

The Promotion of Community Resilience Against Plastic Pollution and Climate Change in the Mekong River Basin Workshop

Session 5: Technology development to science-based actions to tackle plastic pollution

Downstream solution

March 9, 2023

Royal Princess Larn Luang Hotel, Bangkok, Thailand

Professor Thares SRISATIT, Ph.D.

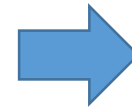
President of Environmental Engineering Association of Thailand

Plastic Waste Management

Upstream

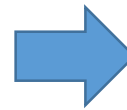


1) Reduce



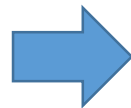
**Eco-design /
Reducing Consumption
/ Waste Minimization**

2) Reuse

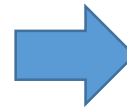


**Reusing packaging
waste or reuse waste
without processing**

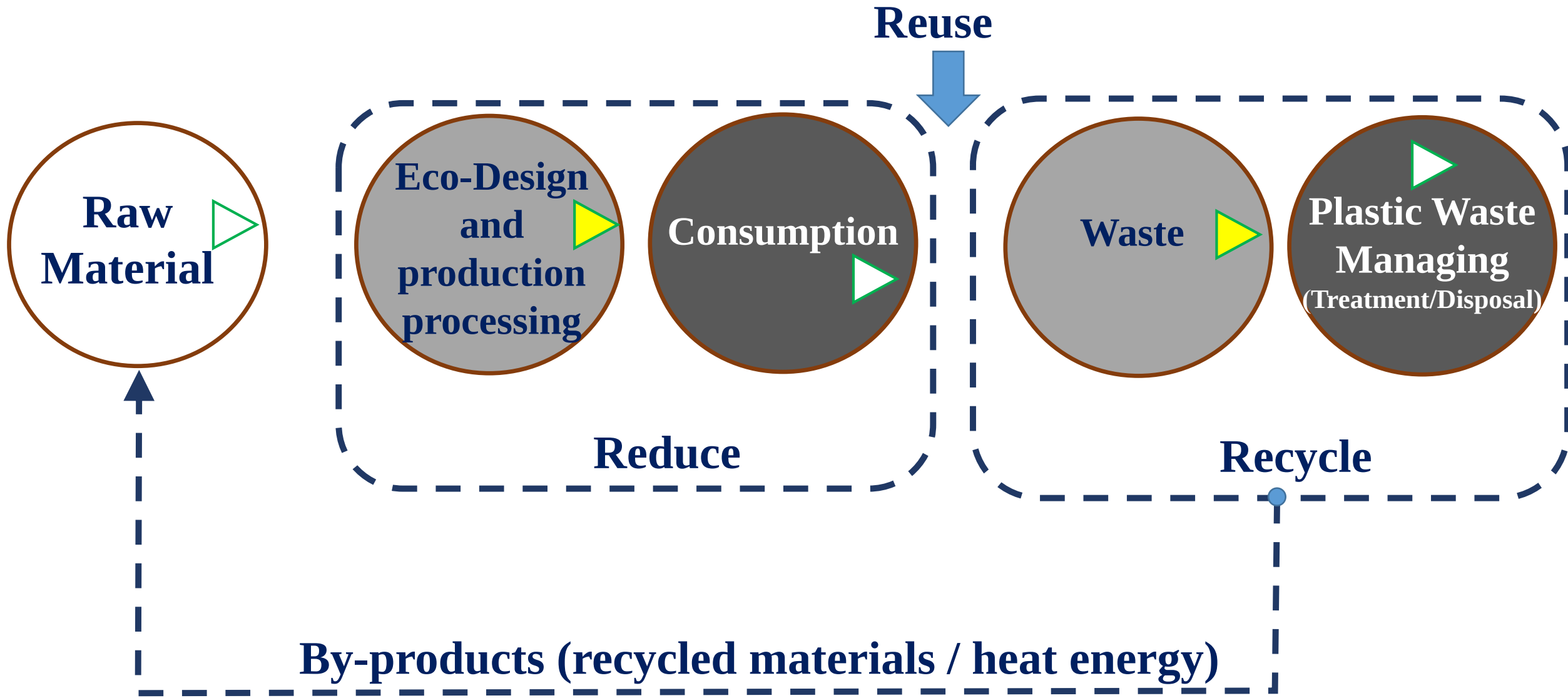
Downstream



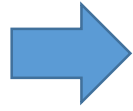
**3) Recycle
/ Recovery**



**Processed into raw
materials or to produce
new products**



Downstream



Recycle / Recovery

- **New Raw-Material** : recycled plastic pellets



- **New Product** :
- container
- fuel oil
- house ware
- etc.



