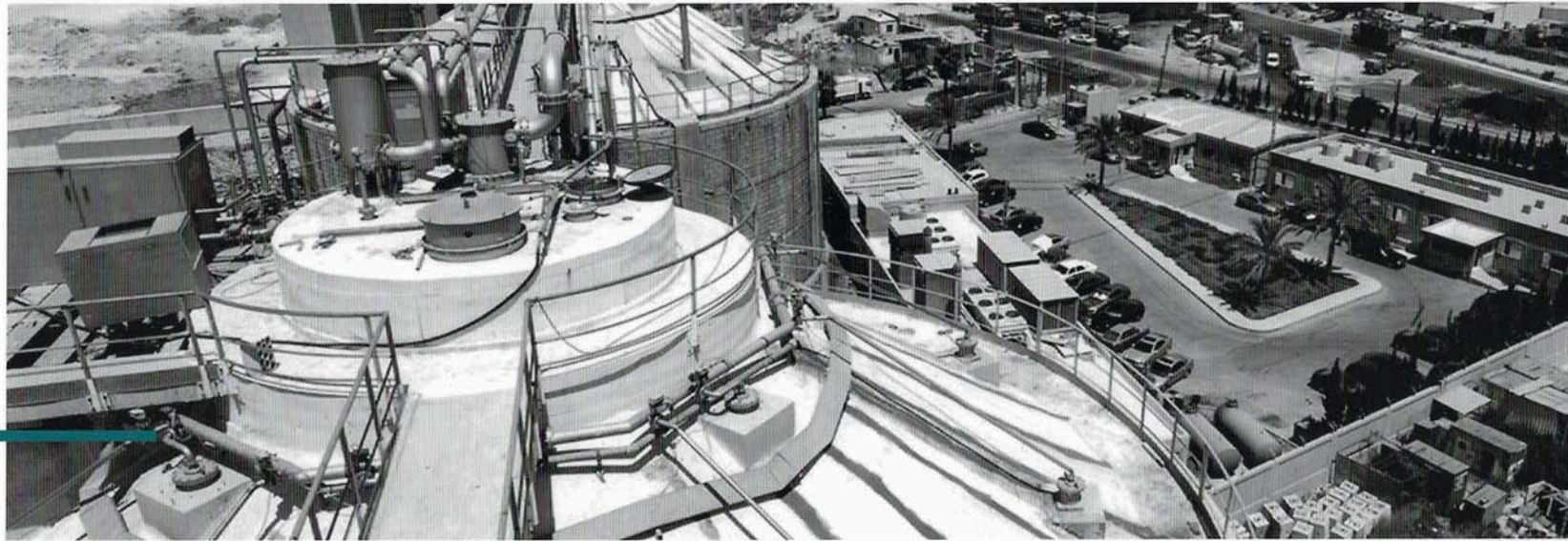for waste treatment

The Waste to Energy and Zero Landfill Solution

BE A RESPONSIBLE CITIZEN, RECYCLE YOUR WASTE.

