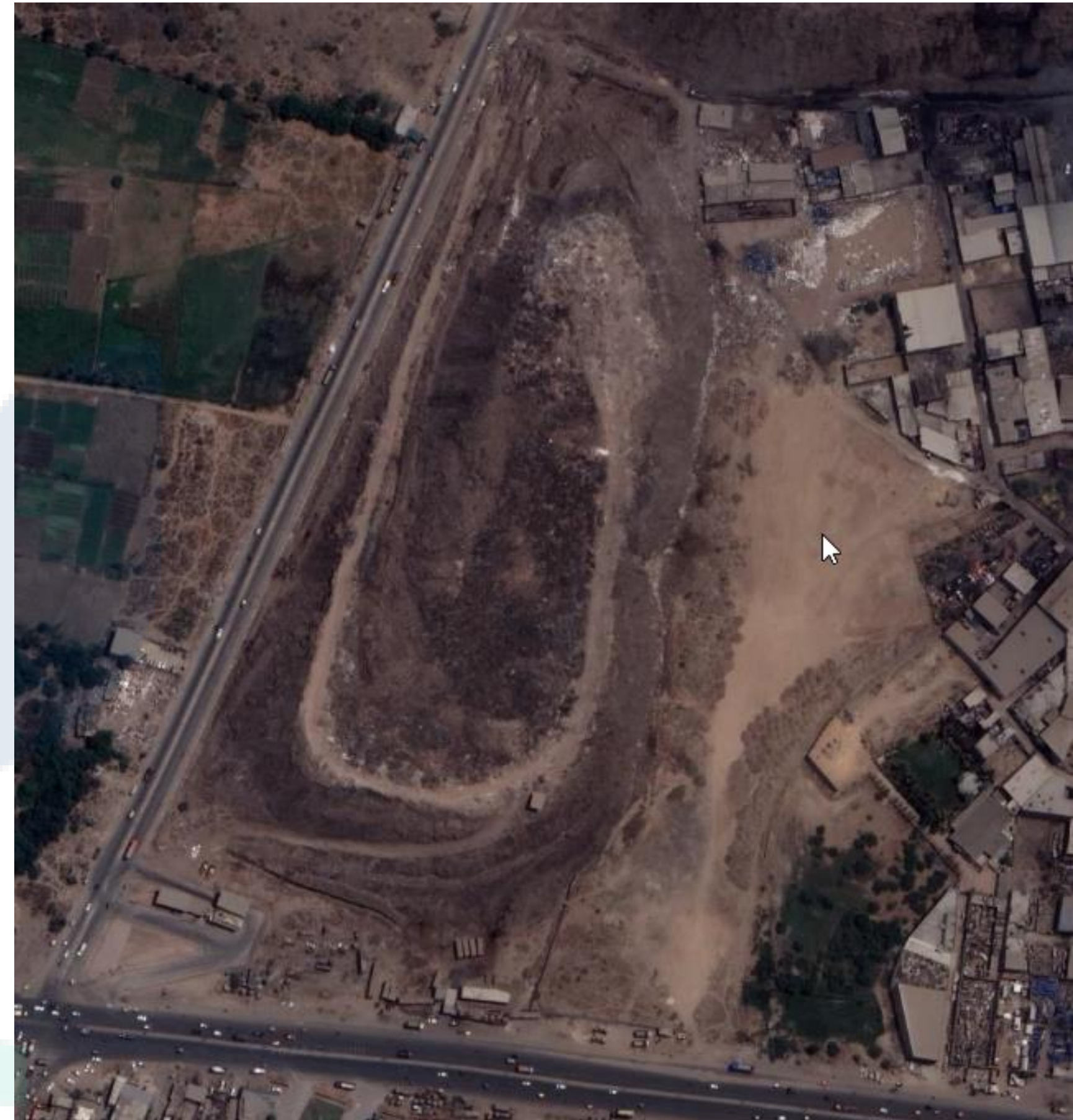
### Advantages

- 100% Land recovery
- Volume of waste is reduced
- Waste segregated is utilized
- End to Environmental management (air, water, soil)
- Increase in land value
- Compliance to SWM Rules and NGT orders
- Improvement in aesthetics and quality of life & health

### Disadvantages

- Expensive, requires heavy machinery
- Methodology is time taking, extensive work
- Disposal of segregated portions is a challenge (transportation etc.)
- Industry expertise is limited (only a few contractors)
- Difficult to quantify the waste. Expensive to weigh all recovered fractions

