Engineering Solutions for a
Circular & Sustainable Indonesia

CENTRA REKAYASA ENVIRO

Total Solutions for Environmental & Industrial Waste Management

Advanced, eco-friendly technologies and professional services to support the long-term sustainability of your business.

www.cr-enviro.com

PT. Centra Rekayasa Enviro

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EXECUTIVE SUMMARY

PT Centra Rekayasa Enviro (CRE) is an international-standard environmental engineering company focused on integrated solutions for industrial waste, hazardous waste (B3), medical waste, and domestic municipal waste. With more than a decade of experience and complete ISO certifications, CRE has grown into one of Indonesia’s leading providers of waste-management technology.

Through strategic partnerships with two global principals—China GDE for Waste-to-Energy (WtE) technology and Jiangsu Zhongding for fluidized bed systems, rotary kilns, and sludge-drying technology—CRE delivers world-class thermal treatment solutions for both industry and regional governments.

In the domestic sector, CRE developed the Satu Rasa Ecosystem, a comprehensive model for household waste management based on simple, efficient, low-cost, and sustainable technology. This innovation is strengthened by Sampah Watch, a national digital platform providing waste intelligence, traceability, ESG reporting, and carbon-economy valuation.

Together, this portfolio positions CRE as a one-stop waste-to-resource provider capable of integrating engineering technology, operational services, digitalization, and energy recovery—supporting Indonesia’s national agenda toward a green economy and Net-Zero 2060.

COMPANY OVERVIEW

OUR STORY

PT Centra Rekayasa Enviro (CRE) is an integrated environmental engineering company focused on developing waste-treatment technologies for industries, hospitals, industrial estates, and regional governments throughout Indonesia. Established in 2013, CRE has grown into a comprehensive solutions provider that combines mechanical–electrical engineering, equipment manufacturing, thermal-treatment technology, digital integration, and energy and resource recovery. With a fabrication workshop based in Bandung and a nationwide technical network, CRE is capable of designing, manufacturing, and operating various waste-treatment systems such as hazardous & medical incinerators, waste-to-energy (WtE) facilities, RDF lines, sludge-drying systems, industrial WWTPs, used-oil recovery units, and FABA recycling systems. All engineering and production processes follow ISO 9001, ISO 14001, and ISO 45001 standards to ensure quality, safety, and environmental compliance.

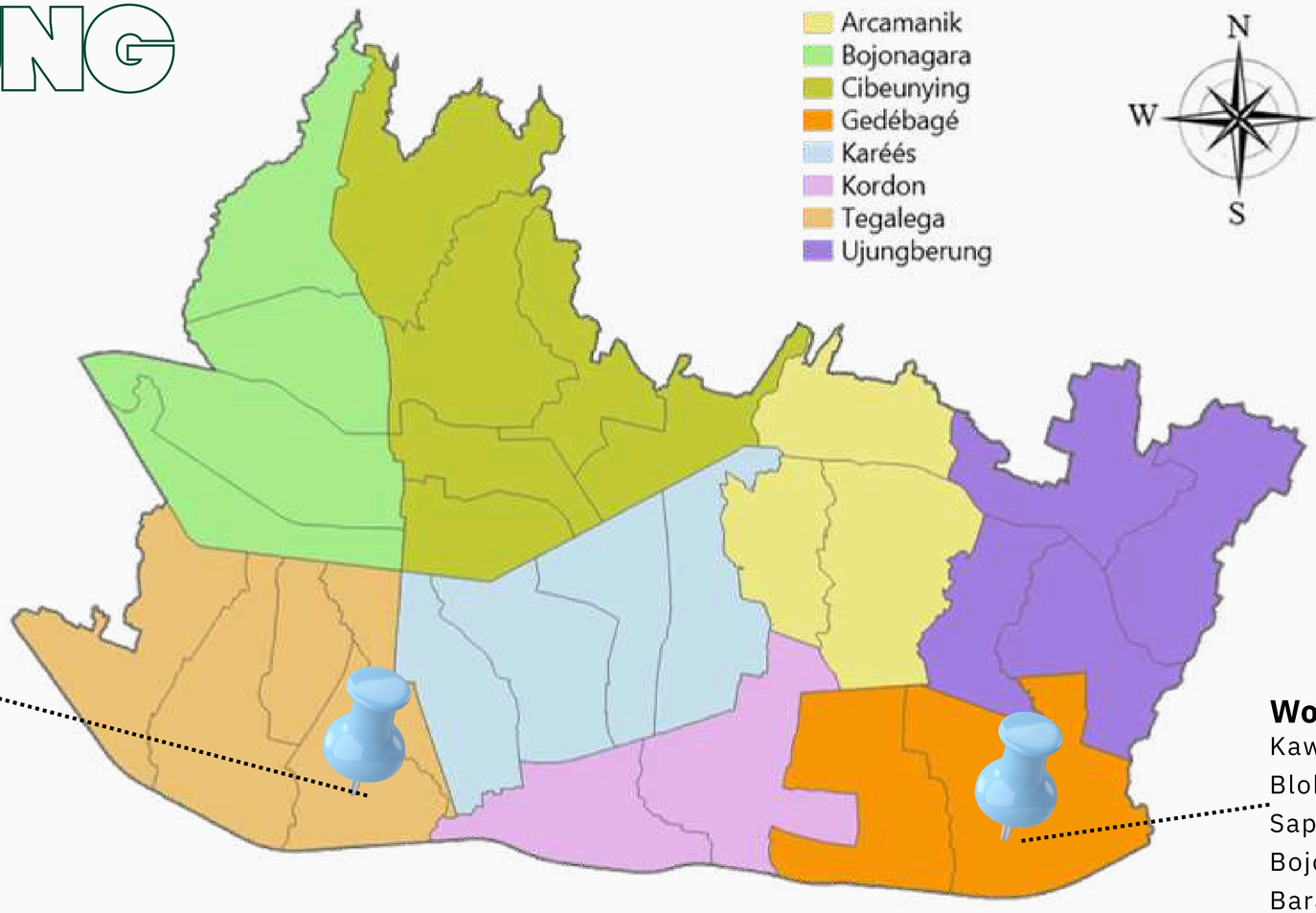
CRE also serves as an official technology partner to leading international principals: China GDE for large-scale WtE facilities, and Jiangsu Zhongding Environmental Engineering for fluidized bed systems, rotary kilns, and integrated sludge-drying–incineration systems. These collaborations strengthen CRE’s ability to provide globally proven technologies tailored to Indonesian regulations.

Domestically, CRE introduced the Satu Rasa Ecosystem as a community-based household waste-management model featuring efficient, sustainable, and locally adaptable technologies. This ecosystem is enhanced by Sampah Watch, a digital platform providing waste traceability, ESG reporting, and carbon-economy analytics to ensure every waste-treatment activity is measurable, transparent, and verifiable.

Through the combination of engineering, global technology partnerships, digitalization, and circular-economy principles, CRE stands as a strategic partner for industry and government in accelerating Indonesia’s transition toward modern waste-management systems and a sustainable green economy.

BANDUNG

City



Head Office

Jl. Mekar Agung, Ruko Taman Mekar Agung No 42, Mekarwangi, Bojongloa Kidul, Kota Bandung, Jawa Barat 40237, Indonesia

Workshop

Kawasan Industri Deprima Terra Blok E1 No 11, Jalan Raya Sapan No.1A, Tegalluar, Bojongsoang, Bandung, Jawa Barat 40287, Indonesia

Our Operations

VISION, MISSION & CORE VALUES

VISION

To become the leading integrated environmental engineering company in Southeast Asia, driving the transformation of waste management toward a circular economy, clean energy, and national sustainability.

MISSION

- Deliver innovative, safe, and environmentally compliant waste-treatment solutions through modern engineering technologies and international best practices.
- Develop fully integrated waste-management systems from upstream to downstream—including design, manufacturing, installation, operations, digitalization, energy recovery, and material recovery.
- Support government, industry, and communities in establishing transparent, efficient, and sustainable waste-management systems powered by data and digital technology.
- Build a circular-economy ecosystem that promotes waste reduction, increased recycling, energy utilization, and carbon-economic value creation.
- Cultivate a corporate culture rooted in quality, safety, continuous innovation, and responsible governance.

CORE VALUES

Integrity & Responsibility
Upholding honesty, regulatory compliance, and moral responsibility toward the environment, society, and future generations.

Engineering Excellence
Committed to precise, measurable, and internationally standardized design and manufacturing, supported by experienced professionals and ISO-based processes.

Sustainability & Circular Thinking
Committed to precise, measurable, and internationally standardized design and manufacturing, supported by experienced professionals and ISO-based processes.

Innovation & Continuous Improvement
Developing new technologies—through internal R&D, global collaborations, and digitalization—to deliver increasingly efficient and effective solutions.

Collaboration & Partnership
Building strategic partnerships with industries, governments, global principals, funding institutions, and communities to strengthen long-term impact.

Safety First
Prioritizing operational safety through a comprehensive OHS management system, continuous training, and risk-based work procedures.

LEADERSHIP & MANAGEMENT TEAM

LEADERSHIP

IR. HARI RACHMAT

SALES & ENGINEERING DIRECTOR

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MAX WILLIAM LAWENDATU S.E.

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SCAN ME

PT Centra Rekayasa Enviro (CRE) is led by a management team with extensive experience in environmental engineering, industrial equipment manufacturing, hazardous and medical waste management, waste-to-energy technology, and the development of digital ecosystems and circular-economy models. The leadership of CRE emphasizes integrity, innovation, and sustainability as the core foundations of the company’s growth.

The management team combines technical expertise, long-term operational experience, strategic capabilities in international partnerships, and deep understanding of Indonesian environmental regulations. With a data-driven approach and a culture of continuous improvement, CRE ensures that every project is executed with high quality, full compliance, and maximum value for clients.

OUR BRAND

PT Centra Rekayasa Enviro develops a portfolio of technology brands that provide clear identity, strong positioning, and differentiated solutions for industries, governments, and investors. Each brand represents a specific solution within the modern waste-management ecosystem.

Phoenix Incinerator
Hazardous & Medical Waste Incinerator

Phoenix is CRE's proprietary incinerator line designed to treat medical waste, pharmaceutical waste, chemical waste, and industrial hazardous waste.

Key characteristics:
- Small to medium capacities (≤1 ton/hour)
- Emission-compliant with MoEF Regulation No. 06/2021
- Modular, compact, and easy to operate
- Modern APC systems (Dry / Semi-Dry / Wet)
- Available in fully automatic and semi-automatic variants

Phoenix represents CRE's core expertise in thermal technology.

Electric Eel
Electrocoagulation Wastewater Treatment System

Electric Eel is the official brand for CRE's electrocoagulation-based WWTP technology, widely used in industries, commercial sectors, and public facilities.

