



# MILLENNIUM E & C (M) SDN. BHD.

Kuala Lumpur, Malaysia



Awarded  
The Environmental Solution  
2020



Certified Green Unit



Awarded the  
Malaysia International Trade  
and Industry Award 2020

# MEC's Background

- 22 years of industry experience.
- Developed and deployed cutting-edge solutions such as process water treatment systems & components, modular housing technology & solar power systems.
- Global network of technical, industrial and commercial expertise.
- Clients include Petronas, Technip, Exxon, MMC among others.



Oil and Gas



Power



Infrastructure



Environmental Solutions

21 YEARS

of environmental  
engineering experience

5 YEARS

in product development

11 PATENTS

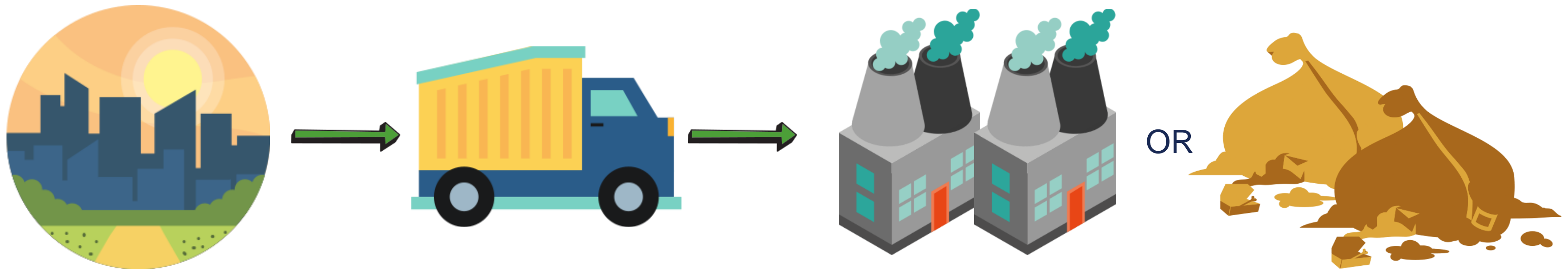
filed in 153 countries

100% FOCUSED

waste and energy  
infrastructure company

# Current "Treatment" Solutions

Waste management systems are **inefficient**



Waste is collected across a locality and transported to incinerators or landfills. The process is **costly, hazardous, and complex with a high carbon footprint**. The process has also been known to contribute to...

