

Thailand-Japan Environmental Solutions
Week
in Bangkok, 16, January, 2020

Generation of Electricity and Compressed
Biomethane Gas (CBG) from Organic
Fraction of Municipal Solid Waste
(OFMSW) using Dry Fermentation
Technology





Center of Biomass Garbage Management Complete Cycle Chiang Mai University

MSW input 30 tons/d (8 hr/d) since January 2018

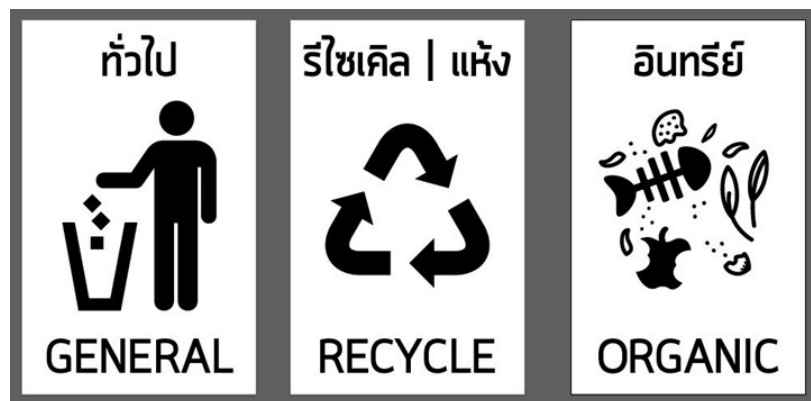
DESIGN VALUES:

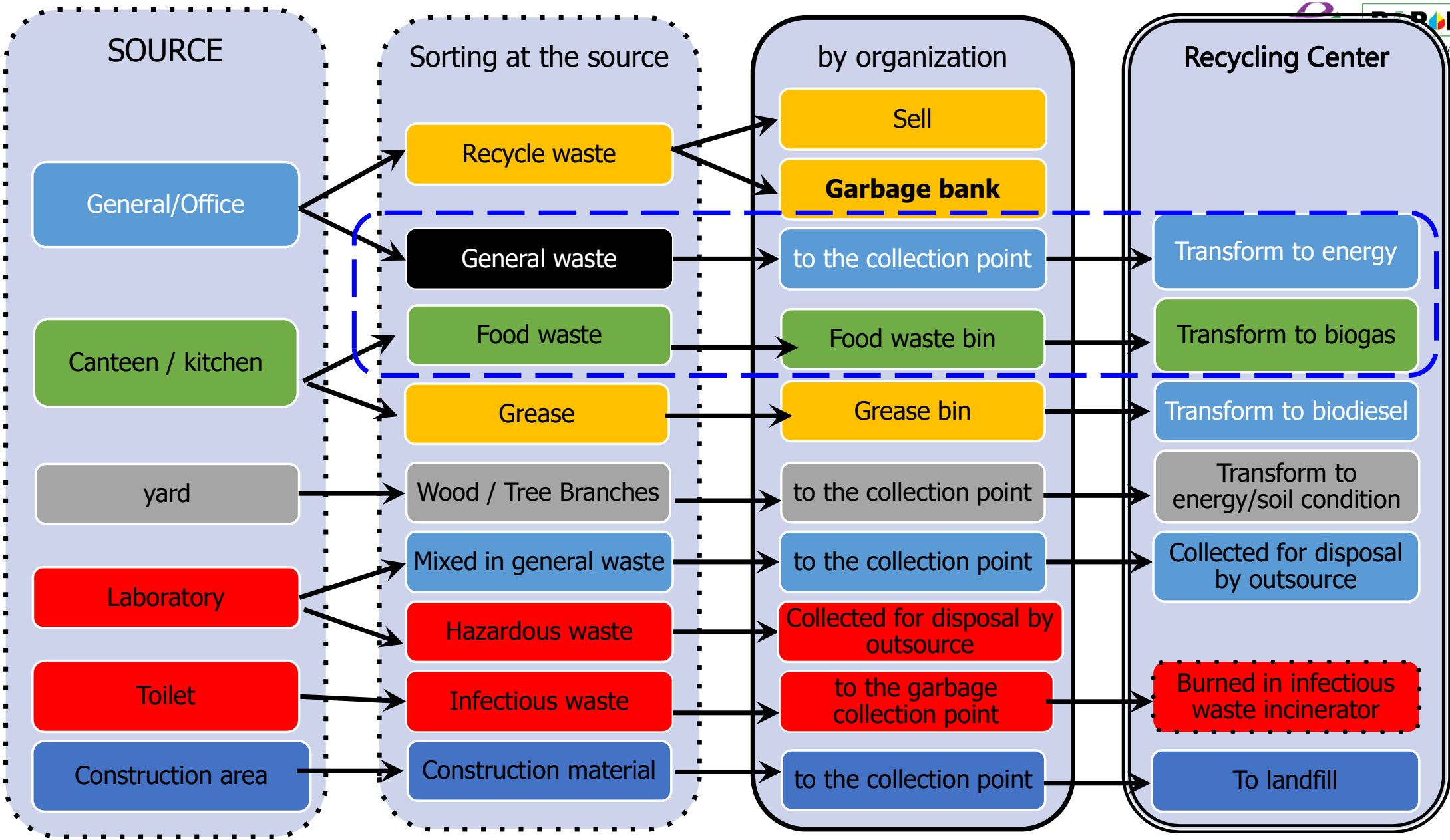
- ✓ Reduce waste disposal cost **2,500,000 THB/yr**
- ✓ Produce electricity 240 kWh/d or **320,000 THB/yr**
- ✓ Produce CBG 420 kg/d or **2,300,000 THB/yr**
- ✓ Produce soil conditioner 3 tons/day or **990 tons/yr**
- ✓ Recycle waste 12 tons/d or **3,960 tons/yr**
- ✓ Reduce waste to land fill > 90 % or **8,900 tons/yr**