Key advantages:
- Rapid removal of TSS, COD, color, and oil/grease
- Small footprint & plug-and-play installation
- Can be integrated with biological or filtration units
- Ideal for textile, laundry, automotive, F&B, and mixed industrial wastewater

It has become the preferred solution for efficient and stable wastewater treatment.

Satu Rasa – Sampah Tuntas, Rakyat Senang
Decentralized Domestic Waste Ecosystem

Satu Rasa is a domestic-waste ecosystem model designed for villages, sub-districts, small islands, and micro-regions.

Ecosystem elements:
- Community-based waste collection & sorting
- Modular waste station units
- Domestic incinerators + APC
- Local workforce training programs
- Hygienic improvement & 90–95% waste-volume reduction

Satu Rasa offers practical solutions for areas without landfills or with very limited landfill capacity.

Sampah Watch
Digital Waste Intelligence & ESG Platform

Sampah Watch is a national digital platform enabling transparency, efficiency, and accountability in waste management.

Key features:
- End-to-end waste traceability
- IoT monitoring for CRE equipment
- Emission & performance dashboards
- Automated ESG reporting
- Carbon analytics & NEK integration

Sampah Watch interconnects all CRE technologies into a digital ecosystem that is auditable and easy to validate.

CERTIFICATIONS & COMPLIANCE

Engineering Reliability Backed by International Standards and National Regulations

PT Centra Rekayasa Enviro operates according to the highest standards of quality, safety, and environmental compliance. Every product, process, and project follows Indonesian regulations as well as international standards to ensure safe, stable, and reliable outcomes.

We are fully certified with:

- ISO 9001:2015 – Quality Management System
- ISO 14001:2015 – Environmental Management System
- ISO 45001:2018 – Occupational Health & Safety Management System

Association Membership Certificates

Regulatory Mastery as Core Competency

CRE not only complies with regulations — CRE understands them deeply. Our regulatory mastery is a core competency that strengthens every project we deliver.

CRE's compliance strengths include:

- Experience preparing Pre-FS, FS, UKL-UPL, and operational licensing documents
- Designs aligned with sectoral emission and discharge standards
- Technical consultation support during audits and inspections
- Digital reporting integration via Sampah Watch to enhance transparency and accountability

The combination of engineering capability and regulatory expertise is a key differentiator that sets CRE apart from other technology vendors.

GLOBAL PARTNERS & TECHNOLOGY COLLABORATION

Combining Indonesian Engineering Strength with World-Class Technology

To meet the needs of small- to large-scale waste-processing facilities, CRE partners with leading international principals in thermal technology, waste-to-energy (WtE), and sludge-management systems. These collaborations ensure every CRE project delivers global quality, high reliability, and optimized operational costs while fully complying with Indonesian regulations.

Jiangsu Zhongding Environmental Engineering (China)

Technology Partner for Large-Capacity Incinerators & Sludge Drying

Jiangsu Zhongding is an environmental engineering company with more than 100 incineration installations across China and other countries. This partnership strengthens CRE's capability in industrial-scale thermal technologies.

Scope of collaboration:

- Incinerators >1 ton per hour
- Fluidized bed systems
- Rotary kilns for hazardous waste
- High-chlorine / high-sulfur waste treatment
- Sludge drying + integrated incineration systems
- Automated feeding & continuous ash-discharge systems

Through this collaboration, CRE delivers world-class thermal technologies adapted for local implementation.

China GDE Engineering Co Ltd (China)

Technology Partner for Waste-to-Energy (WtE) 300–750 TPD

China GDE is a global leader with extensive experience in building large-scale municipal WtE facilities. CRE's collaboration with GDE provides access to proven, efficient, and stable WtE technology.

Scope of collaboration:

- Grate furnace systems
- Waste heat boiler (WHB) & HRSG
- Flue-gas treatment systems
- Energy recovery & power integration
- WtE EPC support & technical advisory

This partnership enables CRE to support Indonesian cities and districts in transitioning toward modern WtE solutions.

WHY CRE?

Your One-Stop Environmental Engineering Powerhouse

PT Centra Rekayasa Enviro (CRE) is the only company in Indonesia that integrates engineering, manufacturing, operations, digitalization, and global technology partnerships into a single, unified ecosystem for industrial, hazardous, medical, and domestic waste management. Below are four key reasons why governments, industries, and investors choose CRE as their strategic partner:

CRE is the best choice for industries, hospitals, industrial estates, and regional governments because only CRE can deliver:

Engineering + Manufacturing + Digitalization + Global Technology + Circular Economy
within one unified ecosystem.

CRE — Your Trusted One-Stop Environmental Engineering Powerhouse.

CRE ONE-STOP SOLUTION FOR WASTE ECOSYSTEM

1 Engineering & Design

CRE's multidisciplinary engineering team provides:

- Pre-Feasibility & Feasibility Studies
- Basic Engineering & Detailed Engineering Design (DED)
- Environmental and technical permitting
- Process simulation & material balance

All designs follow national technical standards and regulations.

2 In-House Manufacturing

CRE manufactures a wide range of waste-treatment equipment:

- Incinerators ≤1 ton/hour (Phoenix Series)
- Electrocoagulation WWTP (Electric Eel)
- Biological & hybrid WWTP systems
- APC systems (Dry, Semi-Dry, Wet Scrubber)
- RDF modular lines & preprocessing
- FABA recycling systems
- Oil regeneration units
- And more

Every unit undergoes ISO-based QA/QC and FAT testing before shipment.

3 Global Technology Partnership

For large-capacity and advanced technologies, CRE partners with:

- Jiangsu Zhongding – Incinerators >1 ton/hour, fluidized beds, rotary kilns, sludge-drying systems
- China GDE – Waste-to-Energy 300–750 TPD

These collaborations ensure CRE can meet industrial and government needs at any scale.

360° Integrated Waste-to-Resource Concept

Through the combination of all components below, CRE offers a single integrated solution that not only processes waste, but transforms waste into energy, materials, and economic value.

This 360° model includes:
Engineering → Manufacturing → Operation → Digital → ESG → Resource Recovery

A system that is easy to replicate for cities, industries, hospitals, and economic zones — fully aligned with national and international sustainability agendas.

CRE becomes a one-stop environmental engineering powerhouse capable of supporting clients from the planning stage to full implementation on-site.

4 Construction, Installation & Commissioning

CRE offers integrated EPC services:

- Mechanical–electrical construction & installation
- Commissioning & performance testing
- Operator training
- SOP & HSE compliance

All executed quickly, safely, and in full regulatory compliance.

5 Municipal Ecosystem Satu Rasa

To support the transformation of domestic waste management, CRE introduces Satu Rasa, a locally based waste-management ecosystem ideal for regions without modern infrastructure.

Fast implementation, low OPEX, and easy to manage by local communities.

6 Digital Intelligence Sampah Watch

Sampah Watch connects all CRE operations into a unified digital system that generates national-scale waste intelligence.

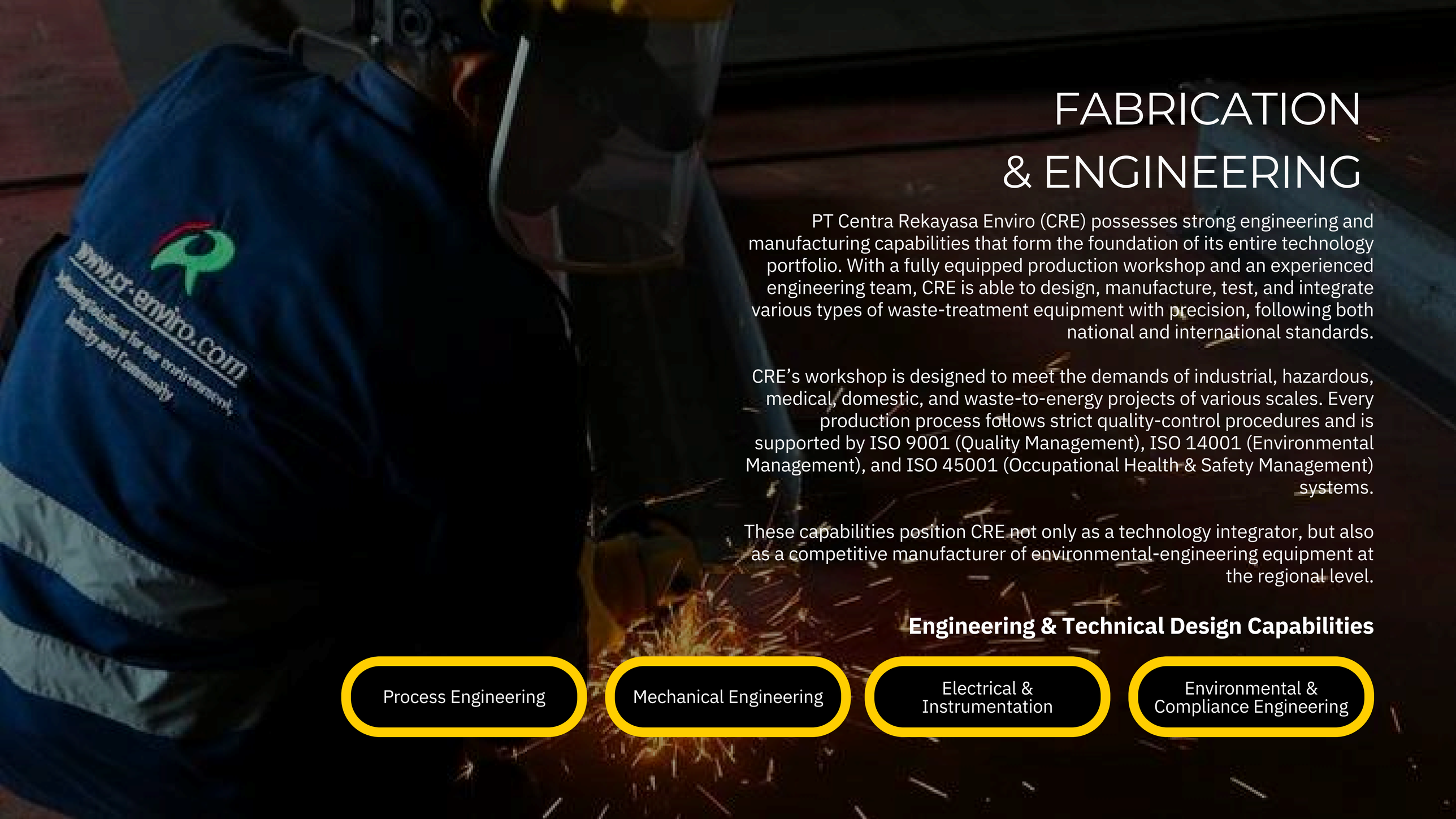
This digital integration ensures full transparency and strengthens regulatory compliance for clients.