TOXIC LEACHATE

DISEASES

AIR POLLUTION

LAND DEGRADATION

ACID RAIN AND  
METHANE

GLOBAL WARMING

WATER  
CONTAMINATION

WILDLIFE EXTINCTION



# The Solution: ClearWaste™



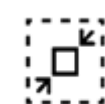
## Key features



No fossil fuels



No harmful emissions



Compact and modular



Mobile, plug and play



24/7 operation



Remote monitoring



Real-time emission monitoring



Safe and user friendly

MEC CLEARWASTE™ treats TRASH into ASH



Solid Waste

96% →



Safe Water Vapour

4% →



Eco-Friendly, Recyclable Ash

## CERTIFICATIONS

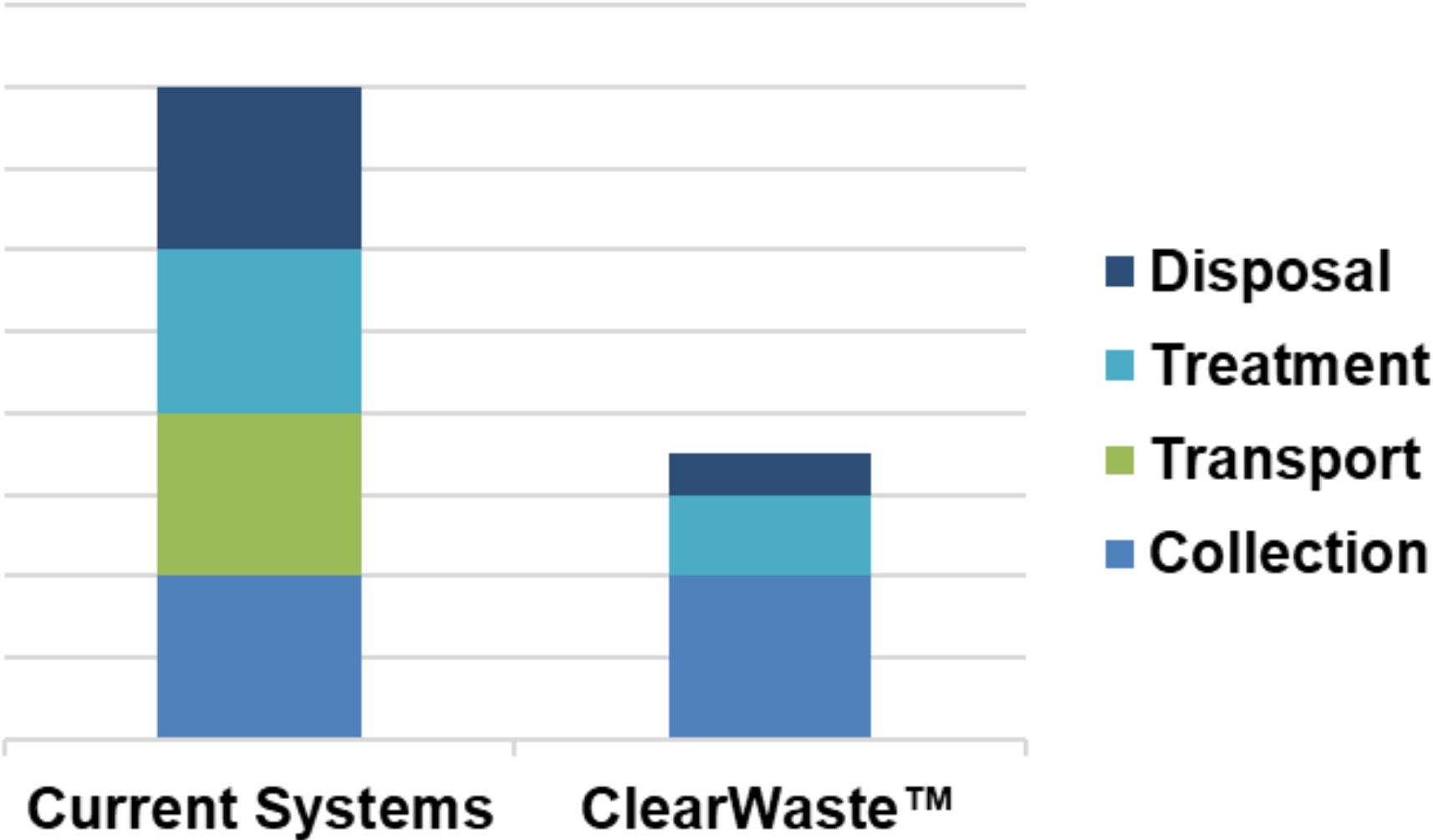
Green Cert  
ISO 14001

## AWARDS

Brand Laureate  
MITI Export Award

# MEC ClearWaste™'s Impact on Cost

Conventional Waste Treatment vs ClearWaste™



MEC ClearWaste™ saves cost every step of the way!

COLLECTION	TRANSPORT
Enables community based waste collection	Eliminated by at source-treatment
TREATMENT	DISPOSAL
No fossil fuels and reduced operation cost	Only 1-4% of input waste must be disposed of