- **Plastic to Energy** : Incinerator to produce electricity or heat energy



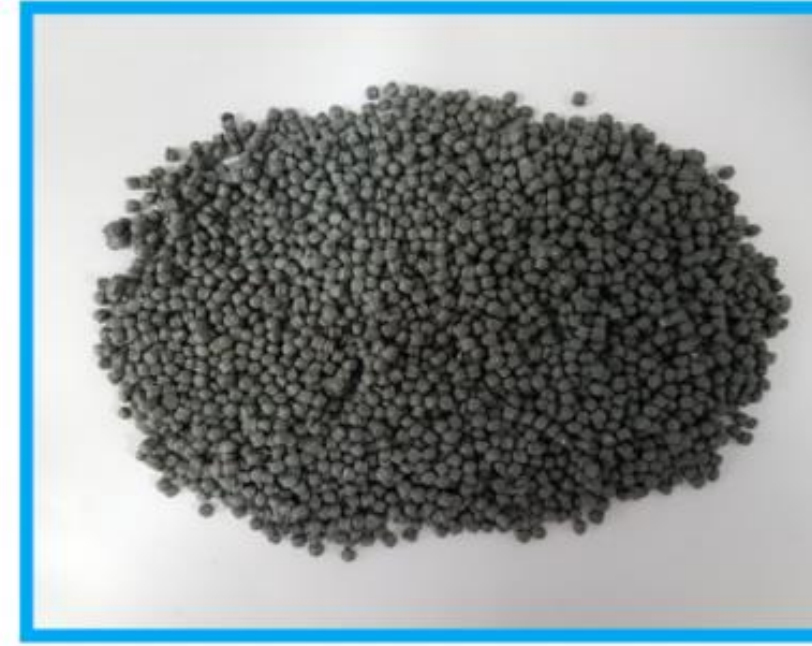
New Raw-material



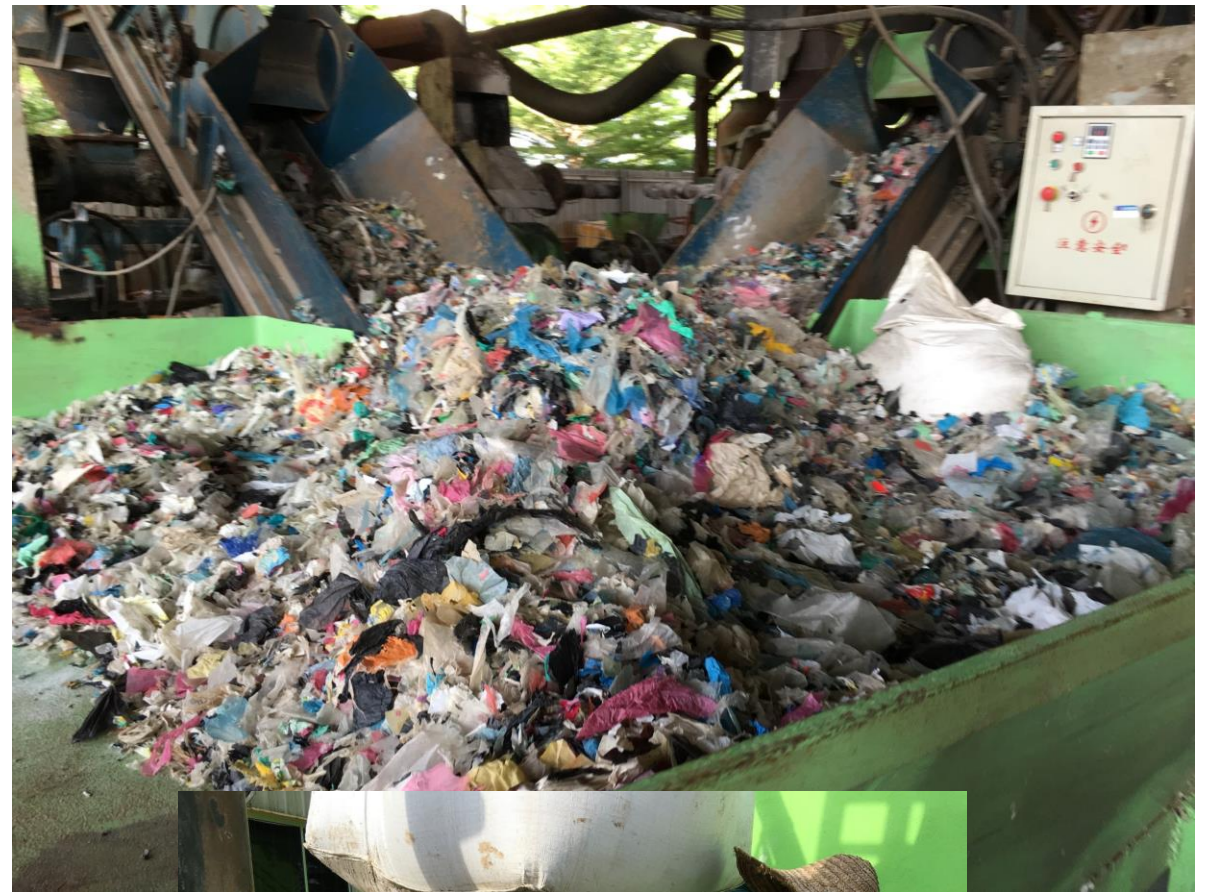
INPUT:
MIXED PLASTICS WASTE



OUTPUT:
SECONDARY RAW MATERIAL



Source: <https://www.interregeurope.eu/good-practices/corepla-mixed-plastic-waste-sorting-and-recycling-contracts>







New Product