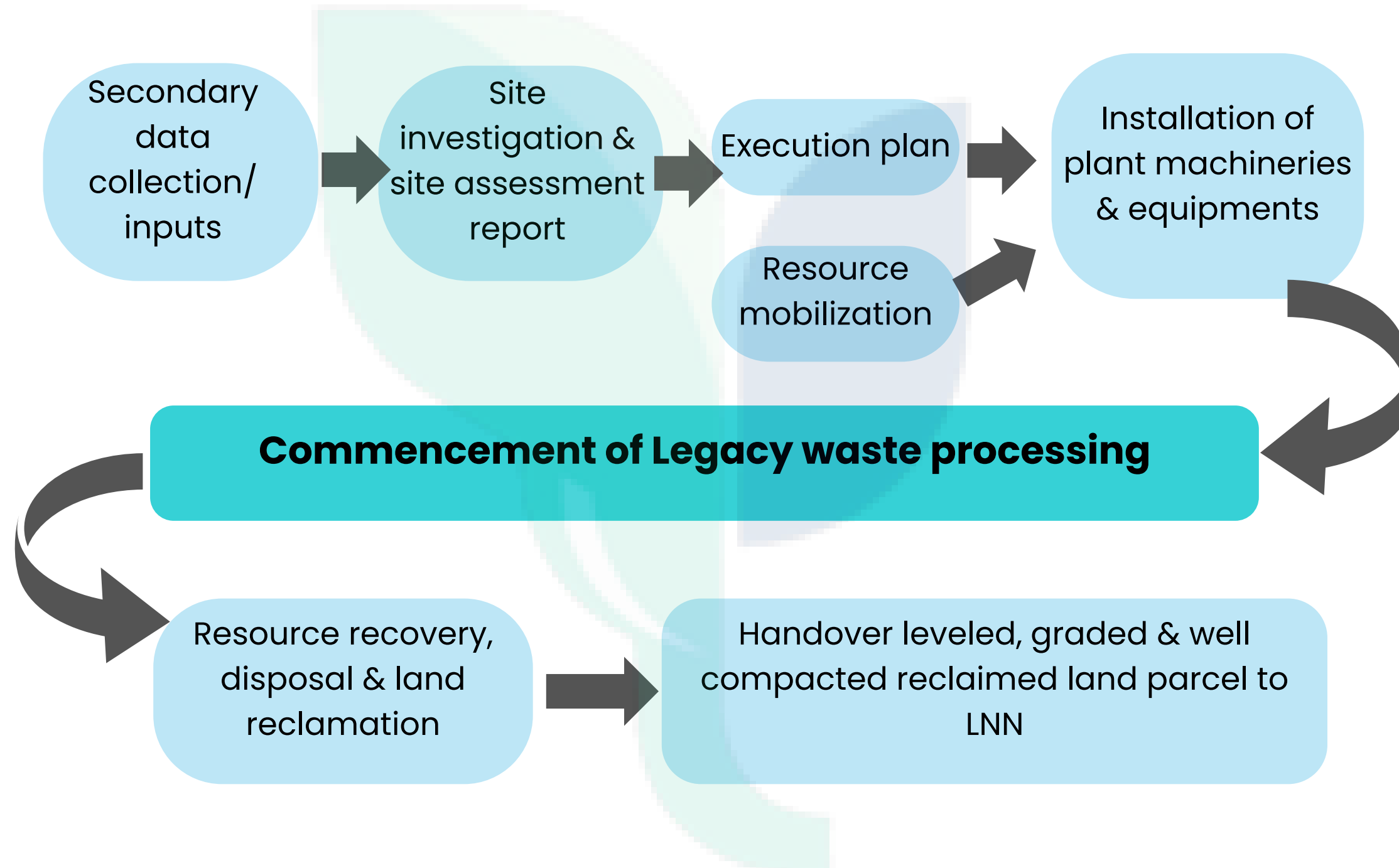
## Ahmedabad Pirana Dumping Site



**Note:** Although capping is mentioned as a method in this advisory, it must be noted that SWM Rules 2016 and NGT have mandated that for remediation of legacy waste dumpsites Bioremediation is preferred over Capping.

# APPROACH & METHODOLOGY

## Project Execution Methodology

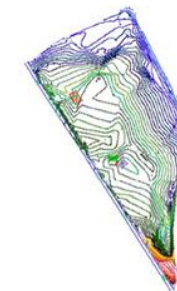


# STEP BY STEP PROCESS OF BIOREMEDIATION ( PROCESSING & DISPOSAL OF LEGACY WASTE IN MANDIDEEP )

**Geo-technical survey/investigation**



Mapping of the location



Contouring of area



**Execution Plan**



**Excavation and formation of windrows**



**Stabilization of legacy waste**



**Screening of excavated waste**



Ballistic separator



Tromell

**Provision of segregated waste**



# Screening of waste

Rotary trommel screen  
(size 85mm, 50mm & 6mm)

Organic fraction

Stabalisation

Soil/good earth

Used as  
compost for  
landscaping/  
farming/soil  
conditioning

Recyclable

Manual sorting

Sorted  
recyclables

Sold to  
authorized  
recyclers

Combustible

Dust removal,  
shredding &  
balling

Refuse derived  
fuel

Sold to cement  
factory/waste to energy  
plant/ industrial fuel for  
thermal applications

Stone/slit/debris

onsite filling for  
construction works

Inert

Capping of inert  
which are non  
biodegradable, non  
recyclables and non  
combustible and non  
reusable



# POINTS TO CONSIDER FOR SEAMLESS OPERATIONS DURING PROJECT IMPLEMENTATION

**Contractual clarity**

**Pre-defined work plan**

**Fresh Waste**

**Space Management**

**Leachate Management**

**Fire Control, Safety and environmental compliance**

**Use of recovered space**

**Odour and Dust Management**

**Linkage of sale/reuse of segregated material**

# MODELS FOR REMEDIATION OF LEGACY WASTE

**Remediation of legacy waste**

**100% Outsourced Model**

**100% Work done by ULB with Rental Equipment**

**Combination of private operator and ULB**