Operation

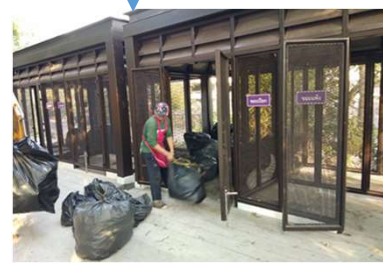
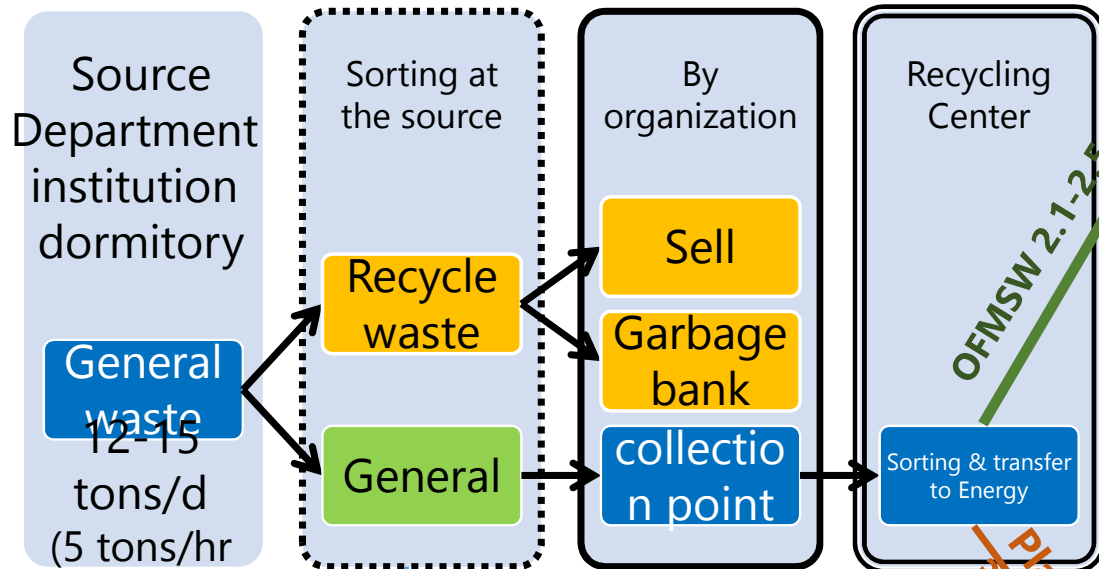
- ✓ Technician 2 person
- ✓ Manager 1 person
- ✓ Labor 8 persons