New Product



Mobile Phone Case

Source:
<https://heavy.com/tech/2019/10/best-google-pixel-4-cases/>



Chair

Source:
<https://atkitchenmag.com/ecobirdy-furniture-decor-design/>



Vase

Source: <https://dsignsomething.com/2016/07/13/no-waste-products/>



laminate -flooring

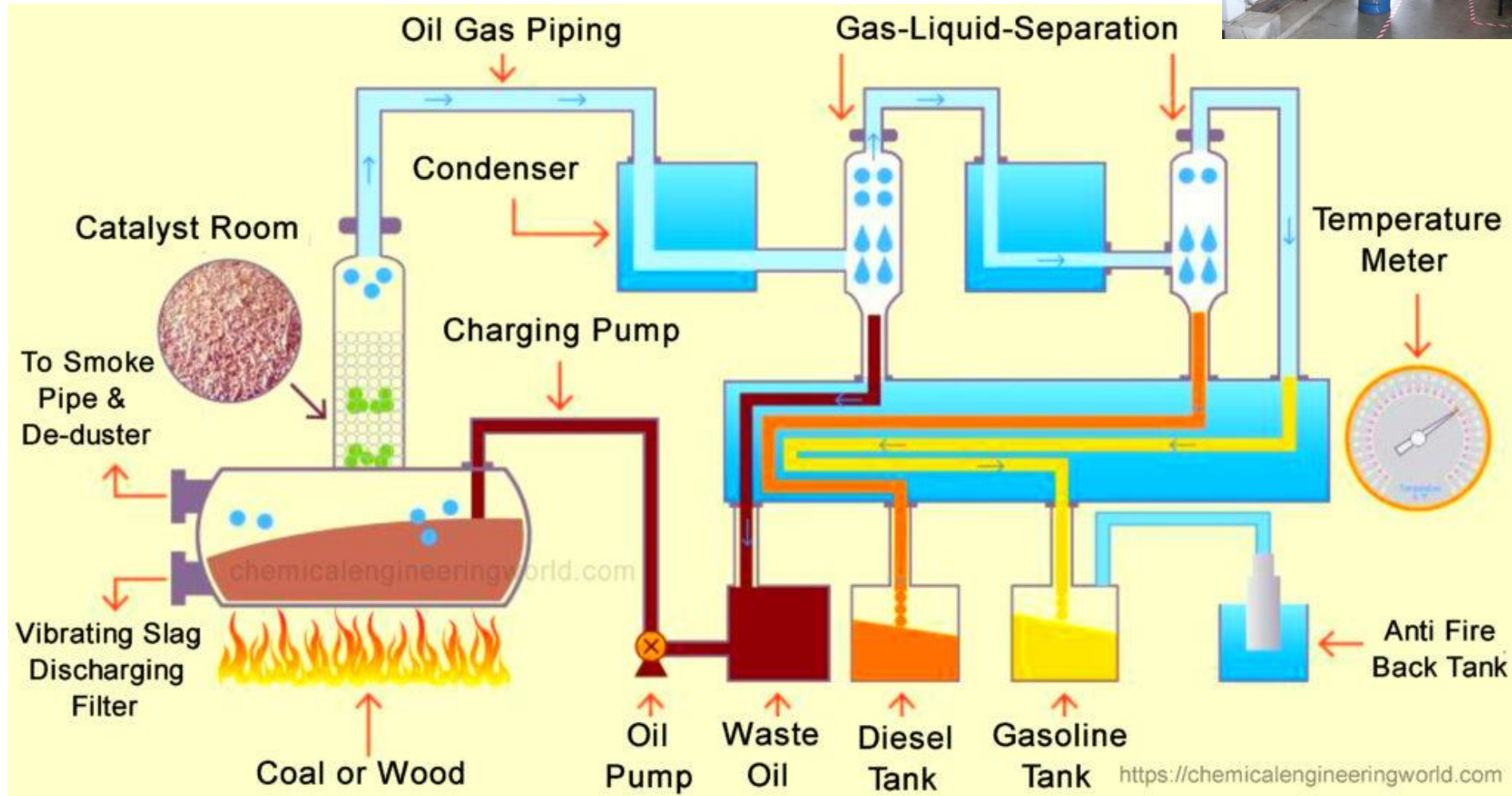
Source: <https://upgradedhome.com/can-you-recycle-laminate-flooring/>

