

Transforming Biomedical

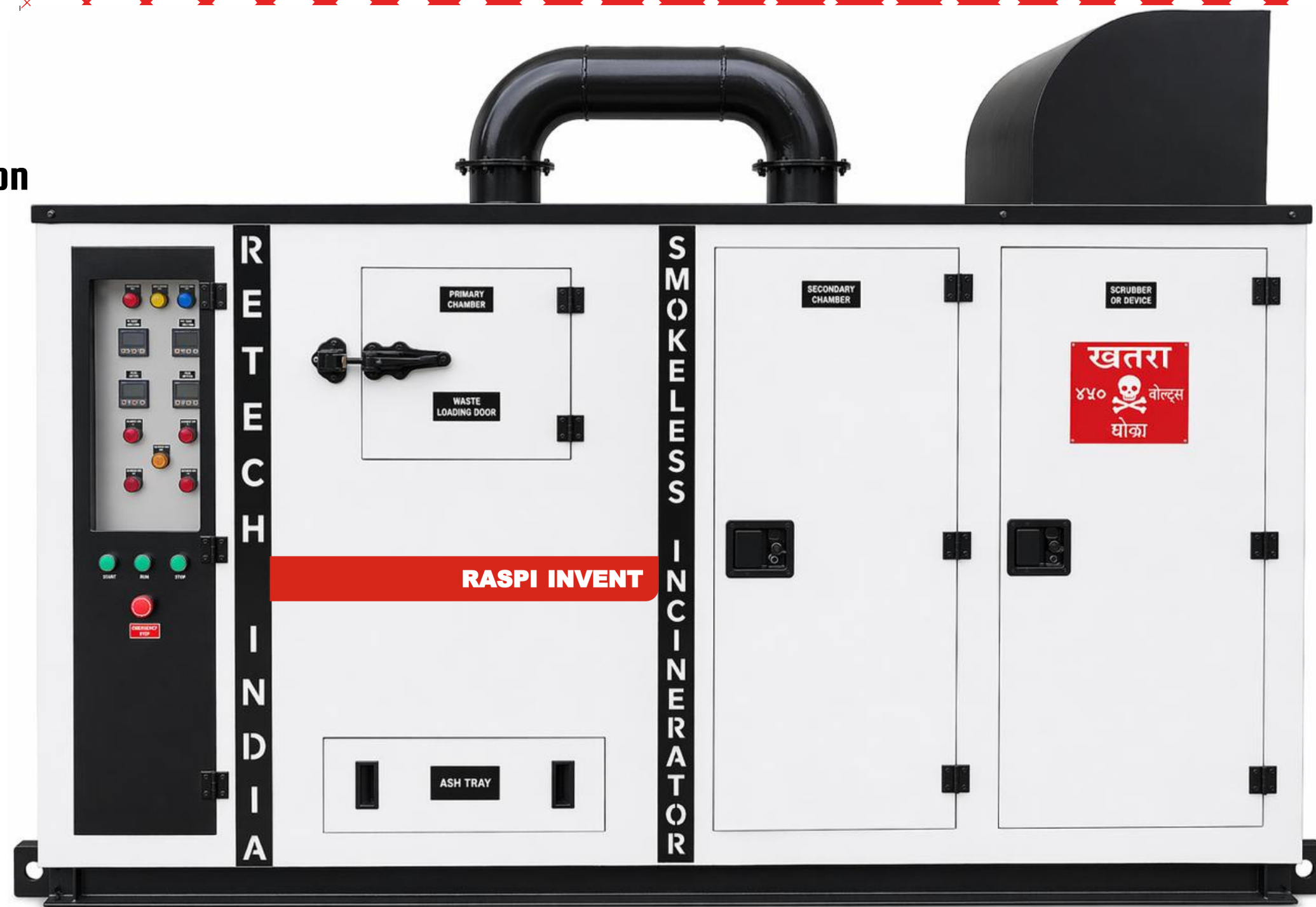
Waste Management

Safe, Compliant and Sustainable Biomedical Waste Treatment Solution



RASPI INVENT

Operational Deployment of Biomedical Waste Incinerators 30+
Units Successfully Deployed



1 BIOMEDICAL WASTE CHALLENGE

Why Safe Biomedical Waste Management is Critical

WHAT HOSPITALS GENERATE

	Infectious Waste	15–20%
	Laboratory Waste	3–5%
	Pathological Waste	1–5%
	PPE & Contaminated Plastics	10–15%
	Sharps & Disposables	1–3%

