
ADGEX
Advanced Green Expertise
GREENBLAZE
STATE-OF-THE-ART
MSW RECYCLING:
•WASTE-TO-ENERGY
•WASTE-TO-E-FUEL
TURN TRASH INTO CASH!

HUMANITY IS ON THE THRESHOLD OF A WASTE DISASTER

Waste generation has increased drastically around the world in recent decades, and there are no signs of slowing down.

The rate of municipal solid waste (MSW) generation increases as the population on the planet grows.

270 kg of MSW per year

generated by each inhabitant on our Planet and increasing;

2.01 Billion Tons of MSW

are generated worldwide every year;

More than 35 percent

of the world's MSW is not managed in an environmentally safe manner;

Global Waste production is expected to increase by 70% by 2050.

The world is faced with MSW processing challenges:

- Every second, the amount of waste generated on Earth is approximately six times greater than the combined processes of all of humanity.
- The prohibitive anthropogenic impact on the environment of MSW landfills and trash dumped in the oceans has exceeded the planet's adaptation capabilities for restoration;
- Conventional MSW recycling technogies does not ensure the safety of our lives, the health of our communities and our environment.

Driven by rapid urbanization and growing populations, global annual waste generation is expected to jump to 3.4 billion tones over the next 30 years.

HUMANITY HAS REACHED A VICIOUS CYCLE – CONTINUOUSLY OVER FILLING OUR PLANET WITH WASTE!

CRITICAL SHORTCOMINGS OF EXISTING WASTE MANAGEMENT

COST OF MSW PROCESSING

According to the World Bank, financing for waste management is up from 5% to about 20% of the budget of municipal cities. This puts a huge burden on the budget for both low-income, developing and developed countries.

ENVIRONMENTAL DEGRADATION

Existing technologies of MSW processing release harmful toxic emissions into the air, soil and groundwater, leading to acidification of rivers and the world's ocean, depletion of the ozone layer, disappearance of flora and fauna, and climate change.

INCREASE IN INCIDENCE

Products of waste incineration process and decomposition of MSW at landfills cause intractable pathological chronic diseases such as cancer, chronic diseases, skin infections etc. People living near landfills are 25% more likely to develop chronic diseases.

COMPLEXITY OF MSW SORTING

Waste is becoming more complex in composition. Increasingly, combined materials are being produced (fusion of glass, metals and polymers), that cannot be sorted conventionally, and must be separated by complex physical and chemical methods.

Considering the huge volumes of MSW the world will generate in the next three decades, it can be concluded humanity is facing the need to transition to a fundamentally new and state-of-the-art MSW recycling technology to ensure our safe existence on this planet now and in the future!

TRANSFORMING WASTE CHALLENGES INTO CLEAN SUSTAINABLE PRODUCTS

GREENBLAZE TECHNOLOGY is an environmentally friendly and progressive solution for Sustainable Waste Management that allows the output production of energy resources and fuel, as well as utilization of materials from MSW, reducing dependence on landfills and drastically minimizing harmful emissions.

greenBLAZE

GreenBLAZE is an avant-garde technology for waste-free processing of MSW directly at the sites newly generated wastes and its accumulation without preliminary sorting:

- Conversion of all sorts of organic wastes contained in MSW into valuable heat, electricity and fuel through a reaction of partial oxidation and vacuum destruction in a contained environment;
- Sanitization of inorganic materials contained in MSW, as well as restoration of metals, glass, stone and sand for their reuse in the national economy.

ADVANTAGES OF WASTE MANAGEMENT BASED ON GREENBLAZE TECHNOLOGY:

- Recycling of MSW both at places of their temporary accumulation in the cities and at landfills, with its subsequent reclamation;
- No sorting of MSW is required before processing;
- Processing of MSW with humidity up to 60%;
- Destruction of pathogenic microflora contained in waste during MSW processing;
- Restoration of metals, glass, stone and sand contained in MSW;
- Waste-free processing of MSW, no tailings left for disposal at the landfill;
- Near-Zero harmful emissions.