OUR SOLUTIONS

Integrated Technologies for Industrial, Hazardous, Medical, and Domestic Waste

CRE provides a comprehensive suite of technological solutions covering the entire spectrum of waste treatment—thermal systems, wastewater treatment, material recovery, energy recovery, digitalization, and domestic waste ecosystems. All solutions can operate independently or be integrated into a single, cohesive system.

Thermal Treatment Solutions	Wastewater & Sludge Treatment	Material Recovery & Circular Economy	Digital Solutions — Sampah Watch	Community & Domestic Waste Ecosystem — Satu Rasa
Solutions for treating industrial, hazardous, medical, and sludge waste using thermal processing and drying technologies.	Systems for industrial and domestic wastewater treatment, including sludge reduction and dewatering technologies.	Technologies for recovering valuable materials and enabling circular-economy applications.	A digital platform for monitoring, analytics, traceability, performance dashboards, and ESG reporting.	A scalable and replicable ecosystem model for community-level and household waste management.



FABRICATION & ENGINEERING

PT Centra Rekayasa Enviro (CRE) possesses strong engineering and manufacturing capabilities that form the foundation of its entire technology portfolio. With a fully equipped production workshop and an experienced engineering team, CRE is able to design, manufacture, test, and integrate various types of waste-treatment equipment with precision, following both national and international standards.

CRE's workshop is designed to meet the demands of industrial, hazardous, medical, domestic, and waste-to-energy projects of various scales. Every production process follows strict quality-control procedures and is supported by ISO 9001 (Quality Management), ISO 14001 (Environmental Management), and ISO 45001 (Occupational Health & Safety Management) systems.

These capabilities position CRE not only as a technology integrator, but also as a competitive manufacturer of environmental-engineering equipment at the regional level.

Engineering & Technical Design Capabilities

- Process Engineering
- Mechanical Engineering
- Electrical & Instrumentation
- Environmental & Compliance Engineering

TECHNOLOGY PORTFOLIO

The technology portfolio of PT Centra Rekayasa Enviro (CRE) covers the full spectrum of waste-treatment solutions—ranging from hazardous waste, medical waste, industrial waste, and domestic waste, to energy and material recovery. Every technology is designed to meet national regulations, operational efficiency requirements, and stringent emission standards. Each system can also be integrated with the Sampah Watch digital platform to ensure full transparency and accountability.

Through the synergy of in-house manufacturing, continuous R&D, and international collaboration with China GDE and Jiangsu Zhongding, CRE delivers technologies that are relevant, scalable, and ready for deployment across diverse regions throughout Indonesia.

SCAN ME

PHOENIX
INCINERATOR

THERMAL TREATMENT SOLUTIONS

CRE
CENTRA REKAYASA ENVIRO

From Small-Scale Medical Incinerators to Large-Scale Industrial Systems

CRE provides a complete range of thermal technologies based on incineration for the treatment of medical waste, industrial waste, hazardous waste (B3), sludge, and domestic waste. All products adhere to national and international technical standards, with capacities customizable to client needs.

Domestic Incinerator Satu Rasa Ecosystem

For residential areas, villages, small islands, and remote regions, CRE offers an innovative domestic incinerator featuring:

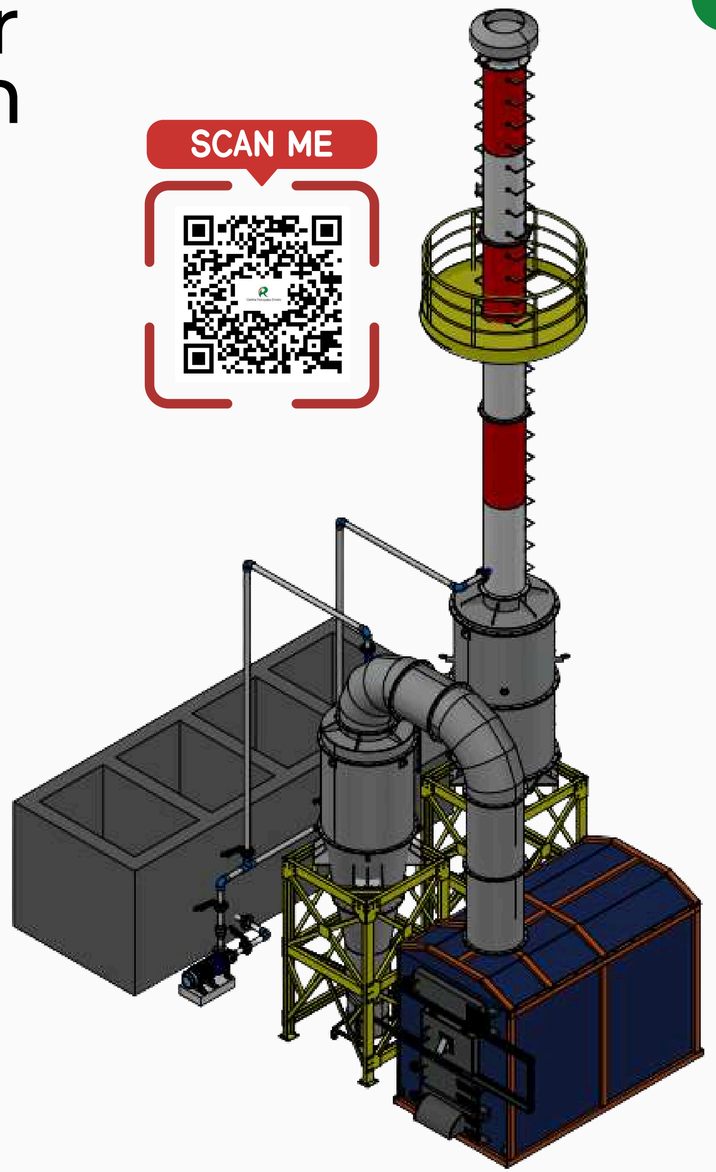
- No / less electricity required
- No fuel required
- Natural draft system
- Easy handling & simple operation
- Modular structure
- Suitable for kitchen waste, organic waste, and mixed household waste

The unit is equipped with Air Pollution Control (APC) consisting of a cyclone and water scrubber, ensuring emission results comply with the MoEF Regulation No. 70/2016. This technology forms the foundation of the Satu Rasa Ecosystem, a community-based independent waste-management model.

SATU RASA
SAMPAH TUNTAS
RAKYAT SENANG

Quality, compliance and excellence

SCAN ME



Key Features:

- Capacity: 200–300 kg/hour
- Heat-resistant material up to 1,200°C
- Safe operation & low maintenance
- Suitable for schools, villages, MSMEs, and remote facilities

Tabel 1. Parameter Umum

Nama Produk	INSINERATOR SATU RASA (SR-5)
Tipe	Self-Burning Incinerator (Tanpa Listrik & BBM)
Kapasitas Pembakaran	200 – 300 kg/jam
Jenis Limbah	Sampah rumah tangga, sampah residu non-B3
Durasi Operasi	8-10 jam/hari, 1 shift
Bahan Bakar Tambahan	Tidak diperlukan
Energi Listrik	Tidak diperlukan
Sistem Pembakaran	Natural Airflow + Self Combustion
Suhu Operasi	± 850 – 1.200 °C
Efisiensi Pembakaran	> 99%
Retensi Gas	> 2 detik (natural draft)
Rasio Sisa Abu	± 5–10% dari volume awal

Tabel 2. Spesifikasi Teknis Komponen

Komponen	Spesifikasi Teknis
Dimensi Ruang Bakar	L: 3.000 mm, W: 1.800 mm, H: 2.450 mm
Berat Total Mesin	± 12.000 kg
Material Ruang Bakar	Baja tahan panas + refractory brick (heat resistant)
Cyclone	D: 1040 mm, H: 1480 mm Material Mildsteel lining castable / SUS-304
Scrubber	D: 1120 mm, H: 2260 mm Material SUS-304
Cerobong	Tinggi 12.000 mm (diameter bervariasi: 760 mm – 470 mm)
Teknologi Udara	Aliran udara alami (natural airflow)
Sistem Start-Up	Kayu dan Sampah kering (residu) sebagai pemicu pembakaran awal
Emisi Gas	Memenuhi baku mutu KLHK: CO, SO_2, NOx, Opasitas
Sistem Uji Emisi	Manual (sampling port tersedia)

Hazardous & Medical Waste Incinerators

CRE's internal engineering team develops and manufactures small to medium incinerators up to 1 ton/hour, designed for industrial, hospital, domestic, and integrated applications using modern emission-control technology.

For capacities above 1 ton/hour, CRE collaborates with Jiangsu Zhongding Environmental Engineering, a global-standard incineration technology provider with installations in over 100 facilities across China and other countries.

This collaboration enables CRE to deliver systems capable of treating solid, semi-solid, liquid, and colloidal waste — including high-chlorine and high-sulfur waste — with stable performance, high efficiency, and compliance with global emission standards.

Compliance & Emission Control

All systems comply with MoEF Regulation No. 06/2021, supported by:

- Cyclone
- Venturi scrubber
- Water Scrubber
- Dry Ceramic Scrubber
- Bag Filter
- SNCR System
- CEMS Ready

SCAN ME

KEY TECHNOLOGIES

Fixed Grate System

- Modular incinerator for medium-scale medical & hazardous (B3) waste
- Easy operation and low maintenance

Fluidized Bed Incinerator

- Suitable for high-moisture waste
- High combustion efficiency
- More stable emissions
- Capable of continuous 24-hour operation

Rotary Kiln Incinerator

- Ideal for waste with high chlorine and sulfur content
- Flexible for solid and liquid waste
- Stable with multi-fuel configurations

Static Reciprocating Grate Incinerator

THE MOST ADVANCED HAZARDOUS WASTE INCINERATOR TECHNOLOGY IN INDONESIA

Our Phoenix Incinerator™ is a high-performance, robust system equipped with the latest SMART technologies, fully integrated with Internet of Things (IoT) capabilities.

CRE is the pioneer of applying IoT comprehensively across all thermal-incinerator products in Indonesia. Through this technology, customers can manage, control, and operate their equipment easily. By implementing IoT, users can monitor and control the incinerator directly from their smartphone.

The dedicated application allows clients to view operational status and generate reports according to their specific requirements.