CURRENT SITUATION



500 Bed Hospital
Generates

250 – 500 kg
Biomedical Waste / Day



INDIA OVERVIEW
700 – 800
TONNES

Biomedical Waste
Generated Daily
(Source: CPCB)

WHY WASTE IS INCREASING



Rise in Disposable
Medical Products



Increased
PPE Usage



Growing Healthcare
Infrastructure



Higher Patient
Footfall



15–20% of Hospital Waste is Hazardous
and Requires Specialized Treatment

2

RISKS OF IMPROPER BIOMEDICAL WASTE MANAGEMENT

Public Health, Environmental & Compliance Risks

PUBLIC HEALTH RISKS

-  Spread of Infection
-  Needle Stick Injuries
-  Risk to Doctors & Healthcare Workers
-  Cross Contamination

ENVIRONMENTAL RISKS

-  Soil Contamination
-  Groundwater Pollution
-  Air Pollution
-  Toxic Residue Generation

COMPLIANCE RISKS

-  BMW Rules 2016 Violations
-  Pollution Control Board Penalties
-  Increased Transportation Cost
-  Legal & Reputational Risk

IMPACT IN NUMBERS



1000+

Healthcare Workers
Potentially Exposed



500–1000 kg

Waste Generated
Daily per 1000 Beds



20–30%

Higher Cost Due to
Improper Handling



Compliance
is Mandatory



One kilogram of improperly managed infectious waste can contaminate **several kilograms** of general waste, significantly increasing health and environmental risks.

1

BIOMEDICAL WASTE CHALLENGE

Hospitals Generate Hazardous Waste Every Day

MAIN WASTE CATEGORIES

	Infectious Waste	15–20%
	Laboratory Waste	3–5%
	PPE & Contaminated Plastics	10–15%
	Sharps & Disposables	1–3%



KEY STATISTICS



500 Bed Hospital
Generates

250–500 kg

Biomedical Waste / Day



India

700–800 Tonnes

Biomedical Waste
Generated Daily



15–20% of Hospital Waste Requires Specialized Treatment

2

WHY SAFE BIOMEDICAL WASTE MANAGEMENT MATTERS :

Risks of Improper Disposal



PUBLIC HEALTH



Infection Spread



Needle Stick Injuries



Risk to Healthcare Workers



ENVIRONMENT



Soil Contamination



Groundwater Pollution



Air Pollution



COMPLIANCE



BMW Rules 2016



Pollution Control Board Norms



Legal & Financial Risk

IMPACT



1000+

Workers Potentially Exposed



20–30%

Higher Cost Due to
Poor Waste Handling



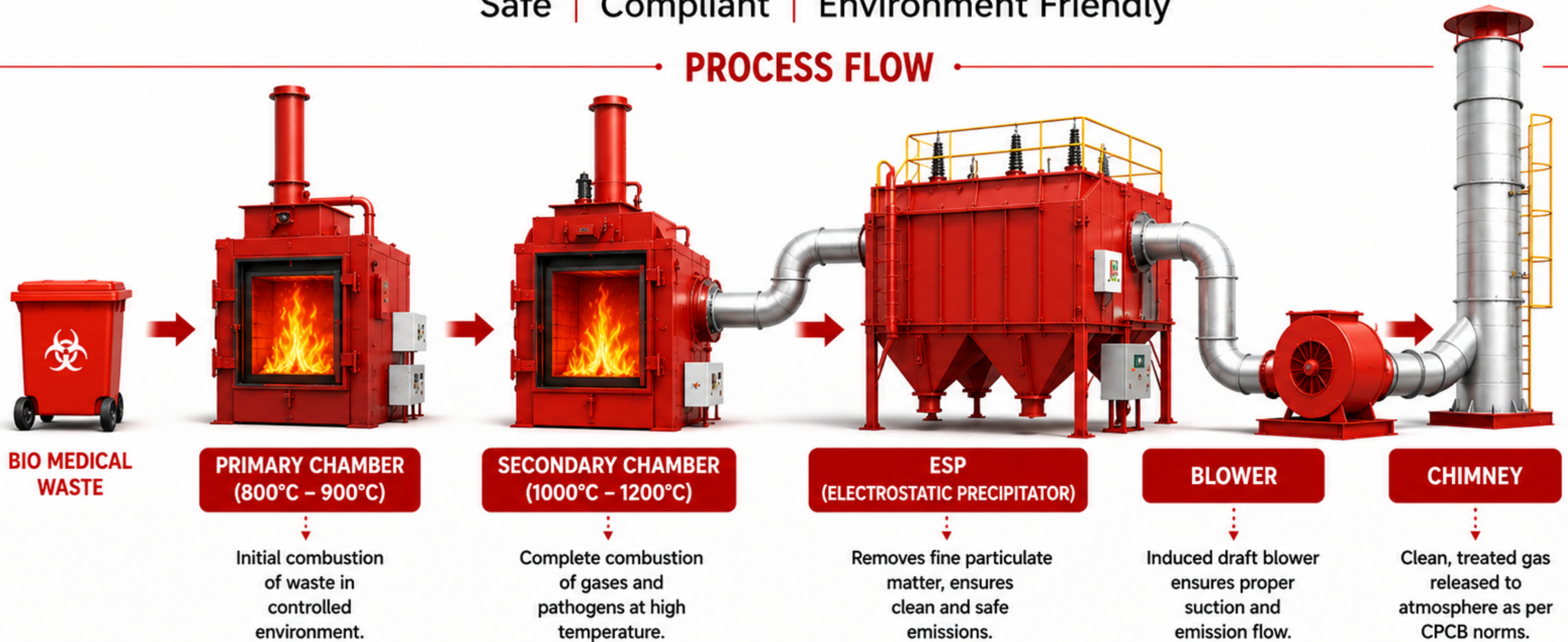
Safe Treatment Protects People, Environment & Public Health



