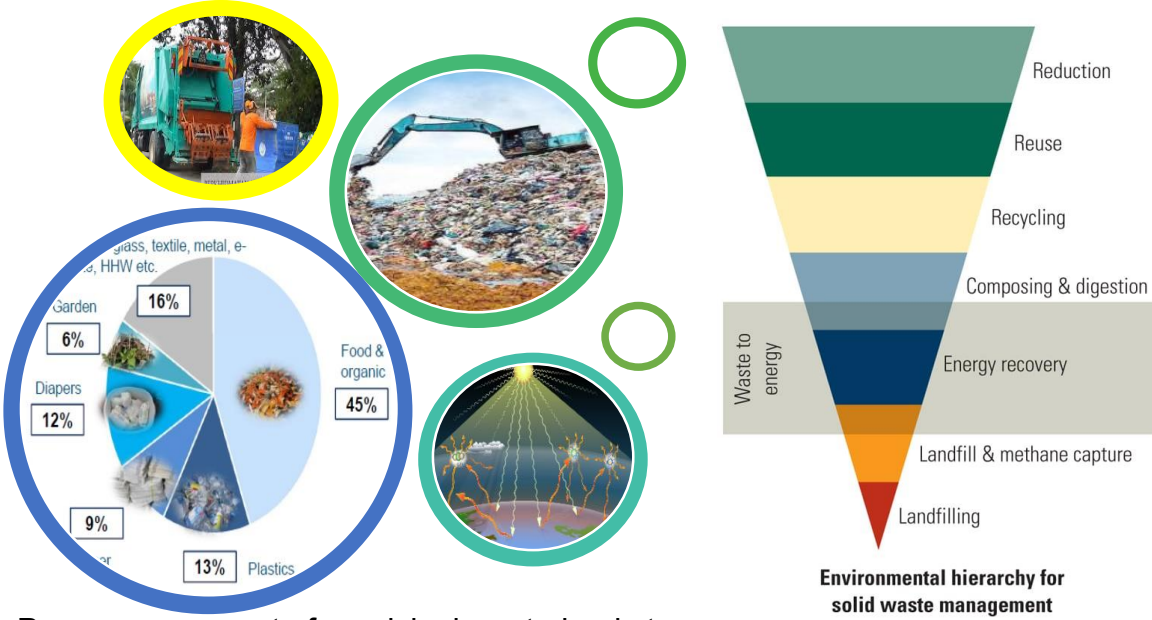


# WASTE TO FUEL MOBILE PYROLYSER

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## Product Background



Poor management of municipal waste leads to greenhouse gases and scarce of landfill

## Benefits & Novelty

- Portable and robust
- Green technology of waste to wealth
- Potential new profitable business concept
- Renewable alternative energy source
- Improve solid waste management

## State of the Art



Waste preparation



Conversion of waste to fuel

Properties	Mobile pyrolyser fuel	Commercial GASOLINE
Liquid Product yield, %	25	-
Calorific value (MJ/kg)	43.55	43.40-45.80 <sup>[4]</sup>
Clarity (NTU)	8.67	-
Density (g/mL)	0.79	0.73-0.78 <sup>[5]</sup>
RON Number	100	97
Moisture content %	2.64	<3
Production Costing (RM/L)	1.00	-
Selling Price (RM/L)	2.00	2.35 (Effective date on 4-10/3/2021)
Profit (RM/L)	1.00	-



Product collection & specification

### Collaboration/Industrial Partner



College of Engineering,  
Universiti Malaysia  
Pahang



DRB Hicom Environmental  
Services Sdn Bhd



Alam Flora Environmental  
Solutions Sdn Bhd

### Cost Analysis

\*Assumption:

- 18.7 metric tonnes production per annum of fuel from waste.
- 8 hrs per day of 330 operating day

	Descriptions	Value
COST	Capital cost (RM)	150,000
	Production cost RM/kg	1.00
	Production cost RM/year	18,744.00
REVENUE	Selling price RM/L	2.00
	Gross profit RM/year	52,800.00
	Net profit RM/year	34,056.00
Pay back period		4 years
RO1		23%

### Status of Innovation

- Prototype (PRGS/1/2019/TK10/UWP/02/5 RDU190808, PDU203204 )
- Technology Readiness level 5
- Field test at DHES Temerloh Halt



### Publication

- Ruzinah Isha, Nurul Natasha binti Mamat, Normardhati binti Mustafa, Rohayu Jusoh, Hafizah Ramli, Rahimah Binti Ismail (2021), EFFECT OF MUNICIPAL WASTE COMPOSITION IN MUNICIPAL WASTE PYROLYSIS TO FUEL, International Conference on Sustainable Energy & Catalysis Virtual, 16th-17th February 2021, Universiti Teknologi Malaysia
- NOR. N.M, ISHA. R, (2016), Characteristics of liquid fuel produced from catalytic pyrolysis of plastic mixture resin: nickel supported with either alumina or oil palm biomass ash catalyst, ARPN Journal of Engineering and Applied Sciences, Vol. 11, No. 16, August 2016, pp9901-9907