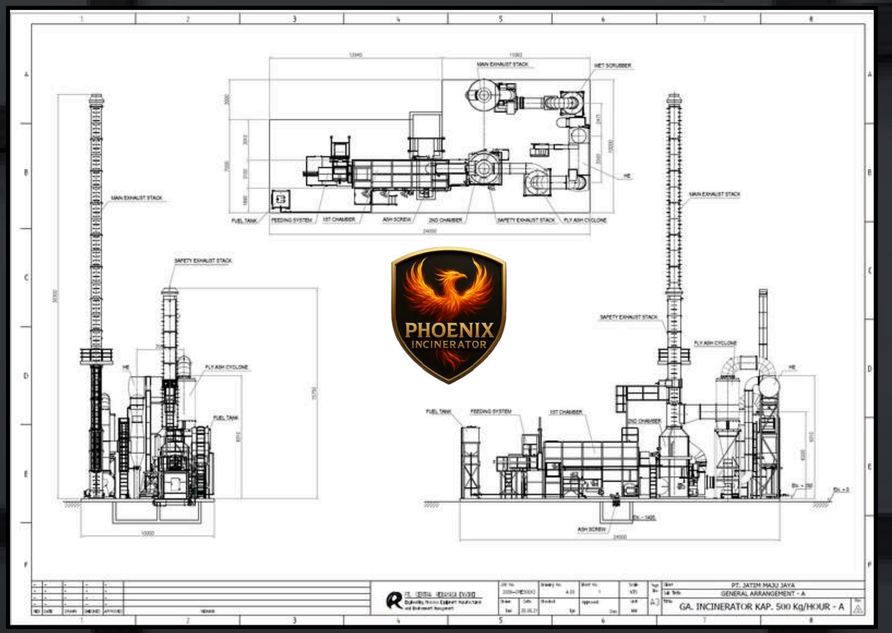
KEY BENEFITS FOR INDUSTRY

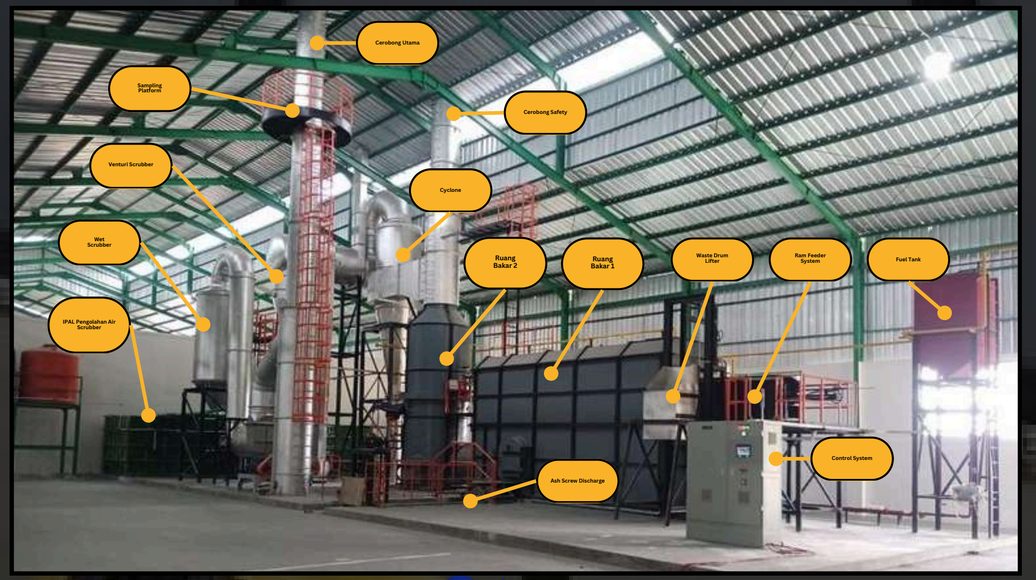
- IOT READY
- ROBUST
- APPS READY
- HIGH PERFORMANCE

AIR POLUTION CONTROL

- CYCLONE
- HEAT EXCHANGER
- WATER SCRUBBER
- VENTURI SCRUBBER
- ETC

SCAN ME





Sludge Drying & Incineration System

CRE provides integrated sludge drying and incineration technology developed in collaboration with Jiangsu Zhongding, using two main systems: Fluidized Bed or Rotary Kiln, depending on sludge characteristics.

Rotary/Disc Sludge Dryer

- Reduces moisture content by 70–80%
- Minimizes transportation and incineration costs
- Utilizes waste heat for energy-efficient drying

Sludge Incineration System

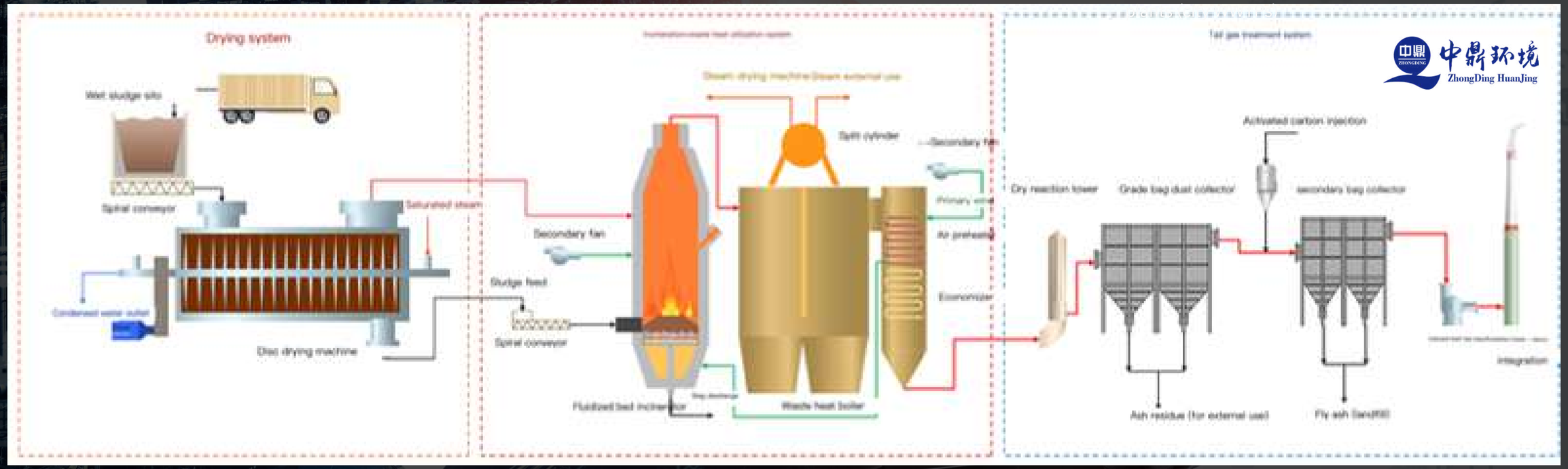
Capacity: 1–30 tons/day

- Stable combustion even at low calorific values
- Modular design suitable for urban areas and industrial WWTPs
- Low emissions and high operational efficiency

Application

- Industrial WWTPs
- Industrial estates
- Palm-oil mills (POME sludge)
- Municipal wastewater treatment

SCAN ME



SALT-BASED WASTE TREATMENT

Advanced Waste-to-Resource Technology for Salt-Based Industrial Waste

PT Centra Rekayasa Enviro (CRE), in collaboration with Jiangsu Zhongding Environmental Engineering, provides advanced solutions for treating salt-based industrial waste and brine waste using European Standard Salt Melting Furnace Technology. This system is designed to destroy organic and inorganic contaminants with high efficiency while recovering industrial-grade salt with purity ≥ 98% NaCl.

SCAN ME

APPLICATION SECTORS

- Chemical & solvent industries
- Textile & dyeing factories
- Fertilizer industry
- Plating & galvanizing operations
- Pharmaceutical & API manufacturing

KEY BENEFITS FOR INDUSTRY

- Effective removal of organic contaminants
- Significant reduction in disposal costs for salt-based waste
- Production of high-value industrial salt
- Compliance with international emission standards
- Energy efficiency through integrated heat recovery

TECHNOLOGY HIGHLIGHTS

- High-Temperature Salt Melting Furnace
- Two-Stage Combustion & Heat Recovery
- Advanced Flue Gas Purification
- High-Purity Salt Recovery System
- Modular Capacities: 5–200 TPD

Industrial Waste-to-Energy (WtE) China GDE Partnership

CRE is the official technology partner of China GDE, one of the global leaders in large-scale municipal Waste-to-Energy (WtE) facilities.

Grate Furnace Technology (300–750 TPD)

- Suitable for Indonesian municipal solid waste
- 24/7 continuous operation with high efficiency
- High tolerance for moisture content
- Fully automated and safe system
- Proven performance in more than 200 cities worldwide

Waste Heat Recovery

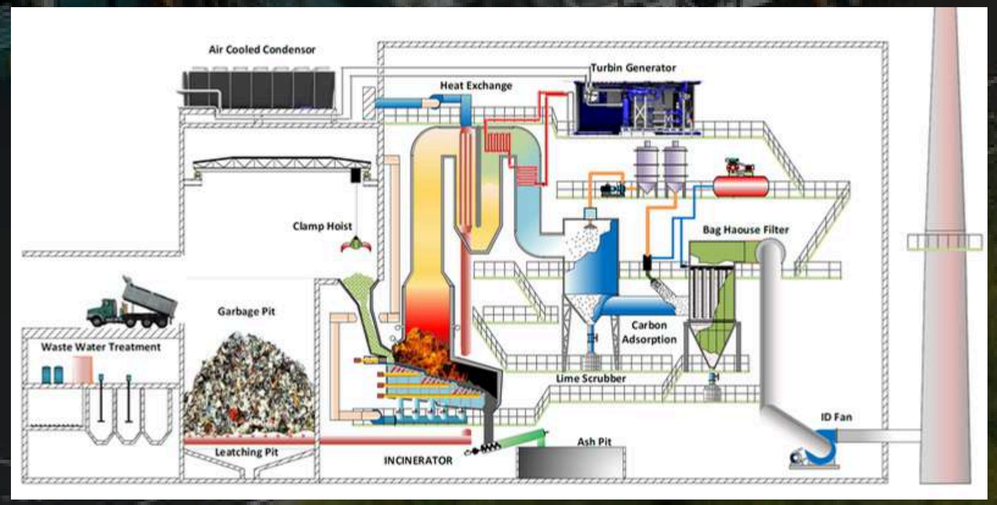
- Waste Heat Boiler (WHB)
- HRSG (Heat Recovery Steam Generator)
- Steam routed to power turbines
- Waste heat reusable for sludge drying or oil-separator applications

Supporting Facilities

- Refuse pit & automatic crane
- Optional shredder
- Complete APC (Air Pollution Control) system
- Online CEMS (Continuous Emission Monitoring System)

Benefits for Local Governments

- Reduces dependency on landfills (TPA reduction)
- Contributes to clean-energy mix
- Generates 5–20 MW of electricity
- Accelerates Net-Zero Emission targets



SCAN ME

Cutting- edge technologies

WASTEWATER TREATMENT SOLUTIONS (WWTP)

Advanced Industrial & Domestic Wastewater Treatment by CRE

PT Centra Rekayasa Enviro provides wastewater treatment plant (WWTP) systems designed to meet the needs of industrial, commercial, estate, and public facilities. CRE's WWTP technologies combine efficiency, reliability, modularity, and full compliance with national standards. CRE's solutions consist of two main categories: Electrocoagulation (Electric Eel) and Biological/Hybrid WWTP systems.