BIO MEDICAL WASTE INCINERATION SYSTEM – PROCESS FLOW

Safe | Compliant | Environment Friendly

PROCESS FLOW



Dual Chamber
High Temperature
Combustion



Automatic
Temperature
Control



PLC Based
Automation
System



Low Smoke
& Odour
Operation



Low Maintenance
& Easy
Operation



Compliant with
BMW Rules 2016
& CPCB Norms



Our Commitment: Protecting Health, Environment & Community through Safe Waste Management

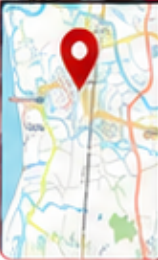


PROVEN DEPLOYMENT SUCCESS

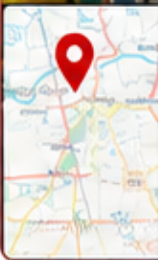
30+ BIOMEDICAL INCINERATORS SUCCESSFULLY DEPLOYED

Delivering Safe, Compliant & Reliable Biomedical Waste Treatment Solutions

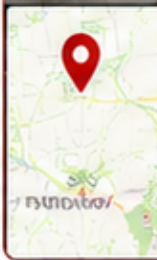
DEPLOYMENT AT CUSTOMER SITES



Valsad, Gujarat
Gmers Medical College,
Jivan Nagar Society,
Valsad - 396001, Gujarat
Lat 20.591891° Long 72.921565°
07/05/2026 01:09 PM GMT+05:30



Navsari, Gujarat
603, Station Rd, Udyog Nagar,
Asha Nagar, Navsari - 396445, Gujarat
Lat 20.947766° Long 72.917645°
06/05/2026 04:37 PM GMT+05:30



Ahmedabad, Gujarat
Civil Hospital Campus,
Asarva, Ahmedabad - 380016, Gujarat
Lat 23.022505° Long 72.626095°
05/05/2026 11:45 AM GMT+05:30

DEPLOYMENT SUMMARY

PARAMETER	STATUS
 Deployments Completed	30+
 Operational Status	Active
 Local Support	Available
 Technology Validation	Completed
 Customer Satisfaction	High

KEY HIGHLIGHTS

- ✓ High Temperature Dual Chamber Incineration
- ✓ Compliant with BMW Rules 2016 & CPCB Norms
- ✓ Minimal Emission with Advanced Pollution Control
- ✓ Low Maintenance & High Operational Reliability
- ✓ Supporting Hospitals in Achieving Zero Risk Disposal
- ✓ Trusted by 30+ Healthcare Institutions

TRUSTED BY HEALTHCARE INSTITUTIONS



30+
Installations
Across India



Medical Colleges
& Hospitals
Across States



Serving Government
& Private Healthcare
Institutions



Strong After-Sales
& Service Support
Network



Our Commitment:
Protecting Health, Environment &
Community through Safe Waste Management



Reliable Performance



Environment Friendly



Safe & Compliant



Backed by Strong
Service Support

MADE IN INDIA. BUILT FOR A CLEANER TOMORROW.