Superior Emission Standards

Emissions and output products (carbon dioxide, ash residue) meet permitted governmental pollution control norms. Hazardous and contaminated waste disposal eliminates dangerous pathogens. There are no emissions or generation of furans and dioxins.

Resource Recovery

GreenBLAZE technology transforms MSW into heat, electricity and fuel with low prime costs and high market values for domestic and industrial use, as well the recovered materials for industries and construction.

Efficient Waste Reduction

GreenBLAZE technology drastically cuts MSW volumes and disposal costs, creating clean sustainable waste practices.

THE CORE VALUE PROPOSITION OF GREENBLAZE TECHNOLOGY

Landfill Relief

The implementation of greenBLAZE mitigates the need for new landfills, allowing cities to manage waste without expanding dumpsites or creating new ones.

Low-Cost Operation

MSW recycling operates on partial oxidation with heat release, eliminating the need for additional fuel enrichment. This results in cost-effective recycling.

Holistic Recycling Solution

GreenBLAZE recycles all known types of organic waste and human waste that addresses the challenge of non-recyclable and non-degradable waste accumulation.

Mobility and Scalability

GreenBLAZE units are designed for transportability and quick setup, with the ability to increase capacity swiftly. This feature allows for flexible waste management solutions that can adapt to changing demands and locations.

GREENBLAZE RAISES THE ENVIRONMENT TO AN UNPRECEDENTED LEVEL

Due to the progressive method of exhaust gas purification using a special Ecological unit, the GreenBLAZE MSW Recycling Plant does not have any harmful pollutants at its output.

EXHAUST GASES TREATMENT UNIT

1 STAGE — IMPELLER CLEANING
Removal of mechanical impurities from exhaust gases

2 STAGE — STEAM-WATER CLEANING
Removal of carbon oxides from exhaust gases

STAGE 3 — WET FILTER
Final removal of carbon oxide residues from gases

STAGE 4 — DRY NANOFILTER
Final gas purification from suspended particles

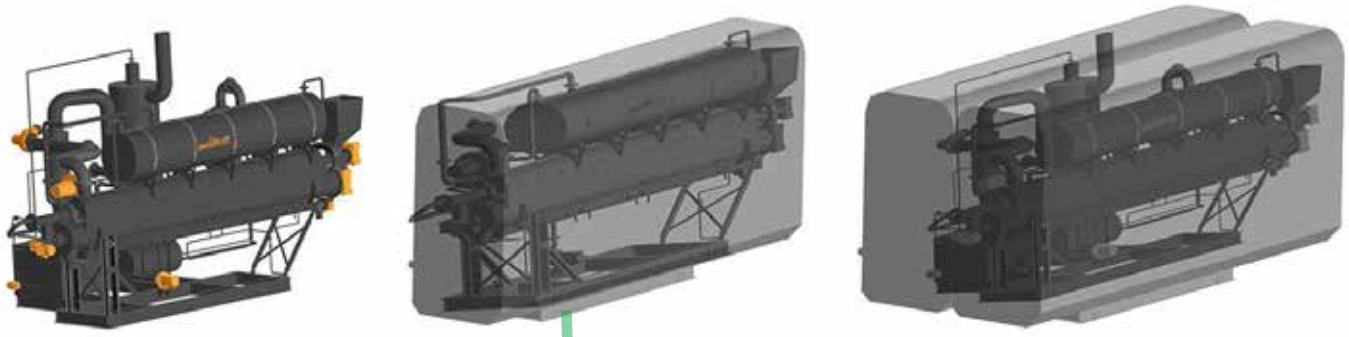
Traditional waste incineration plants emit extremely powerful pollutants such as sulfur dioxide (SO_2), nitrogen oxide (NO_x), heavy metals, fly ash and other toxic substances.

Superior Emission Standards of the GreenBLAZE MSW Recycling Plant radically minimizes harmful emissions, creating the cleanest infrastructure for the sustainable development of humanity.