CONVENTIONAL WWTP (Biological & Physico-Chemical System)

For liquid-waste treatment needs with high organic concentrations, or for large industrial facilities, CRE offers Conventional WWTP systems designed according to Best Available Technology. The process types may include:

- Anaerobic reactors (UASB, EGSB)
- Aerobic reactors (Extended Aeration, MBBR, SBR)
- Coagulation–Flocculation
- Sedimentation & Clarifier
- Filtration (Sand filter, Carbon filter)
- Sludge drying / dewatering (Filter Press, Belt Press)

Main Applications

- Food & Beverage (F&B)
- Textile industry
- Pharmaceutical industry
- Electronics manufacturing
- Chemical plants
- Industrial estates

WWTP / STP Design & Engineering

- Comprehensive WWTP/STP design, including mechanical, electrical, and piping systems.
- Tailored solutions based on the specific characteristics of each wastewater type, ensuring full compliance with environmental regulations.
- Development of Detailed Engineering Design (DED) that produces technical drawings and precise project specifications.

SCAN ME

ELECTROCOAGULATION WWTP (EC SYSTEM)

CRE provides an advanced Electrocoagulation (EC) wastewater treatment system under the Electric Eel Series, designed for industries requiring rapid pollutant removal, compact installation, and stable effluent quality.

The EC system is suitable for wastewater with complex characteristics, including high COD, TSS, color, oil & grease, and dissolved heavy metals.

Key Features of the EC System

- High-speed pollutant removal
- Reduces COD, BOD, color, turbidity, and heavy metals
- Smaller footprint compared to conventional WWTPs
- Lower chemical consumption
- Simple operation & easy maintenance
- Rapid installation (plug-and-play modular design)
- Stable effluent output
- Suitable for upgrading existing WWTP performance

Engineering & Design Services

- EC system design including electrical, mechanical, and automation components
- Wastewater characterization study to determine the optimal EC configuration
- Hybrid integration with biological systems, filtration, or sludge-treatment modules
- Development of Detailed Engineering Design (DED) with complete technical drawings and specifications

Typical Industrial Applications

- Textile & dyeing
- Automotive & metal finishing
- Laundry & cleaning services
- Food & beverage industry
- Palm oil & agro-industry
- Pharmaceutical & cosmetics
- Industrial estates
- Mixed industrial wastewater

SCAN ME

MATERIAL RECOVERY SOLUTIONS

CENTRA REKAYASA ENVIRO

Transforming Industrial Waste Into Valuable Resources

CRE provides material recovery technologies for economically valuable resources to support the national circular economy. The primary focus areas include: utilization of FABA, used oil, and waste-to-RDF conversion. All systems can operate as standalone units or be fully integrated with other CRE solutions (incineration, WWTP, sludge drying, Satu Rasa, and Sampah Watch).

FABA Recycling & Metal Recovery

CRE offers a comprehensive technology portfolio for the recycling of Fly Ash Bottom Ash (FABA) generated from coal-fired power plants and industrial boilers. Through advanced processing systems, valuable materials can be recovered while ensuring full compliance with environmental regulations.

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Output:

- Non-ferrous metals
- Lightweight aggregates
- Environmentally friendly sand
- Non-structural construction materials

Our Technologies

FABA Recycling & Metal Recovery

- Eddy current separator
- Magnetic separator
- Crushing & screening
- Glass/ceramic recovery system

PYROLYSIS & OIL DISTILLATION SYSTEM

Converting Waste Oil, Oil Sludge, and RDF Pyrolysis Oil into Valuable Fuel

PT Centra Rekayasa Enviro presents a technology that converts liquid and semi-solid waste into alternative fuel through the same strategic collaboration with our principal in China, adopting globally implemented systems. This technology processes oil sludge, used lubricants, and performs RDF oil pyrolysis into non-standard diesel and other industrial fuels.

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APPLICATION SECTORS

- Hazardous waste (B3) operators
- Oil & gas industry
- Ceramic & lime factories (boiler fuel)
- General & heavy machinery
- Refinery/independent oil processors

ADVANTAGES

- Reduces disposal volume of oil sludge
- High economic value (diesel substitute)
- Skid-mounted modular design
- Fast installation (7–10 days)
- Fully enclosed system, minimal emissions

KEY TECHNOLOGIES

Pyrolysis System processes:

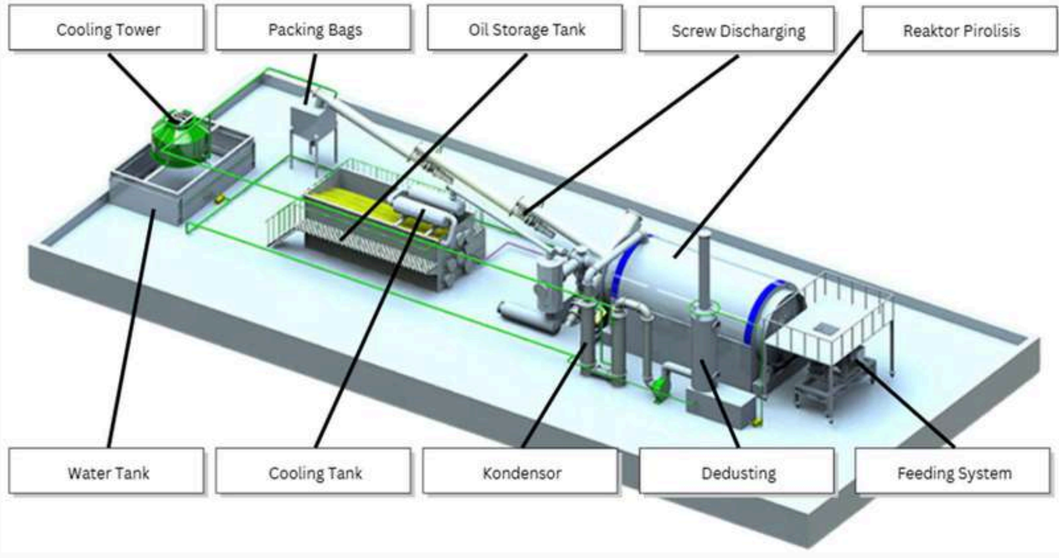
- Oil sludge
- Used engine oil
- Drilling sludge

Output:

- Pyrolysis oil (45–55%)
- Carbon black (15–20%)
- Syngas for heating

Oil Distillation System produces:

- Refined pyrolysis oil → non-standard diesel
- Sulfur-reduced diesel-equivalent (45–50 cetane)
- Clear yellow/light brown fuel oil



Oil Filtration & Regeneration System

CRE provides used-oil recovery solutions for:

- Heavy-equipment workshops
- Automotive sector
- Manufacturing industries
- Licensed used-oil collectors and processors

Technologies include:

- Multi-stage filtration
- Water & sludge separator
- Chemical treatment
- Heating & dehydration
- Polishing filter

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Output:

- Reusable oil
- Alternative fuel
- Reduction of hazardous (B3) waste

Types of oil that can be processed:

Hydraulic oil, gear oil, cutting oil, engine oil, turbine oil, transformer oil, diesel, kerosene, and used cooking oil.

Model	CRE-001	CRE-002	CRE-003	CRE-005	CRE-008	CRE-012	CRE-020	CRE-036
Power	220V	220V	220V	220V	220V	220V	220V	220V
Number of Filter Elements	1	2	3	5	8	12	20	30
Hourly Filtered Oil Output	15 L/h	30 L/h	50 L/h	100 L/h	150 L/h	350 L/h	520 L/h	3000 L/h
Size (cm)	55×42×98	73×42×98	110×42×98	115×68×115	120×70×115	158×58×115	153×100×115	312×124×120
Net Weight	75 kg	100 kg	125 kg	230 kg	260 kg	360 kg	510 kg	1200 kg

PERBANDINGAN FILTRASI OLI GEAR DENGAN JENIS ENDAPAN (SLAG)

PERBANDINGAN PEMURNIAN OLI HIDROLIK ANTI-AUS

PERBANDINGAN FILTRASI OLI HIDROLIK YANG TEREMULSI

PERBANDINGAN FILTRASI OLI GEAR DENGAN JENIS ENDAPAN (SLAG)

PERBANDINGAN PEMURNIAN OLI SPARK (OLI EDM)

PERBANDINGAN PEMURNIAN OLI CUTTING (OLI POTONG) TIPE SCREW

RDF (Refuse-Derived Fuel) Modular Line

CRE designs modular RDF systems with capacities ranging from 25–300 tons/day for industrial facilities and regional governments.

RDF Line Components:

- Conveyor system
- Trommel screen
- Magnetic separator
- Shredder
- Dryer (optional)
- Pelletizer

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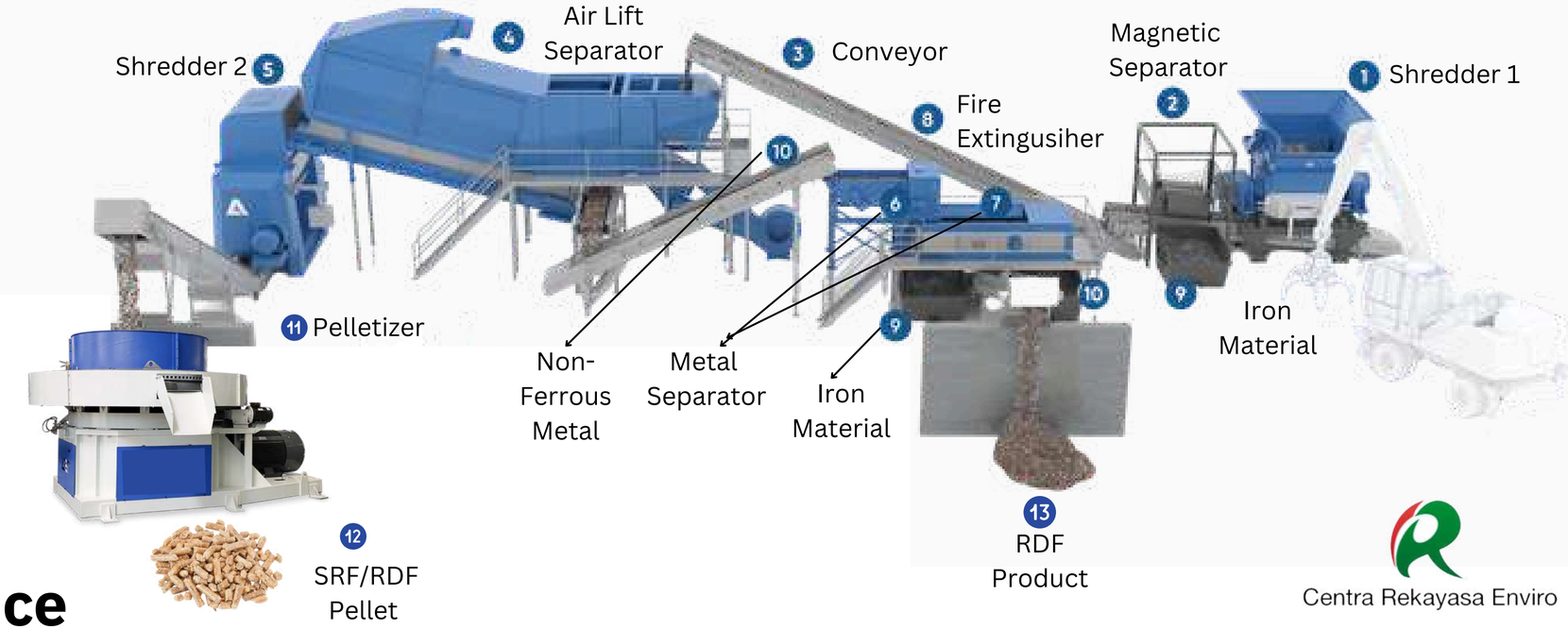
Advantages:

- Modular system (can be installed in both small and large areas)
- Low energy consumption
- Stable RDF output of 3000–4500 kcal/kg
- Direct integration with the cement industry



SATU RASA
SAMPAH TUNTAS RAKYAT SENANG

Quality, compliance and excellence

Centra Rekayasa Enviro

SATU RASA SAMPAH TUNTAS, RAKYAT SENANG

Decentralized Domestic Waste Ecosystem

Satu Rasa is a decentralized domestic-waste management ecosystem developed by CRE to address waste challenges in areas without landfills, with very limited landfill capacity, or those facing continuously increasing daily waste loads. This model is designed to be modular, easily replicable, and low in operational cost, making it suitable for thousands of villages and small islands across Indonesia.

End-to-End Domestic Waste Model

Satu Rasa integrates all elements of household waste management from upstream to downstream:

- Community-based collection & sorting
- Modular small-scale waste stations
- Shredding, drying (optional), and compacting
- Thermal treatment (domestic waste incinerator)
- Air Pollution Control (APC) module
- Volume reduction of approximately 90–95%
- Digital monitoring via Sampah Watch

This operational model is simple, community-friendly, and easy to learn.

Community Empowerment & Workforce Upskilling

Satu Rasa sustainably creates social benefits:

- Creating local employment opportunities
- Increasing community awareness of environmental cleanliness
- Providing training in operations, HSE, and SOP
- Instilling a culture of cleanliness and shared responsibility

It is suitable for tourism areas, villages, residential zones, and even remote regions.

Low OPEX & Rapid Deployment

The Satu Rasa design focuses on fast implementation and cost efficiency:

- Installation can be completed within 3–10 days
- Low operational cost
- Minimal land requirements
- No complex technology needed
- SOP-based operations (tested and proven at various sites)

The model is designed so it can be operated by local workers, not specialists.

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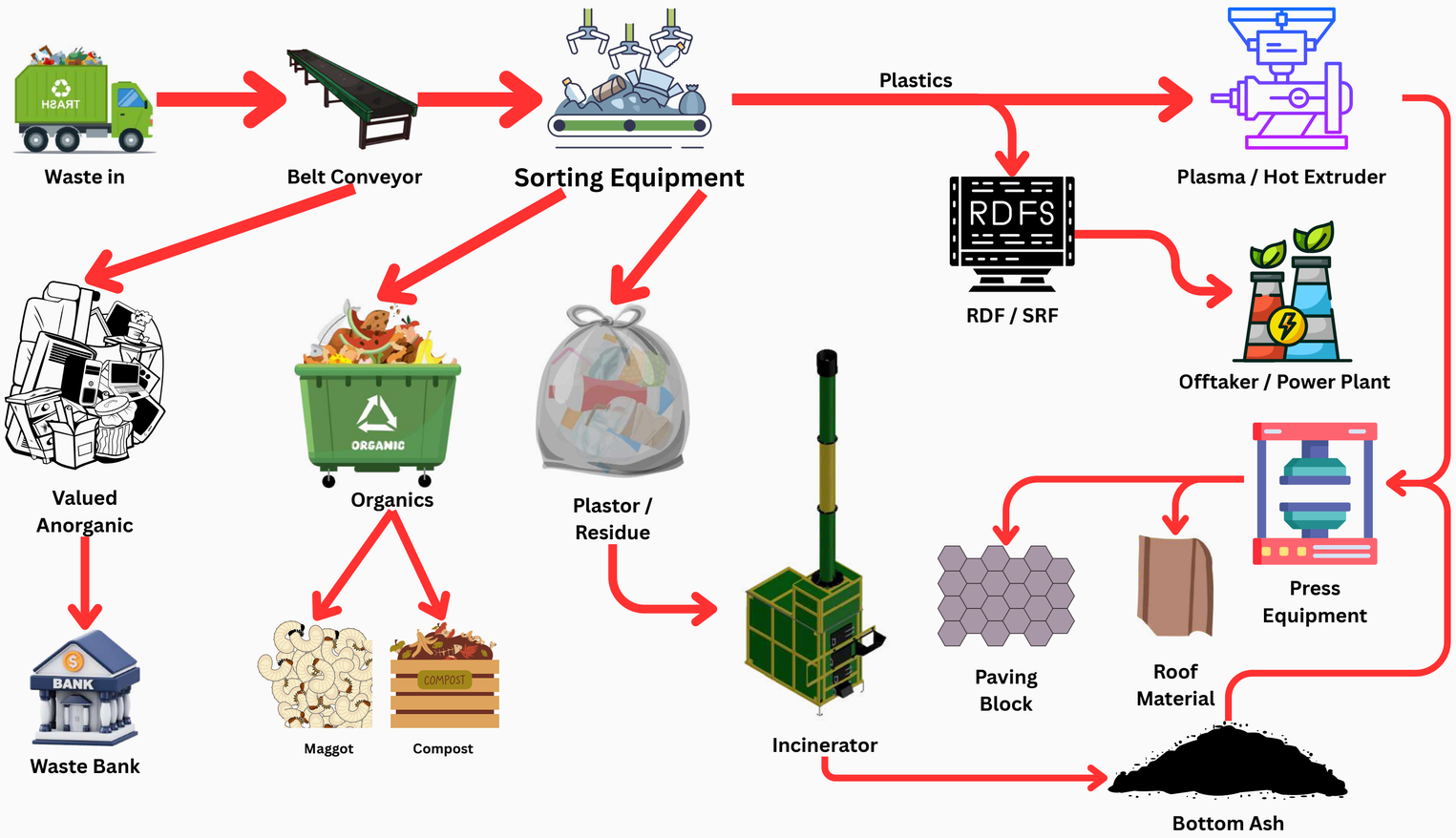
SATU RASA ECOSYSTEM FLOW PROCESS

Flowchart of Waste-Processing Solutions

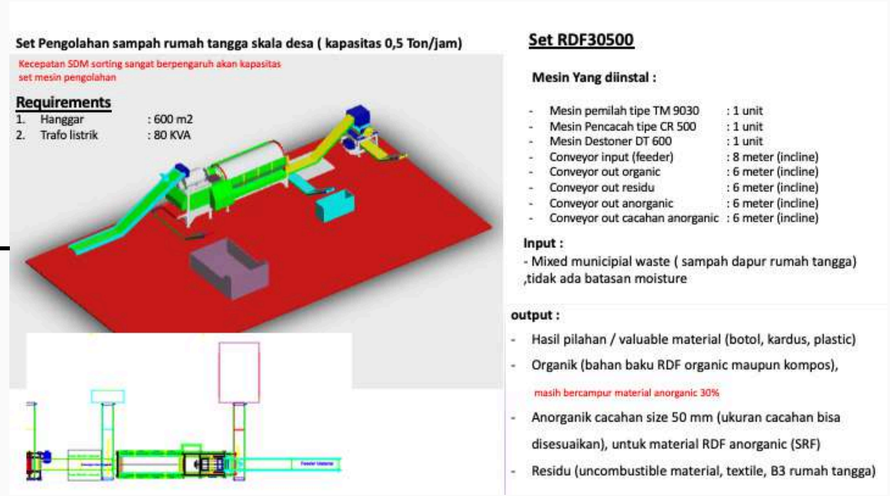
Prototype for TPST with 5 Trucks (30 m³ or equivalent to 10 tons/day)

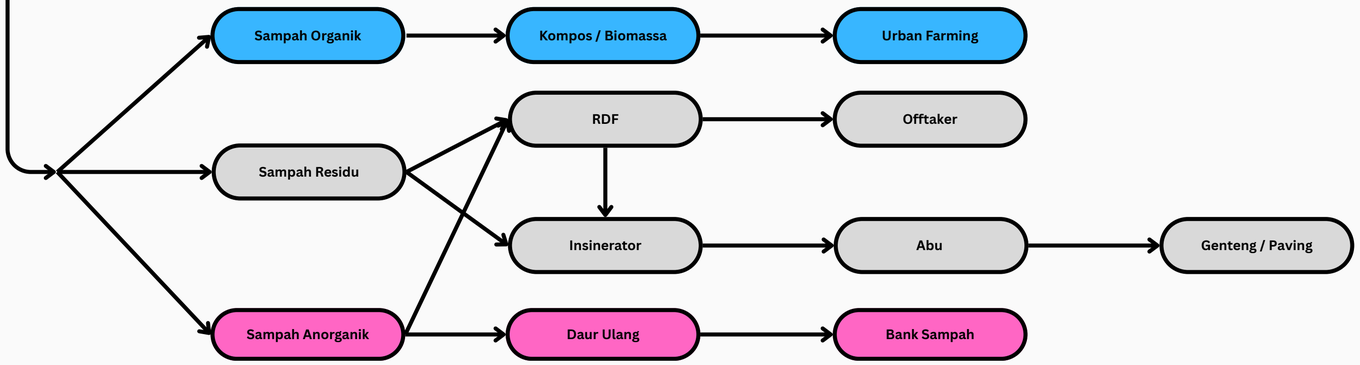


All waste can be processed and turned into income, while the remaining residue is completely destroyed using an incinerator.

Technologies in the Satu Rasa Ecosystem

Village-Scale Household Waste Sorting Machine (0.5 Ton/Hour Capacity)





This village-scale waste-sorting machine is designed to handle domestic waste generation of up to 0.5 tons per hour with high efficiency. The entire equipment lineup is installed inside a hangar with a minimum area of 600 m², supported by an 80 kVA power supply and an integrated conveyor system that ensures smooth material flow from input to output. With its modular design, the unit is easy to install, operate, and adapt to site conditions across various remote regions.