Recycling Center and Biogas Dry Fermentation



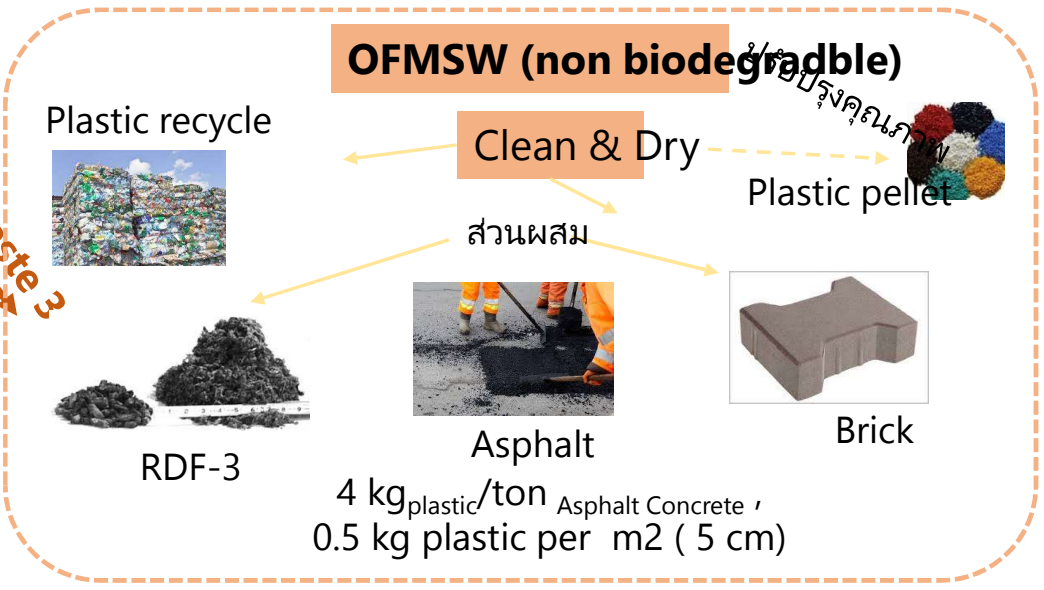
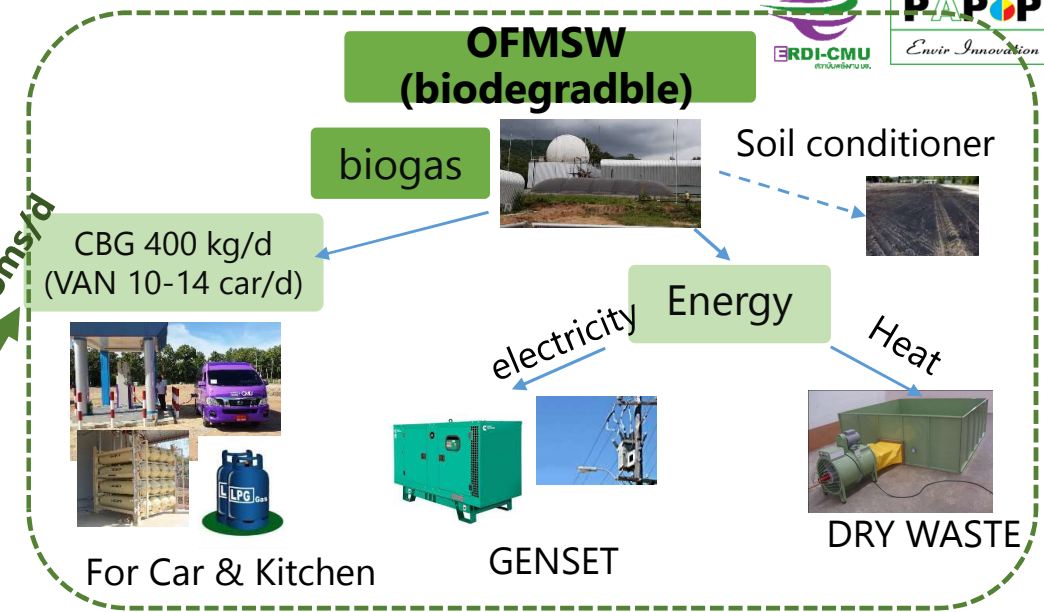