UNIT-MODULAR DESIGN OF GREENBLAZE MSW RECYCLING PLANT

The GreenBLAZE MSW Recycling Plant consists of separate container-type module units that are interconnected into a single set of equipment.

- Each unit is designed for a special purpose. All equipment of each unit is housed in a mini container-casing, the sides of which have special viewing windows for servicing the module during operation.
- Each unit has special universal connectors for connecting with other modules according to the plant's process flow chart for MSW recycling.
- Each unit has special skids on which it is easy to transport and move at the installation site.



MAIN UNIT OF MSW RECYCLING PLANT - GREENBLAZE PROCESSOR

The GreenBLAZE Processor is a closed-loop recycling processor without open combustion in which organic waste is completely processed through a multi-stage vacuum-thermal decomposition reaction of carbon-containing materials with heat release output, without harmful emissions, resulting in molecular synthesis gas and ash residue.

ADVANTAGES OF THE UNIT-MODULAR APPROACH:

Ease of replacing modules at the recycling site of the plant one by one if necessary for service or repair.

Possibility of upgrading modules to more advanced ones (new generation unit) during plant' modernization without stopping the plant's operation as a whole.

Replacement of modules responsible for the plant' output of a commercial product, that provides greater variability for the customer (boiler fuel – electricity – e-fuel).

SERVICE AND REPAIR OF MODULES

A module requiring maintenance is moved out of the plant's recycling site in a special service box. No routine maintenance is carried out at the production site of the plant itself. This ensures round-the-clock, uninterrupted operation of the entire MSW Recycling Plant.

TECHNICAL CHARACTERISTICS OF ONE GREENBLAZE MSW PLANT

CAPACITY OF MSW PROCESSING (at bulk density 600 kg/m^3): * The permissible maximum humidity of MSW is up to 60%.	5.0 м^3/h (3 000 kg/h)
COMMERCIAL OUTPUT PRODUCT PER HOUR*	
Option 1 • Electrical Energy: • Heat: **Option 2** • Boiler Fuel: • Heat: **Option 3** • Synthetic Fuel: • Heat:	 2 000 kW 1.5 Gcal 1 000 liters/h 1.5 Gcal 750 liters/h 1.5 Gcal
OUTPUT OF INORGANIC MATERIALS	
• Ash residue: (as a percentage of processed MSW) • Glass: • Stone: • Metals:	1.0 ÷ 3.0% Depends on their content in processed MSW
PLANT PLACEMENT:	Three 40 ft. containers
SET-UP TIME:	72 hours
POWER CONSUMPTION OF THE PLANT: (380 V, 50 Hz, three-phase current)	30.0 kWh
OPERATING MODE:	Continuous (round-the-clock)
SERVICE STAFF PER SHIFT	
• Operator (engineer): • Labourer (unskilled):	1 2
SERVICE LIFE OF THE PLANT:	15 years
MAINTENANCE SERVICE	
• Frequency (every 8000 operating hours): • Duration:	Once per annum 20 working days
WARRANTY FOR EQUIPMENT OF THE SYSTEM:	12 months

*DISCLAIMER:

- Commercial output is presented for the ideal composition of MSW (100% of dry solid organic waste with high calorific value).
- The real output would be depend on Carbon Content, Calorific Value, Moisture Content and other impurities contained in MSW.