1 CURRENT CHALLENGE

Unsafe handling of biomedical waste puts lives, health and environment at risk



Generated Daily in Hospitals **250-500 kg**
(500 Bed Hospital)



15-20% of hospital waste is hazardous (Infectious, Pathological, Lab, Sharps, PPE)



Risks of Improper Handling

- Infection Spread
- Needle Stick Injuries
- Cross Contamination



Environmental Impact

- Soil & Water Pollution
- Air Pollution
- Toxic Residues



Compliance Risk

- BMW Rules 2016 Violations
- Legal & Financial Penalties
- Reputational Risk



Urgent Need:
Safe, Compliant & Sustainable
Biomedical Waste Treatment

2 OUR SOLUTION

Smart, Safe & Compliant Incineration System with IoT Enabled Monitoring



High Temperature
Dual Chamber
Incineration
(800°C - 1200°C)



IoT Enabled
24x7 Remote
Monitoring &
Control



Continuous Emission
Monitoring with
ESP & IoT Sensors



Compliant with
BMW Rules 2016
& CPCB Norms



Real-time Data,
Reports & Alerts
on Dashboard



Low Maintenance
| High Reliability |
Long Life



Transforming Waste into
Safe, Compliant & Sustainable Solution

3 COMPARISON

Conventional vs Our Smart Incinerator

FEATURE	CONVENTIONAL SYSTEM	OUR SMART SYSTEM
Temperature Control	Manual / Irregular Low Efficiency	Automated High Temperature (800-1200°C)
Emission Control	Basic / Without ESP High Pollution	Integrated ESP + IoT Low Emission
Monitoring	Manual No Real-time Data	IoT Enabled 24x7 Remote Monitoring
Compliance	Risk of Non-Compliance Penalties	BMW Rules 2016 & CPCB Compliant
Maintenance	High Frequent Breakdowns	Low Predictive Maintenance
Operating Cost	High More Manpower	Low Cost Efficient
Environmental Impact	High Pollution Harmful Residues	Low Pollution Eco-friendly
Data & Reports	Manual Records Delayed	Real-time Reports On Dashboard



Smart Technology for a
Cleaner, Safer & Healthier Tomorrow

ADVANCED BIOMEDICAL WASTE TREATMENT TECHNOLOGY

Smart • Compliant • Environment Friendly



DUAL CHAMBER INCINERATION

- Primary Chamber: 800–900 °C
- Secondary Chamber: 1000–1200 °C
- Complete destruction of infectious waste



ELECTROSTATIC PRECIPITATOR (ESP)

- Advanced smoke and particulate control
- Reduced visible emissions
- Improved environmental performance



IOT ENABLED MONITORING

- Real-time temperature monitoring
- Remote operational monitoring
- Cloud connectivity
- Mobile alerts & notifications



DIGITAL DASHBOARD

- Waste treatment records
- Temperature logs
- Compliance reports
- Analytics & maintenance alerts



SYSTEM ARCHITECTURE



HIGH TEMPERATURE
DESTRUCTION



REDUCED SMOKE
EMISSION



REAL-TIME
MONITORING



REGULATORY
COMPLIANCE



LOW
MAINTENANCE



MADE IN
INDIA TECHNOLOGY

“ Combining High-Temperature Incineration, Pollution Control and IoT Monitoring into a **single integrated** , ,
biomedical waste treatment platform. ”

TODAY'S PROBLEM & OUR SOLUTION

TODAY'S CHALLENGES

-  Rising Biomedical Waste Generation
-  Unsafe Handling & Infection Risk
-  High Transportation Cost & Dependency
-  Inadequate On-site Treatment
-  Compliance & Reporting Difficulties
-  Environmental Pollution & Public Concern



OUR SOLUTION

-  Smart & Automated System with IoT Monitoring
-  High Temperature Treatment Ensures Safety
-  On-site Treatment Reduces Transport & Cost
-  No Temporary Storage Waste Treated Immediately
-  100% Compliance with BMW Rules 2016
-  Clean Emission, Eco-friendly & Community Safe



Transforming Waste Management into a Safer, Compliant & Sustainable Solution

SCALABILITY & FUTURE ROADMAP

SCALABILITY PATH

-  **2025**
Hospitals
-  **2026**
Medical Colleges & Large Institutions
-  **2027**
District Hospitals & Cluster Deployment
-  **2028**
Smart Cities & Urban Local Bodies
-  **2029**
State-wide Rollout
-  **2030**
National Network & Digital Integration

FUTURE IMPACT

-  Increased Treatment Capacity Across the Country
-  Decentralized Treatment Infrastructure
-  Real-time Data & Decision Support for Authorities
-  Reduced Emissions & Cleaner Environment
-  Cost Effective & Sustainable Waste Management Ecosystem

OUR VISION



A future where every healthcare facility in India has access to safe, smart & sustainable biomedical waste treatment.