# ClearWaste™ & The Waste Management Chain



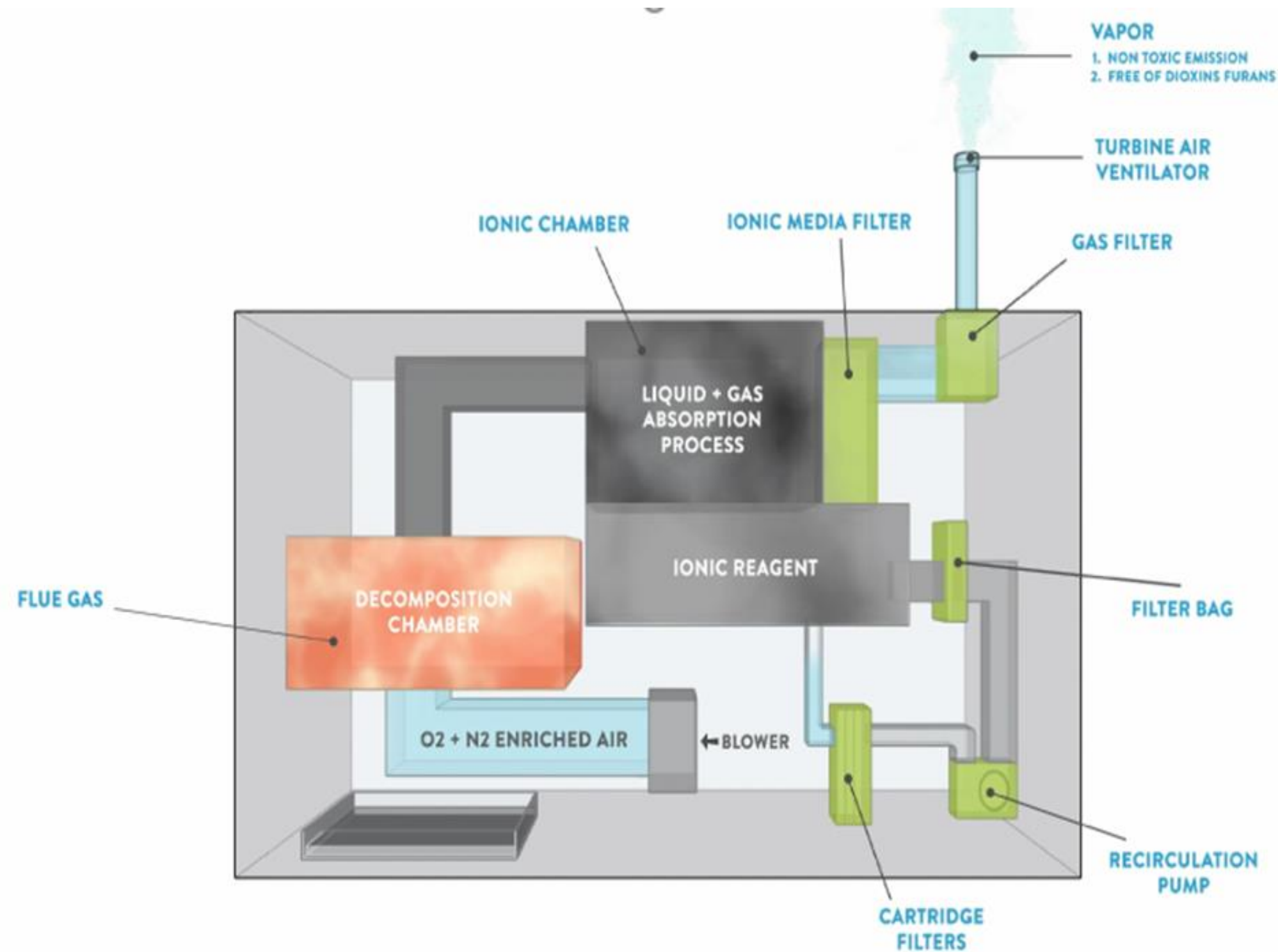
## ClearWaste™ and the Circular Economy

- A circular economy solution
- No air pollution
- Eliminates landfills and incineration
- CO2 savings based on current 2.5 TPD  
= 494 Tons of CO2/year or 22,691 trees