PROCESS FLOW CHART OF MSW RECYCLING

PREPARATION & FEED OF RAW MATERIAL

1. RECEIVING BUNKER
2. PRE-SORTING UNIT
3. SHREDDER
4. SCREW CONVEYOR

FRESHLY COLLECTED MSW / MSW BURIED IN A LANDFILL

5.0 m³/h or 3 000 kg/h

16 MCS

A MEASURING AND CONTROL STATION WITH SEMI-AUTOMATIC CONTROL SYSTEM

5 RAW MATERIAL PROCESSING AND DECOMPOSITION

Heat → 6 HEAT EXTRACTION UNIT → Heat 1.5 Gcal

7 GAS GENSET → Electrical energy 2 000 kW (Option 1)

Syngas → 8 GAS CLEANING UNIT

9 SHC UNIT Synthesis of Hydrocarbon Compounds → Boiler fuel 1 000 l/h (Option 2)

10 SSF UNIT Synthesis of Synthetic Fuel → Synthetic e-fuel 750 l/h (Option 3)

Metals with a melting point up to 1200°C → 11 METALS COLLECTOR

12 ARC FURNACE → Refurbished metals

Metals with a melting point above 1200°C

13 ASH SEPARATOR → Ash residue, Stones & Sand, Glass

Ash residue with inorganic materials → 14 ASH COLLECTOR

Exhaust gases → 15 EXHAUST GASES TREATMENT UNIT → CO_2 within the permissible norms

COMMERCIAL OUTPUT PRODUCTS

- Mass & Energy Balance
- Control commands

GREENBLAZE IS AN ADVANCED TRANSITION TO A CLOSED-LOOP CIRCULAR ECONOMY

HUMANITY AND TECHNOLOGICAL ADVANCEMENTS HAVE CREATED, ARE CREATING, AND WILL CONTINUE TO CREATE WASTE.

People are deluding themselves when talking about the RETHINKING as a program aimed to generate or produce less volume of waste.

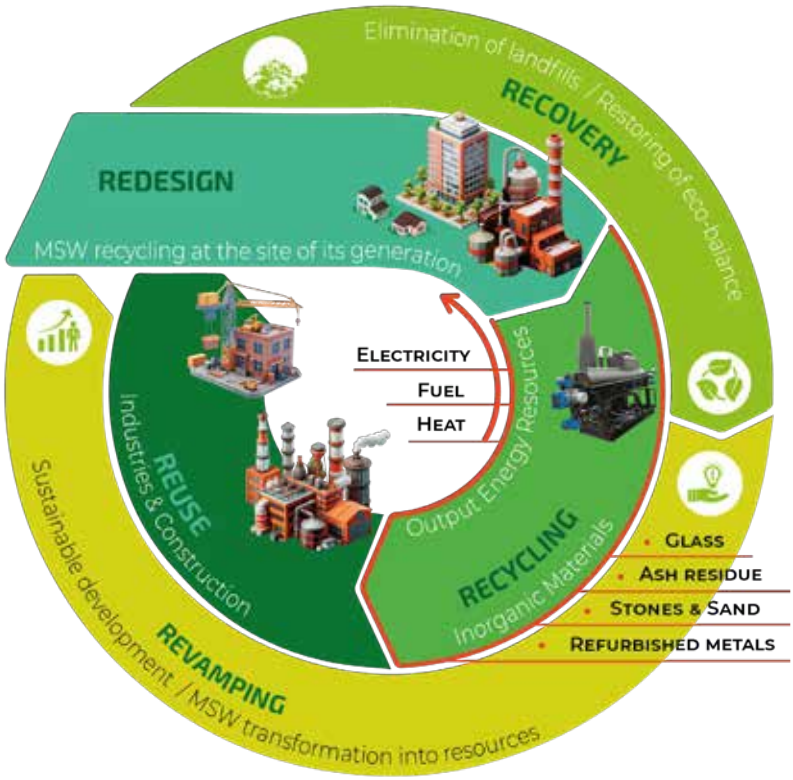
Think about the figures: just 16% of the world's population living in high-income countries produces 1/3 of the total global volume of MSW.

The transition to a circular economy is possible only with the emergence of progressive clean technology that allows waste to be processed directly at the site of its generation without being taken to a landfill, while producing green useful products from MSW that are in demand in the economy.

GREENBLAZE TECHNOLOGY IS NEEDED FOR THE TRANSITION TOWARDS A CIRCULAR ECONOMY AND SUSTAINABLE FUTURE

The real goal of the "Zero Waste" program is the recycling of all wastes produced by Humans into new energy sources such as fuel and raw materials for their reuse.