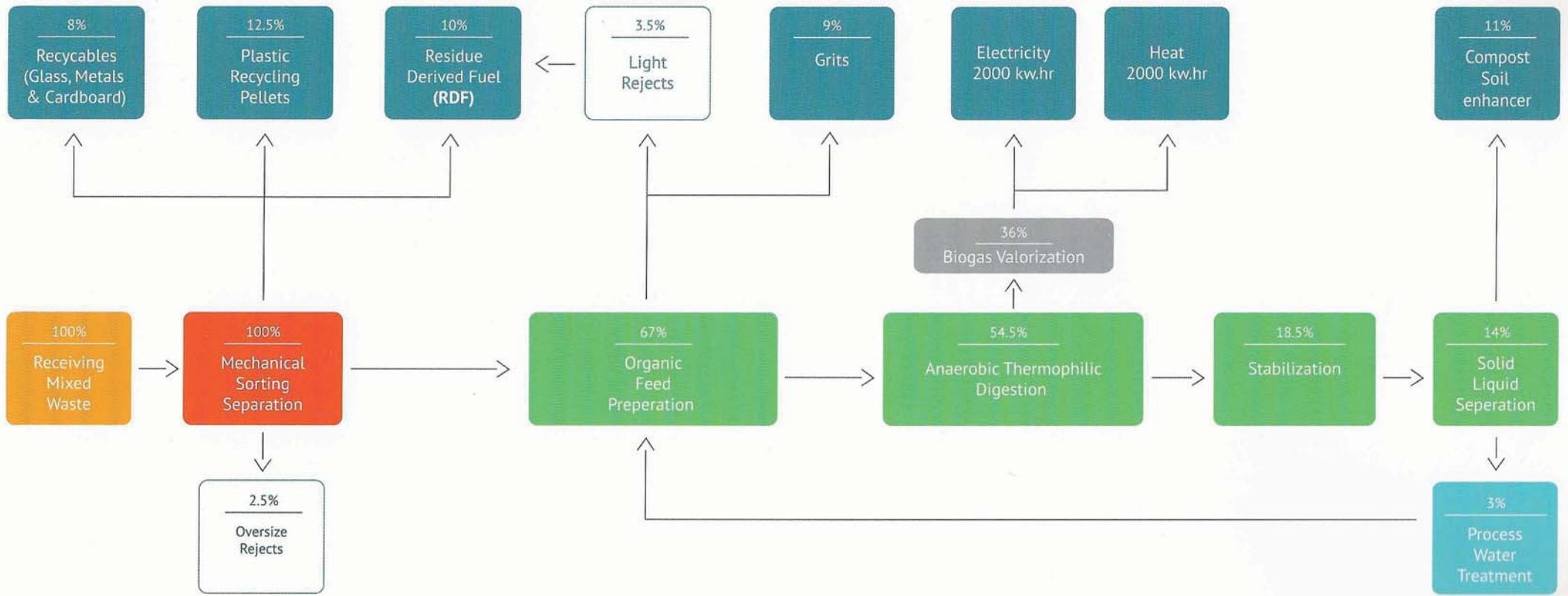# OVERVIEW ——————

MUNICIPAL SOLID
WASTE TREATMENT

WASTE TO ENERGY / ZERO WASTE (NO LANDFILL)

IBC s.a.l.; a privately owned company, provides state-of-the-art integrated solutions for the most effective treatment of municipal mixed solid waste (MSW per day). IBC uses mechanical sorting and separation, and biological treatment (MBT) based on anaerobic digestion (AD).

IBC's plant in Saida is currently capable of recovering and treating 100% of the overall received material. It produces biogas which it treats and uses it to generate heat and electricity. The plant is of the "Waste to Energy" (W2E) type; and is also a "Zero Waste" plant, where no landfill is needed.

OUR TECHNOLOGY ——————

| 8% | 12.5% | 10% | 3.5% | 9% | | Electricity 2000 kw.hr | Heat 2000 kw.hr | 11% |

Recycables (Glass, Metals & Cardboard) — 8%
Plastic Recycling Pellets — 12.5%
Residue Derived Fuel (RDF) — 10%
Light Rejects — 3.5%
Grits — 9%
Electricity 2000 kw.hr
Heat 2000 kw.hr
Compost Soil enhancer — 11%

Biogas Valorization — 36%

Receiving Mixed Waste — 100%
Mechanical Sorting Separation — 100%
Organic Feed Preperation — 67%
Anaerobic Thermophilic Digestion — 54.5%
Stabilization — 18.5%
Solid Liquid Seperation — 14%

Oversize Rejects — 2.5%

Process Water Treatment — 3%

WEIGHING & TRACEABILITY   **SORTING & SEPARATION**   **BIO-CONVERSION PROCESS**   **IBC OUTPUTS/PRODUCTS**

OUR BY-PRODUCTS ———

1. RECYCLABLES: METALS, GLASS, CARTON

At IBC, recovered recyclables include: Cardboard, Plastic, Metals and Glass. These materials do not have high re-sale value, but their potential resides in availing economic opportunities for efficient downstream secondary industrial operations. Recovered cardboards, metals and glass are ultimately transferred respectively to paper mills, foundries and kilns.

Plastic on the other hand; and PET, and then is sorted and separated into LDPE, HDPE, and PET then recycled internally to produce pellets for industry.

2. POWER GENERATION

At IBC, we do not only re-cover resources. We preserve them and generate our own heat and electricity, and re-use our water thus making IBC a leading producer of renewable energy and resources. The anaerobic digestion of the organic fraction produces biogas and water leaving a partially stabilized wet organic mixture.

The biogas; a mixture of methane, carbon dioxide and other gases, is cleaned from potential pollutants such as hydrogen sulfide and impurities in compliance with the highest International emission standards. It is used to fuel generators to produce electricity and heat. This energy recovery process saves the local environment from toxic gases, and the planet from the detrimental effects of methane & carbon dioxide, both greenhouse gases contributing the most to global warming.

3. PLASTIC PELLETS

IBC and RokyPlast jointly recycle waste plastic to produce LDPE and HDPE pellets and PET flakes ready for use by secondary plastic processors as a prime raw material. The product is currently commercialized locally and exported abroad under the RokyPlast brand.

4. SOIL IMPROVER AMENDMENT

The organic fraction remaining after the intricate mechanical sorting and separation process is anaerobically treated in digesters. The resulting digestate is then stabilized, dewatered and sent for maturation.

The resulting compost is used as a soil amendment to improve soil quality structure and charactiristics.

The compost obtained from waste treatment at IBC is odorless and close in specifications to that obtained from source segregated processes.

5. REFUSE DERIVED FUEL

Light rejects of mixed waste such as styrofoam, pieces of cardboards, mixed paper, and used textiles are separated and treated to produce a high calorific value fuel substitute; refuse derived fuel (RDF). It is used in high temperature kilns in heat intensive industries.

The RDF currently produced at IBC contains about 15% moisture and an officially tested calorific value of 26 megajoules per Kg (MJ/Kg).

6. SILICA/ CONSTRUCTION PRODUCTS

Silica compounds derived from the dense fraction of the waste are finely graded ceramic inert materials. These grits are used as backfill materials and sub-base in roads as well as in mixes for concrete building products such as building stones, sidewalk tiles, and hourdi blocks and slabs.

These products; when in addition they incorporate also IBC's light fraction, are lighter in weight, have improved mechanical properties and thermal and accoustic insulation capacities.

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PRESERVE THE FUTURE FOR OUR CHILDREN, RECYCLE.

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