General waste



OFMSW 2.1-2.5 tons/d

Plastic waste 3.5 tons/d





Recycling Center and Biogas Dry Fermentation





Cover Lagoon

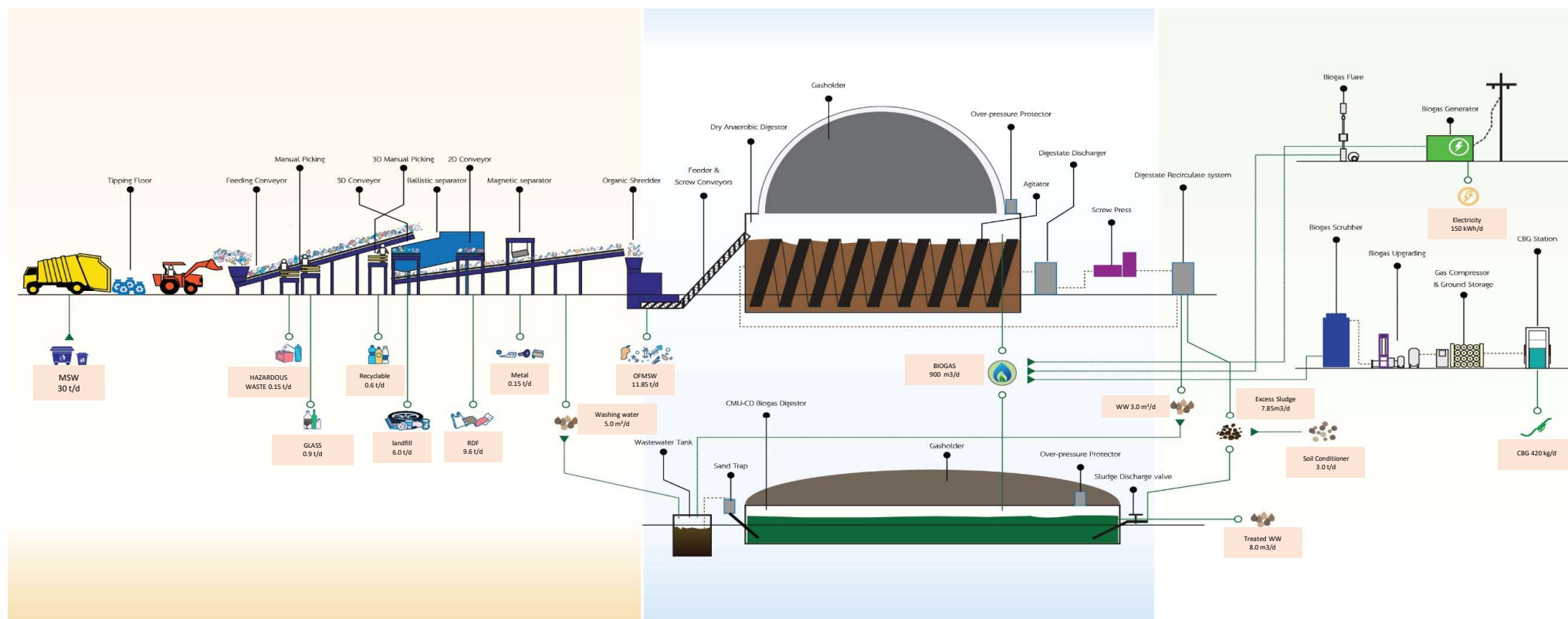