With the help of GreenBLAZE Technology, humanity can minimize the extraction of minerals from Earth. Now humans can produce the materials they need for domestic and industrial use directly from waste, completely restoring all inorganic materials contained in the MSW into their original state and obtaining the energy resources and fuel from organic solid waste.

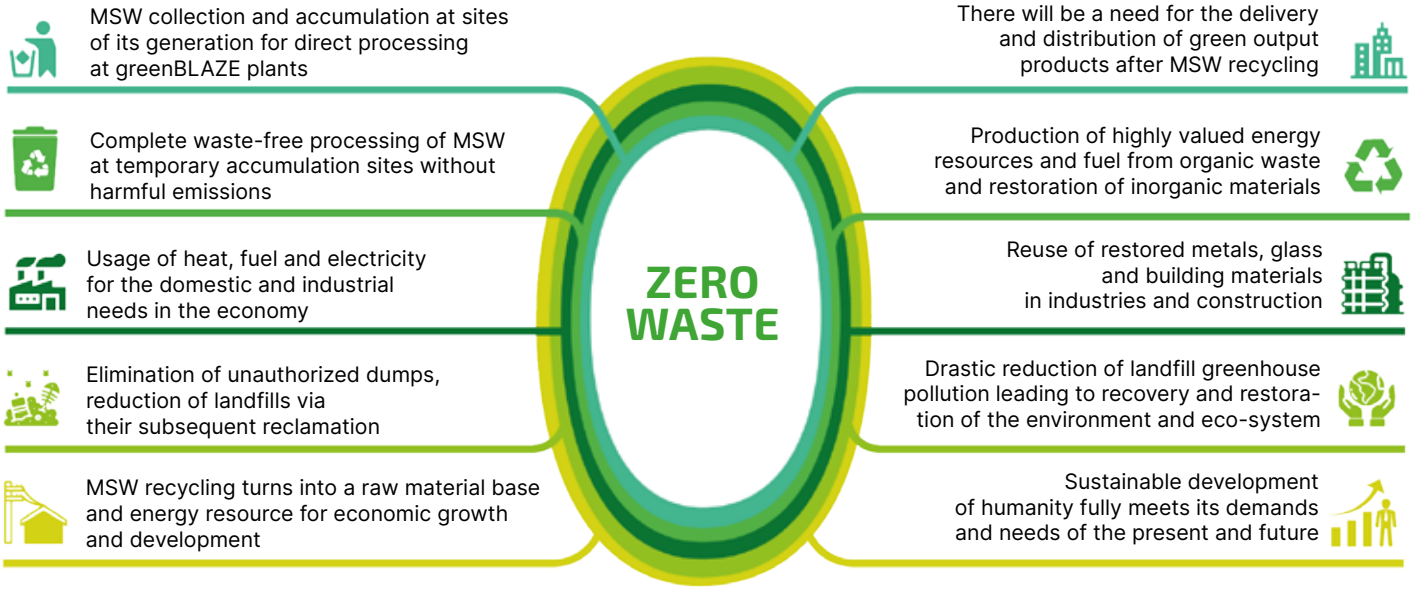


The disposal of MSW into landfills does not serve humanity!

ENVIRONMENTAL SAFETY BECOMES A REALITY!

Transformation of MSW into energy resources and raw materials!

5R - ZERO WASTE HIERARCHY



GREENBLAZE IS TRANSFORMING WASTE CHALLENGES INTO A CLEAN SUSTAINABLE FUTURE

REDESIGN
A new paradigm for waste recycling. MSW recycling directly at the site of its generation without disposal to landfills. Community participation in sustainable waste management.