Smart Today. Scalable Tomorrow. Sustainable Forever.



GLOBAL SYSTEM COMPARISON

COUNTRY	CURRENT APPROACH	KEY STRENGTHS	KEY CHALLENGES
 INDIA	Centralized CBWTF + Limited On-site Treatment	 Regulatory Framework Improving	 Transportation, Delays, High Logistics Cost
 USA	High Temperature Incineration + Emission Monitoring	 Advanced Technology & Automation	 High Operating Cost
 GERMANY	Automated Thermal Treatment Systems	 High Environmental Standards	 Expensive Infrastructure & Maintenance
 JAPAN	Compact Smart Incineration Systems	 Space Efficient & Reliable	 Space Constraints in Dense Cities
 SINGAPORE	Digitally Monitored Waste Processing	 Digital Compliance & Transparency	 High Capital Investment

EMERGING GLOBAL TRENDS



Decentralized Treatment



Real-time Monitoring



Emission Controlled Systems



Digital Compliance Reporting



Smart Infrastructure Integration



EXECUTIVE MESSAGE

The future of biomedical waste management is not simply waste disposal. It is intelligent, connected, emission-controlled infrastructure that combines treatment, compliance, monitoring, analytics, and sustainability into a single platform.

IMPACT CREATED & FUTURE OF BIOMEDICAL WASTE MANAGEMENT

Proven Technology Driving Safer Healthcare & Sustainable Waste Treatment

GLOBAL SYSTEMS COMPARISON

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 INDIA	Centralized CBWTF + Limited On-site Treatment	 Regulatory Framework	 Transportation, Delays, High Logistics Cost
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 GERMANY	Automated Thermal Treatment Systems	 High Environmental Standards	 Expensive Infrastructure
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 SINGAPORE	Digitally Monitored Waste Processing	 Digital Compliance & Monitoring	 High Capital Investment

EMERGING GLOBAL TREND



TODAY'S WASTE MANAGEMENT (TRADITIONAL)



FUTURE WASTE MANAGEMENT (SMART & CONNECTED)



IMPACT CREATED BY RASPIINVENT SMART INCINERATOR



ENVIRONMENTAL IMPACT

- ✓ Reduces infectious waste volume by up to 90–95%
- ✓ Reduces transportation-related emissions
- ✓ ESP reduces particulate emissions significantly
- ✓ Cleaner hospital surroundings



HEALTHCARE IMPACT

- ✓ Reduces exposure risk for healthcare workers
- ✓ Minimizes infection transmission pathways
- ✓ Faster disposal of infectious waste
- ✓ Improves regulatory compliance



ADMINISTRATIVE IMPACT

- ✓ Real-time monitoring & operational visibility
- ✓ Mobile alerts & notifications
- ✓ Digital records and reporting
- ✓ Data-driven decision making

WHY THIS TECHNOLOGY WILL SCALE

KEY GROWTH DRIVERS

-  Increasing Hospital Infrastructure
-  Stricter Pollution Control Regulations
-  Smart Hospital Initiatives
-  Digital Health Mission
-  Sustainability & ESG Requirements
-  Need for Decentralized Treatment

FUTURE ADOPTION POTENTIAL (Next 10 Years)



SCALABLE FOR THE FUTURE

- ✓ Modular & Compact Design – Easy to Scale
- ✓ Suitable for Hospitals, Clinics, Labs & Healthcare Campuses
- ✓ Decentralized Model – Reduces Load on CBWTFs
- ✓ Replicable Across Urban, Rural & Remote Areas
- ✓ Supports National Goals of Waste to Energy & Atmanirbhar Bharat



EXECUTIVE MESSAGE

The future of biomedical waste management is not simply waste disposal. It is intelligent, connected, emission-controlled infrastructure that combines treatment, compliance, monitoring, analytics, and sustainability into a single platform.



STRATEGIC OUTCOME

RaspiInvent's Smart Biomedical Waste Treatment System aligns with the same direction being adopted by advanced healthcare systems globally—decentralized treatment, digital compliance, pollution control, and real-time operational visibility.



SAFER HOSPITALS



CLEANER ENVIRONMENT



SMART GOVERNANCE



SUSTAINABLE FUTURE



MADE IN INDIA TECHNOLOGY

BUILDING A HEALTHIER TOMORROW THROUGH SMART, SAFE & SUSTAINABLE WASTE MANAGEMENT