Sorting Plant

Dry AD Plant

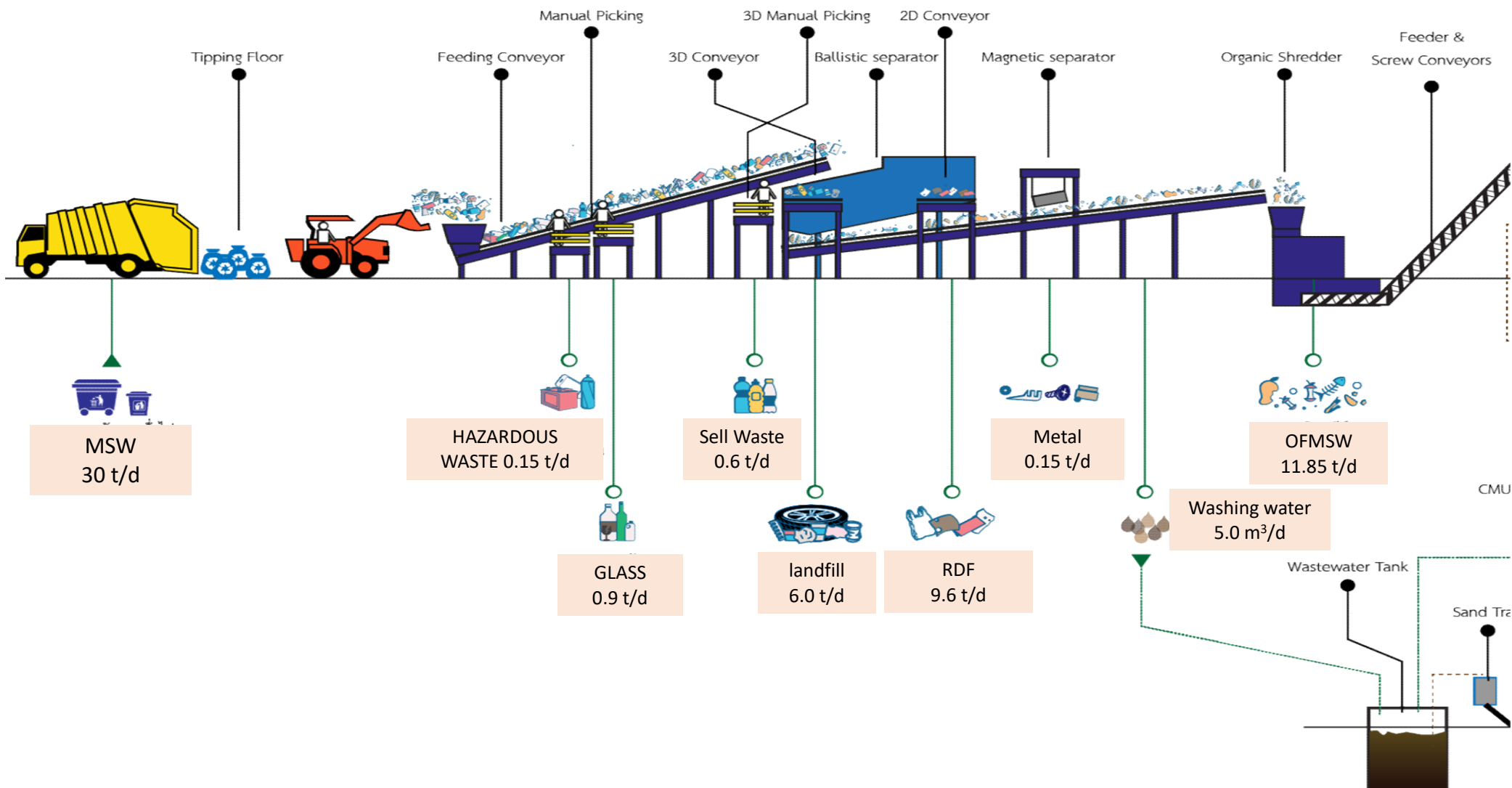
SORTING

BIOGAS PRODUCTION

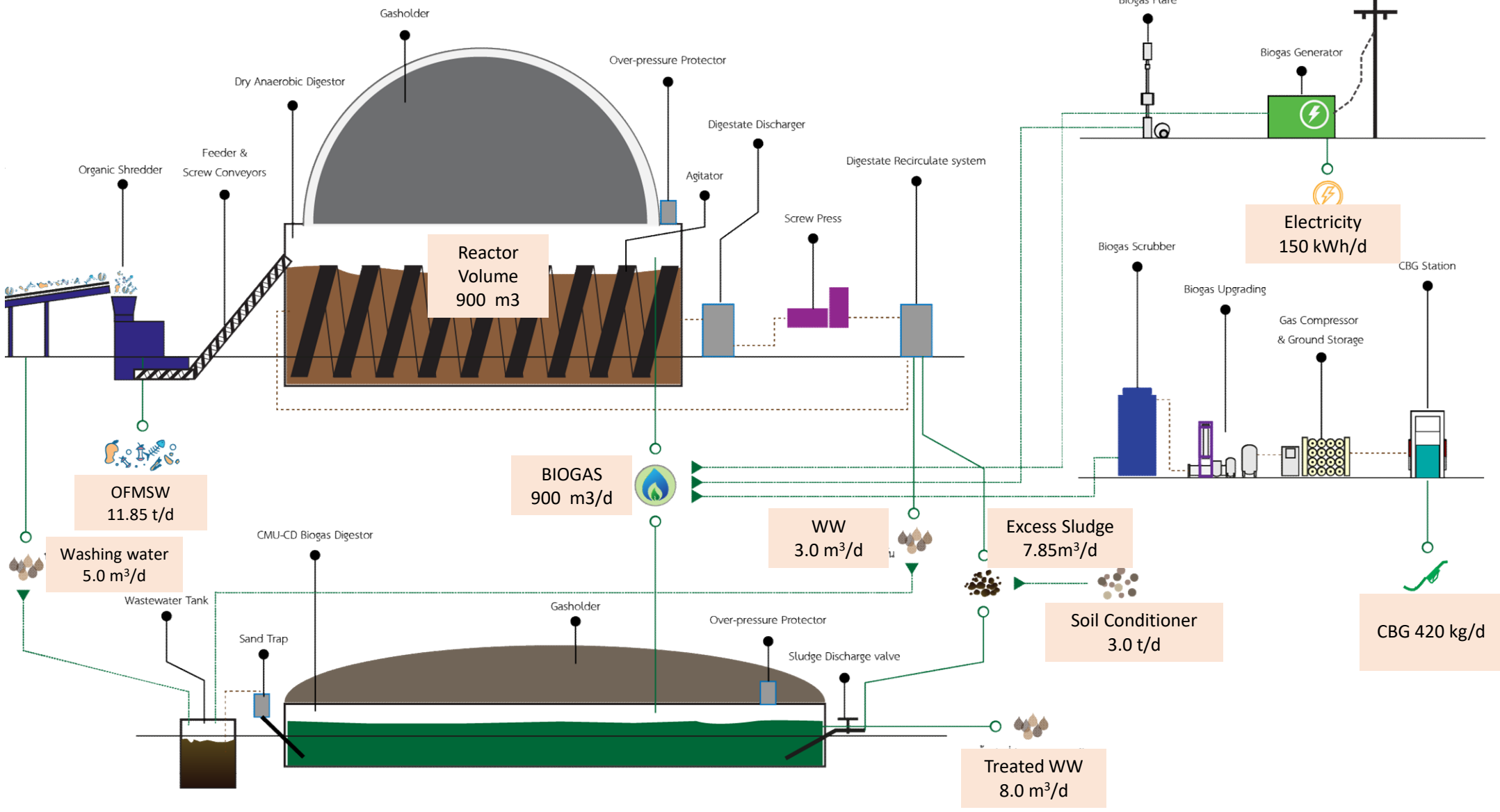