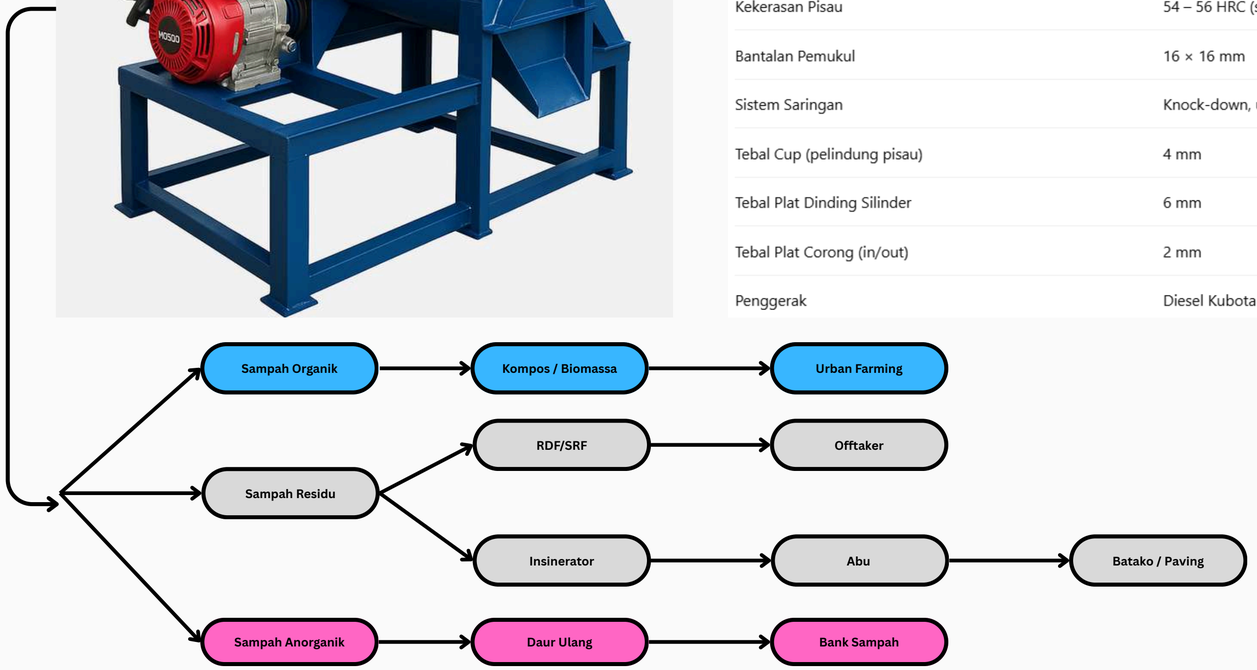
The main equipment lineup includes the TM 9030 sorting machine, which extracts valuable materials such as bottles, cardboard, and plastics; the CR 500 shredder, which produces uniform organic and inorganic fractions; and the DT 600 destoner, which separates heavy materials such as stones and gravel. Each unit is connected by an 8-meter input incline conveyor and 6-meter output incline conveyors for each fraction—organic, residue, inorganic, and shredded material. The system is capable of handling mixed municipal waste without moisture limitations, while minimizing operational disruptions.

From the sorting and processing stages, four final product streams are produced: valuable materials ready for sale, organic fractions used as feedstock for organic RDF or compost, inorganic shredded fractions (50 mm size) for RDF/SRF production, and non-combustible residue such as textiles and household hazardous waste (B3). With a material-purity rate of up to 70%, this machine supports the Satu Rasa circular-economy strategy by generating real economic value while complying with emission and waste-management standards under MoEF Regulation No. P.70/2016 and Government Regulation 22/2021 on Waste Management.

Technologies in the Satu Rasa Ecosystem

Automatic Waste Sorting & Integrated Organic Shredding Machine

Komponen	Detail Satu Rasa ATT MKPP 1200 MS
Kapasitas	1,5 – 2,5 m^3/jam
Dimensi (P×L×T)	2.250 × 800 × 1.450 mm
Bahan Pisau	Baja karbon, ketebalan 10 mm
Sistem Pisau	Knock-down (mudah bongkar-pasang)
Diameter Shaft Penghancur	0,38 m
Kekerasan Pisau	54 – 56 HRC (sertifikat uji)
Bantalan Pemukul	16 × 16 mm
Sistem Saringan	Knock-down, ukuran lubang disesuaikan
Tebal Cup (pelindung pisau)	4 mm
Tebal Plat Dinding Silinder	6 mm
Tebal Plat Corong (in/out)	2 mm
Penggerak	Diesel Kubota 15 PK



This machine is the core of the Satu Rasa ecosystem for automatically preparing waste at TPST facilities. On one side, it sorts plastic and non-plastic (organic) fractions; on the other side, it directly processes organic waste into shredded material ready for composting. It is easy to operate, requires minimal maintenance, and is fully integrated with the Integrated Waste-Sorting Conveyor Line and the RDF/SRF packaging unit.

Advantages

- Simultaneous Sorting & Shredding: Dual-process system: automatically sorts plastics and immediately shreds organic waste without interrupting the workflow.
- Modular “Plug & Play” Design: Knock-down system that enables easy installation, maintenance, and capacity upgrades.
- High-Quality Shredded Output: Uniform organic particle size (0–5 mm), ideal for MSME-scale to industrial-scale composting systems.
- Reliable Power Unit: Powered by a Kubota 15 HP diesel engine ensuring high torque and efficient fuel consumption.
- Environmentally & Operator Friendly: Low emissions, controlled noise levels, and an ergonomic control panel.

Technologies in the Satu Rasa Ecosystem

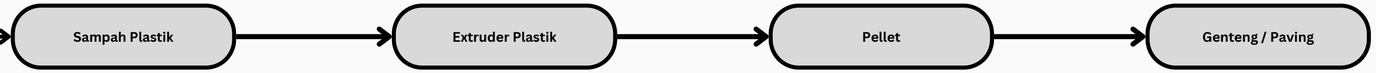
Plastic Waste Melting Machine

Spesifikasi	Hot Extruder Satu Rasa	Plasma Satu Rasa
Model	TW-120	TW-PL-75
L/D Ratio	15	—
Material Barrel/Screw	S45C	S45C
Motor Penggerak	5,5 kW (Cyclo)	5,5 kW (Cyclo)
Zona Pemanas	3 Zone (PID Control)	3 Zone (PID Control)
Kapasitas	300–600 kg/jam (residu)	300–600 kg/jam (residu)
Konsumsi Daya	12 kW	12 kW
Berat	600 kg	600 kg
Fungsi	Extrusion & Moulding	Plasma Pelletizing

The Satu Rasa Plastic Waste Melting Machine is specifically designed to process sorted plastic waste into ready-to-mold raw materials (pellets) or finished products such as paving blocks, roof tiles, and custom mouldings. Equipped with modern extrusion technology, this machine ensures a melting process that is safe, efficient, and environmentally friendly.

Key Advantages

- Integrated Process: Crushes and melts residual plastic continuously within a single machine line.
- Precise Temperature Control: A 3-zone temperature control system ensures uniform melting without material degradation.
- Low Power, High Outpup: Powered by a 5.5 kW motor with 12 kW total power consumption, enabling stable output of tens of kilograms per hour.
- Durable & Corrosion-Resistant Materials: The screw and barrel are made of S45C steel, providing excellent wear and corrosion resistance.
- Product Flexibility: Output can be shaped directly through moulding or further processed into pellets for injection or extrusion blow-molding applications.



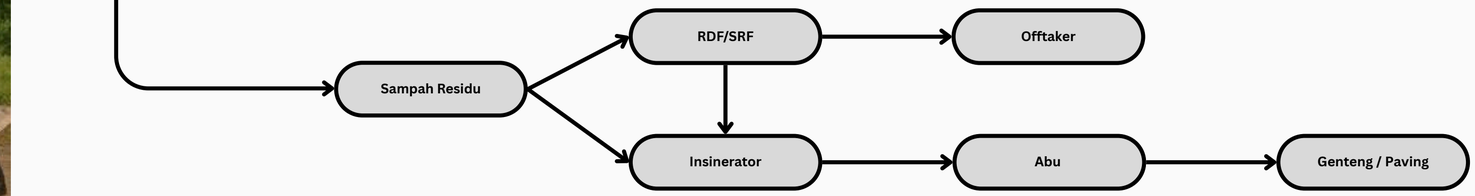
Technologies in the Satu Rasa Ecosystem

Fuel-Free Waste Incinerator

SATU RASA is an innovative incinerator developed by PT Centra Rekayasa Enviro as an environmentally friendly, efficient, and easy-to-operate solution for domestic waste management. Designed specifically for community-scale needs—such as urban wards, villages, Islamic boarding schools, schools, and traditional markets—SATU RASA provides a sustainable and independent approach to managing daily waste.

Key Advantages

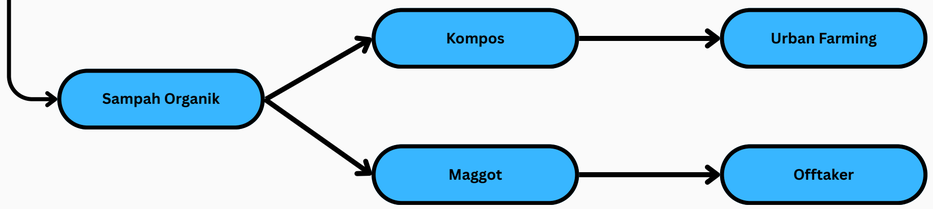
- No Electricity or Fuel Required: Powered by a self-combustion system, the machine operates without the need for electricity or additional fuel—significantly reducing energy usage and operational costs.
- Modular and Compact Design: Easy to install in limited spaces without requiring additional buildings. Suitable for densely populated areas or remote regions.
- Environmentally Friendly and Safe: Engineered to comply with emission standards regulated by the Ministry of Environment and Forestry of the Republic of Indonesia. Equipped with emission-testing ports and a closed-combustion system.
- Ideal Capacity: Capable of processing approximately 5–10 tons of waste per day (±200–250 kg/hour), making it suitable to serve 2,000–4,000 households within one operational area.