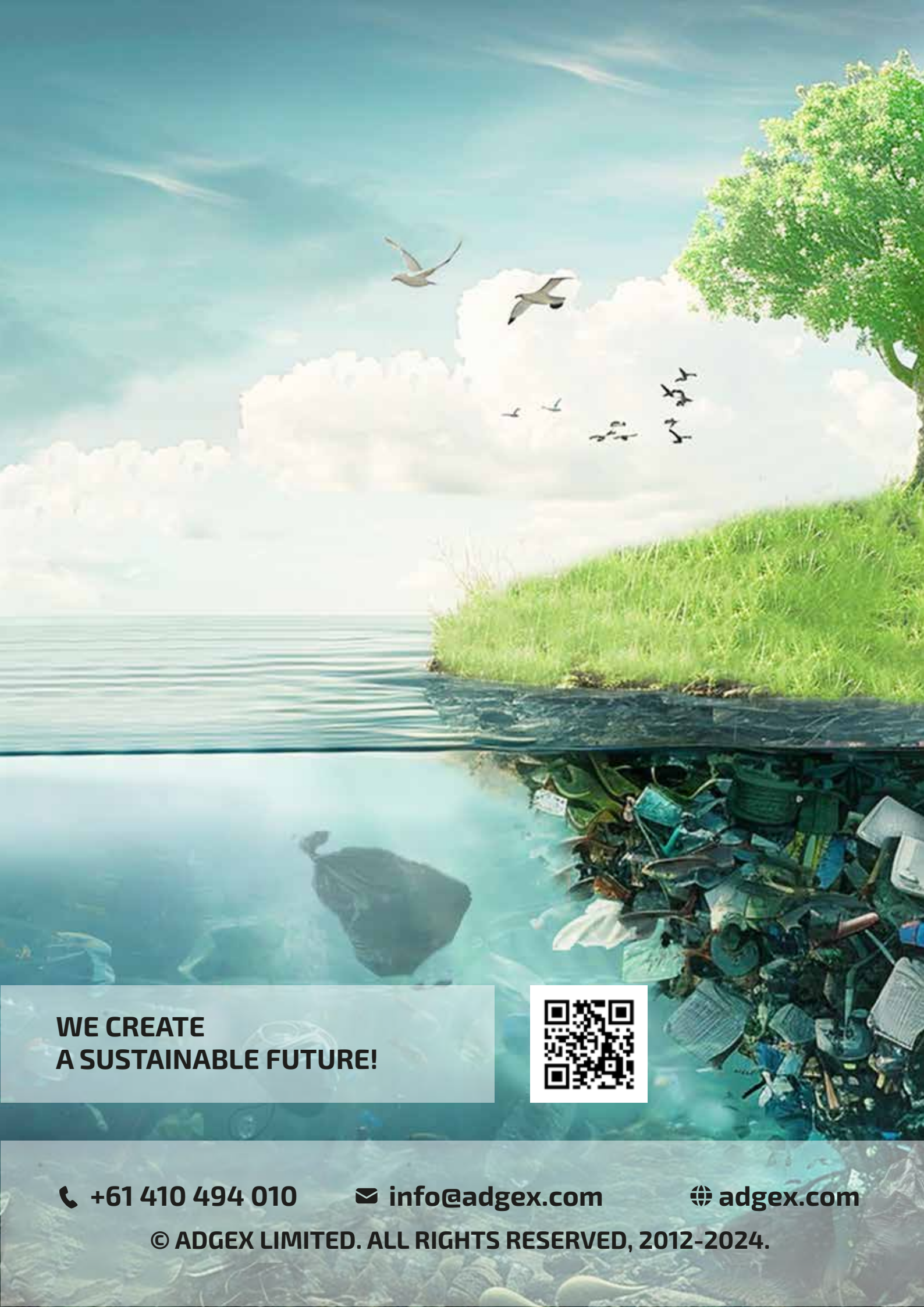
RECYCLING
Complete waste-free processing of MSW into value addition. Products being valuable energy resources and inorganic materials without harmful emissions.

REUSE
Each outcome product of MSW processing is fully used in the national economy for domestic and industrial use.

RECOVERY
Reduction and remediation of MSW landfills. Restoring the Planet's eco-balance.

REVAMPING
Sustainable Future.

greenBLAZE



WE CREATE
A SUSTAINABLE FUTURE!

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