# How it Works



## IMMEDIATE, VISIBLE CHANGE

Enables good public perception

## PERFORMANCE STANDARDS

Meets emission standards with 24/7 operation

## TIME AND COST CERTAINTY

On-time and on-budget certainty

## ECONOMICS

Inexpensive, faster ROI and IRR. Low running and maintenance costs

## GREEN FOOTPRINT

No fossil fuels used

## FAST DELIVERY

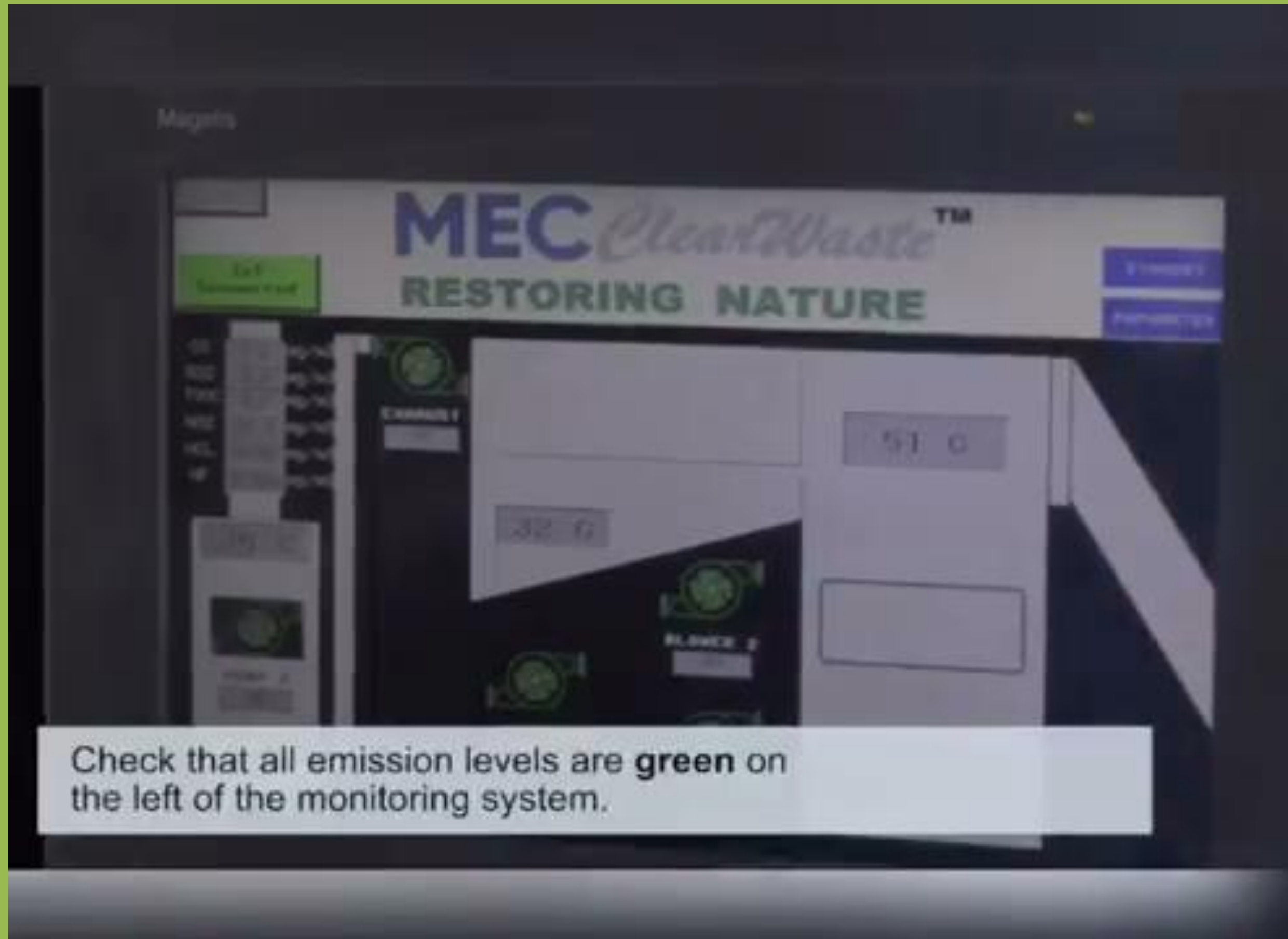
Delivery within 6-10 weeks

# The Operating Unit

MEC ClearWaste™ is a Registered Trademark of Millennium E & C (M) Sdn. Bhd.

ClearWaste™ and ClearWaste™ Mobile Sheltered & Trailer Mounted Versions are

- Approved in South Africa and 153 PCT countries in the world under WIPO (World Intellectual Property Organisation)
- Pending in Malaysia, UK, Indonesia, India, Bangladesh





# ClearWaste™ Fabrication

*Millennium E&C (M) Sdn Bhd's world class fabrication facility is a ASME U-Stamp certificate facility with over 60 years of experience of high-quality fabrication.*





# ClearWaste™ Capacities and Options

Capacities – 5 TPD (210 kg/h) and 2.5 TPD (105 kg/h)



BARE



CONTAINERISED



TRAILER MOUNTED

INPUT CAPACITY	OUTPUT (BYPRODUCT)	EMISSIONS	POWER SOURCE
105 kg/h* (@ 2.5 Ton/24 h)	100 kg/day (@ 4%)	Water vapour	Electric (6 kWh)
210 kg/h* (@ 5.0 Ton/24 h)	200 kg/day (@ 4%)	Water vapour	Electric (12.5 kWh)

\*Operating on 24-hour basis, depending on the composition of waste [as per the manufacturer]

# ClearWaste™ Compliance

## Emissions Monitoring

- Onsite continuous emission monitoring systems for: SOX, NOX, CO, CO2, HCL, NMVOC
- Further testing through laboratories as required.