Technologies in the Satu Rasa Ecosystem

Integrated Plastic Waste Shredding Machine

Komponen	Detail Satu Rasa PP 500 ATT
Kapasitas	2 – 4 m^3/jam
Dimensi (P×L×T)	2.430 × 1.180 × 1.920 mm
Bahan Pisau	Baja karbon 19 mm
Sistem Pisau	Knock-down (bongkar-pasang)
Jumlah Pisau Dinamis	6 pcs
Jumlah Pisau Statis	4 pcs
Diameter Shaft Penghancur	Ø 3 inch
Kekerasan Pisau	56 – 58 HRC (sertifikat uji)
Tebal Dinding Penghancur	24,8 dan 29,8 mm
Flywheel	Ø 600 × 43 mm
Pulley Penghancur	B-3 (16 inch), pulley padat
Penggerak	Diesel Yanmar TS230 R-di



The Satu Rasa Integrated Plastic Waste Shredding Machine is designed to break down sorted plastic waste into uniform sizes, ready for the next processing stages (folding, pelletizing, or RDF/SRF packaging). This unit is fully integrated into the Satu Rasa ecosystem workflow: after sorting on the conveyor, plastics are fed directly into the hopper and shredded automatically.

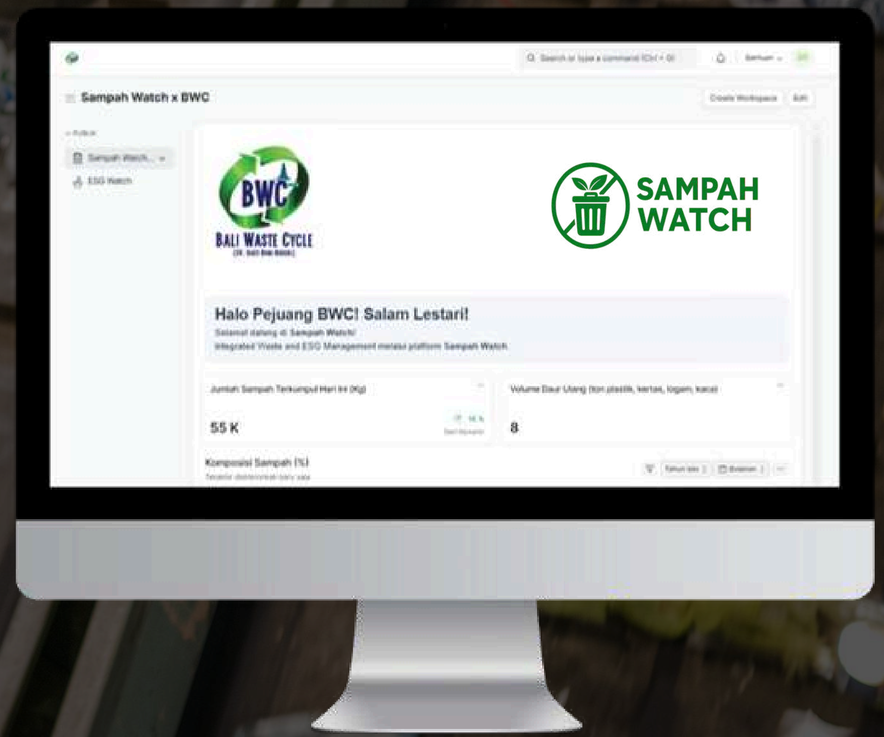
Advantages

- Plug-and-play modular design, easy to assemble, disassemble, maintain, or upgrade
- Consistent capacity of 2–4 m^3/hour powered by the high-torque Yanmar TS230 R-di diesel engine
- Knock-down blades made of 19 mm carbon steel, hardness level of 56–58 HRC (with test certificate)
- Galvanized anti-corrosion steel frame and 24.8–29.8 mm stationary plates for high structural stability
- Ø 600 × 43 mm flywheel and solid B-3 (16-inch) pulley ensure smooth rotation
- Ergonomic control panel and adjustable V-belt tensioning wheel for easy tuning

DIGITAL SOLUTIONS SAMPAH WATCH

Indonesia's First Integrated Waste Traceability & ESG Intelligence Platform

Sampah Watch is a digital platform developed by PT Centra Rekayasa Enviro to deliver transparency, efficiency, and accountability in waste management. The platform connects physical equipment, field operations, and digital analytics into a single integrated ecosystem that can be audited and verified.



What is Sampah Watch?

Sampah Watch is an environmental technology platform developed to establish Indonesia's National One-Data foundation for waste management, circular economy, and verified emission reduction.

We believe that waste is not merely a problem—it is an asset that can generate economic value, create jobs, and reduce emissions when managed correctly, transparently, and measurably.

End-to-End Waste Traceability

Sampah Watch enables waste tracking from the source to final processing.

Key features include:

- Input of waste generation (manual / IoT)
- Tracking by waste type and source
- Digital chain-of-custody
- Field verification and audit

Ensuring that waste-management processes comply with regulations and ESG standards.

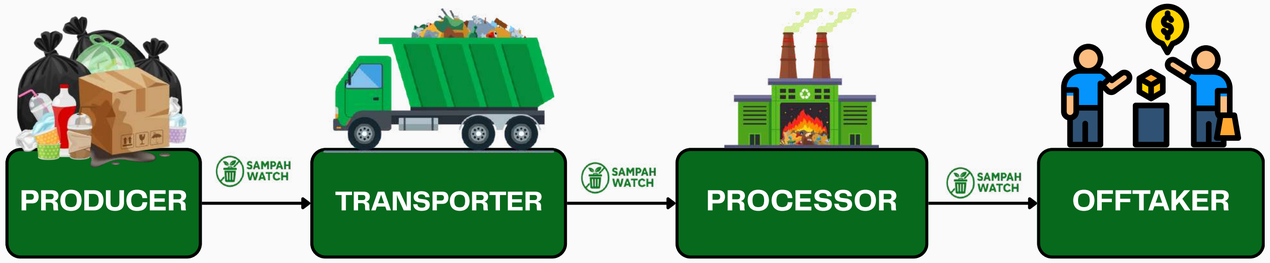
ESG & Carbon Analytics

The platform streamlines sustainability reporting.

Digital outputs include:

- Automated ESG reports
- Emission intensity per ton of waste
- GHG reduction estimates
- NEK data
- Recap of waste valorization (RDF, oil reuse, metal recovery)

This helps companies obtain green financing and meet investor requirements.



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HYBRID RENEWABLE ENERGY SYSTEM

Wind Turbine + Solar Panel for Off-Grid and Low-Access Regions

As part of CRE’s vision—Engineering Solutions for a Circular & Sustainable Indonesia—we deliver Hybrid Renewable Energy (HRE) solutions integrating Vertical Axis Wind Turbine (VAWT) technology with monocrystalline solar panels.
This system provides a reliable, independent power source ideal for villages, small islands, public facilities, project basecamps, and the Satu Rasa ecosystem that requires stable electricity without reliance on the national grid.

Why Hybrid Energy?

- Wind and solar energy peak at different times of the day.
- Hybrid output remains stable even when one source drops.
- Efficiency improves through hybrid inverters and bio-capacitor systems.

Applications within the CRE Ecosystem

Satu Rasa – Domestic Waste Management

Hybrid RE powers:

- Sorting conveyor line
- Organic & plastic processing machines
- Control panels, pumps, and lighting

Enabling TPST micro-facilities to operate fully off-grid.

Small-Scale WWTP Units

Powers:

- Control systems
- Influent/effluent pumps
- Digital/IoT monitoring sensors

Non-Fuel Domestic Incinerator (Satu Rasa)

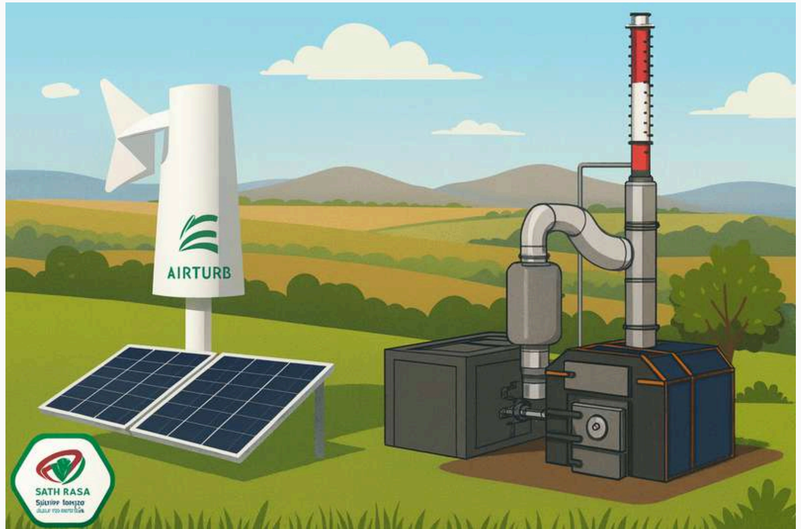
Supplies energy for fans, valves, and digital monitoring.

Project Basecamps, BTS Towers, Public Facilities

Provides stable electricity for lighting, routers, CCTV, mini-PC, and charging systems.

Value for Local Governments & Industry

- Reduces reliance on diesel generators
- Supports Indonesia’s Net-Zero 2060 commitment
- Low OPEX with fast installation
- Optional integration with Sampah Watch for energy & emission analytics



SCAN ME

NATIONAL IMPACT

Driving Indonesia’s Transition Toward a Circular & Low-Carbon Future

As an integrated environmental engineering company, CRE contributes directly to the transformation of national waste management through thermal technologies, wastewater treatment, material recovery, and traceability- & ESG-based digitalization. The impacts generated are not only technical, but also social, economic, and environmental.

Through engineering technology, manufacturing, digitalization, and community initiatives, CRE serves as a key driver in realizing a cleaner, more efficient, more sustainable Indonesia that is better prepared to achieve Net-Zero by 2060.

CENTRA REKAYASA ENVIRO

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Our clients

WHAT THEY SAID ABOUT US

★★★★★

“WE ARE SATISFIED WORKING WITH PT CRE, AND ALL OUR MACHINE PERMITS WERE SUCCESSFULLY ISSUED.”

Patria Yudha Asmara

Project Manager – PT Adhi Karya Tbk
4 Incinerator Units with a Capacity of 300 kg/hour Each in Medan

★★★★★

“A MEMORABLE EXPERIENCE WORKING WITH MR. DIMAS AND THE CRE TEAM; EVERYTHING WENT SMOOTHLY AND PROFESSIONALLY.”

Faisal Achmad S.T.

Director of PT Balikpapan Environmental Services
1 Incinerator Unit with a Capacity of 500 kg/hour and 1,000 kg/hour in Balikpapan

On going projects 2025

Hazardous & Medical Waste Incinerator — **3 LOCATIONS**

WWTP Electrocoagulation — **2 LOCATIONS**

Retrofit & Maintenance — **1 LOCATION**

Domestic Waste Satu Rasa Ecosystem — **1 LOCATION**

Sampah Watch TPST Tenant — **2 LOCATIONS**

Engineering Solutions for a
Circular & Sustainable Indonesia

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