BIOGAS UTILIZATION



SORTING



BIOGAS PRODUCTION & UTILIZATION



Benefits of Dry Fermentation Technology

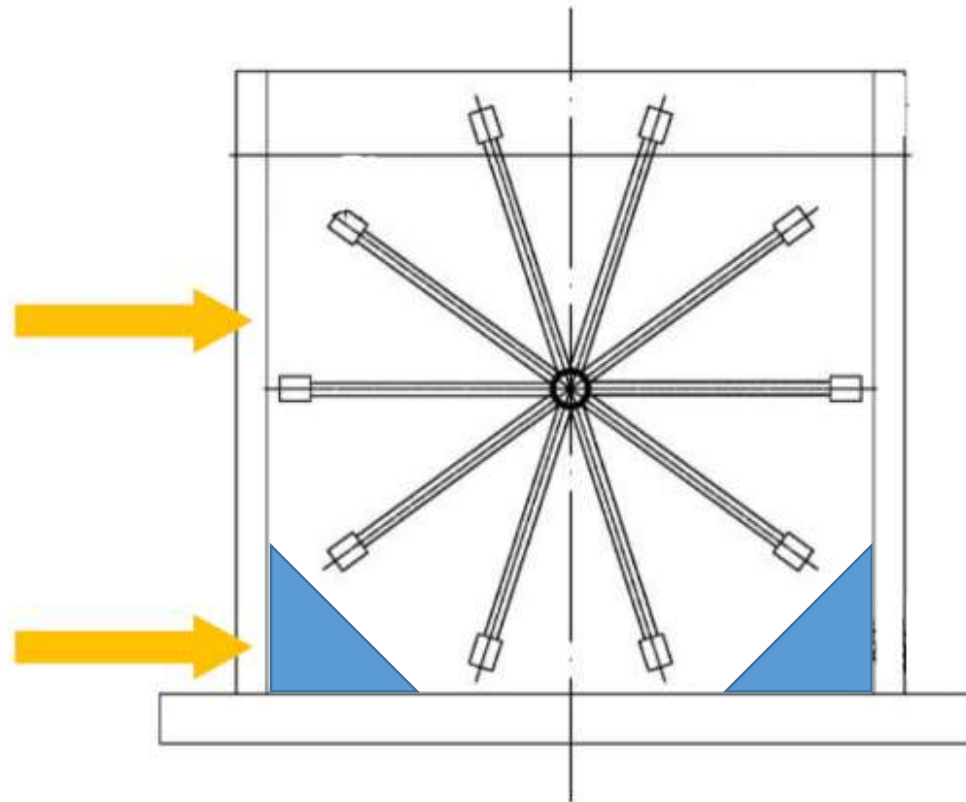
- Dry process (no need to add water)
- Plug flow and non clog
- Handle solid input up to 30%
- Compact size
- No floating impurity and sediments
- Low operating cost