## Ash Management

- Through scheduled waste operators

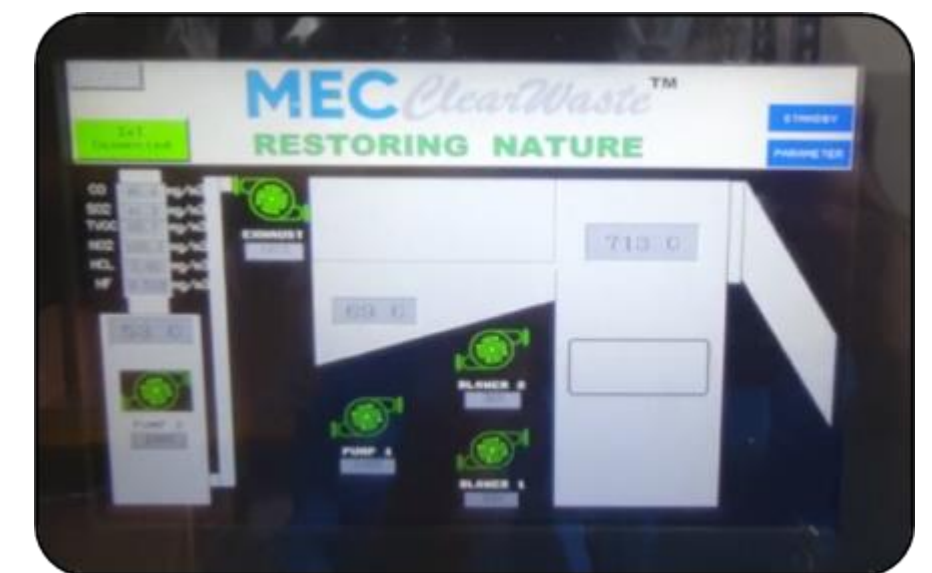
## Operational Safety and HSE



Fully clad unit offering full HSE protection



Integrated automated loading system for safe operation



Integrated IOT based Real Time Monitoring System





# ClearWaste™ and Cranfield University, UK

MEC & Cranfield University, UK are collaborating to achieve

- Energy generation solutions
- Agriculture applications
- Pre-conditioning of waste using ClearWaste™





# ClearWaste™ and UTAR MEC & University Tunku Abdul Rahman are collaborating to achieve

- a road repair solution from the 1-4% of inputted waste that gets converted into eco-friendly ClearWaste™ Ash.
- ClearWaste™ Ash can be mixed with Graphene-enhanced Polymeric Nanofibers to form a super-tough and sustainable additive for building smooth, long-lasting and maintenance-free roads. (Commercial applications under development)
- Uses include pothole repair, car park and road paving
- The solution would be strong, durable, inexpensive with high tensility and a low carbon footprint.



# ClearWaste™ Successes

Application: Community Solid Waste Management Bangladesh (Unit: CW 2.50E)

- In partnership with South Dhaka Authorities, we set up a community-based modern disposal site to treat local waste at source, and to provide an end-all solution for street waste.
- Our units are being placed in localised community-based disposal centres as an end-all solution to street waste and incoming waste from surrounding areas.





# ClearWaste™ Successes

Application: Solid Waste Treatment at Transfer Station in India (Unit: 5.00E)



- In partnership with Brihan-Mumbai Municipal Corporation (BMC), we are diverting waste from landfills, and countless of dumping grounds through deploying our units in Transfer Stations across Mumbai. In doing this, we reduce costs and CO2 emissions across Mumbai's waste management chain
- Our units are being deployed at Transfer Stations at source to reduce and prevent waste from going to landfills and incineration plants.





# ClearWaste™ Successes

Application: Mobile Solid Waste Management in India (Unit: 5.00E- Containerised and Trailer Mounted)

- We are working alongside Greater Chennai Corporation (GCC) to collect and treat waste that is generated in suburban communities, and at various public gatherings and events. For this application, we developed Mobile units, to enable the quick and efficient collection and disposal of waste on-the-go.
- These Mobile units are being deployed in the suburbs of Chennai to treat waste generated across multiple locations, and at public gatherings and events. The mobility of the units enable wide coverage of collection points, providing a waste treatment solution in areas and instances where there was none.



# ClearWaste™ Successes

## Application: Clinical Waste Reduction in Malaysia (Unit: CW 5.00E)



- Requested by Ministry of Health Malaysia to aid in clinical waste treatment due to the Covid-19 pandemic.
- Unit has successfully treated all types Clinical Waste (Non Body Tissue) including COVID infected waste like PPE, masks, sharps, all kinds of contaminated wastes such as food containers from Hospitals and Covid-19 Quarantine centres.
- Reports to DOE Melaka have been submitted monthly.





We thank you for your interest in us.

# Contact

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