AD Mixer

Agitation paddles
cover 70% digester
volume

Only corner has sand
sediment, few
digestion volume loss



Discharge Pump



- Non clog
- Accept waste size < 60 mm
- Economic
- Robust
- Simple O&M







**SORTING
PLANT**



OFMSW



RDF



REJECT





By-products



Dry AD Tank



Solid digestate







Genset Building



Genset 20 kW





เครื่องสูบน้ำมันทำงานอัตโนมัติตลอดเวลา

COLTRI
COMPRESSORS

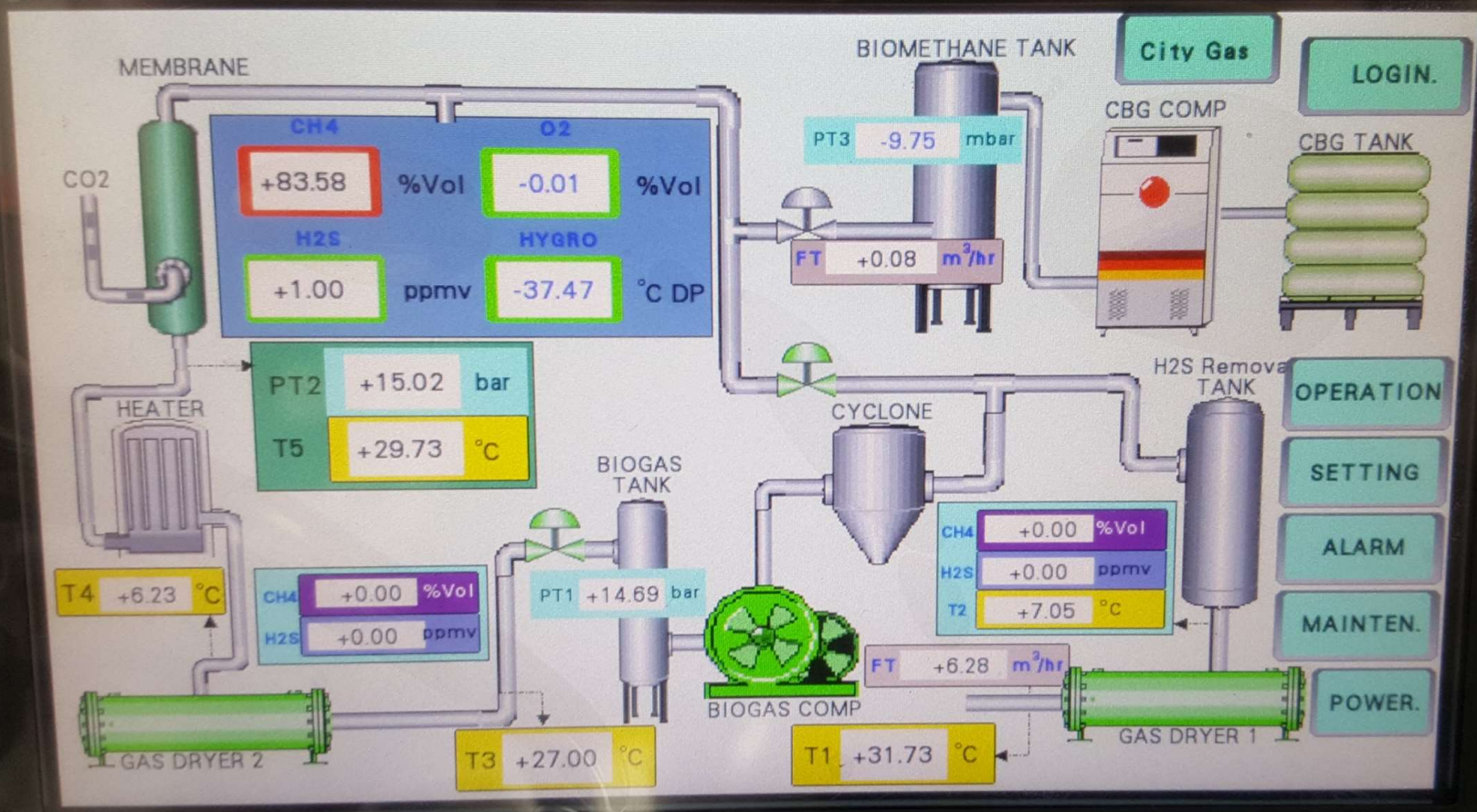
MCH24-CNG

CBG Compressor





POWER



- LOGIN.
- OPERATION
- SETTING
- ALARM
- MAINTEN.
- POWER.

OMRON



End of presentation



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