Civara (yellow robes)

Source:
<https://www.facebook.com/stardrinkingwater/>



Fuel Oil

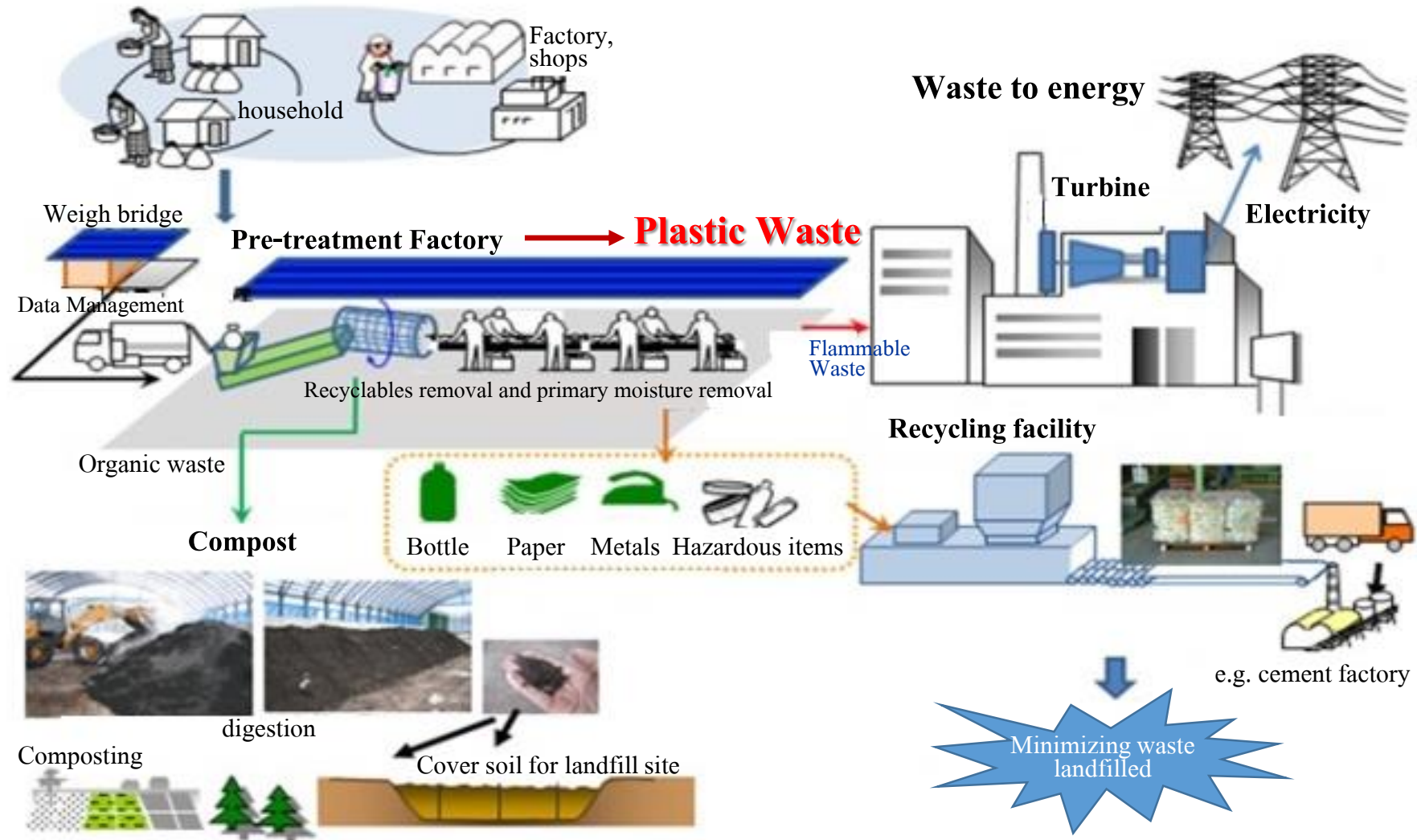


Source : <https://chemicalengineeringworld.com/plastic-to-fuel-pyrolysis-process/>



Plastic Storage

Incinerator





Electricity Power Plant

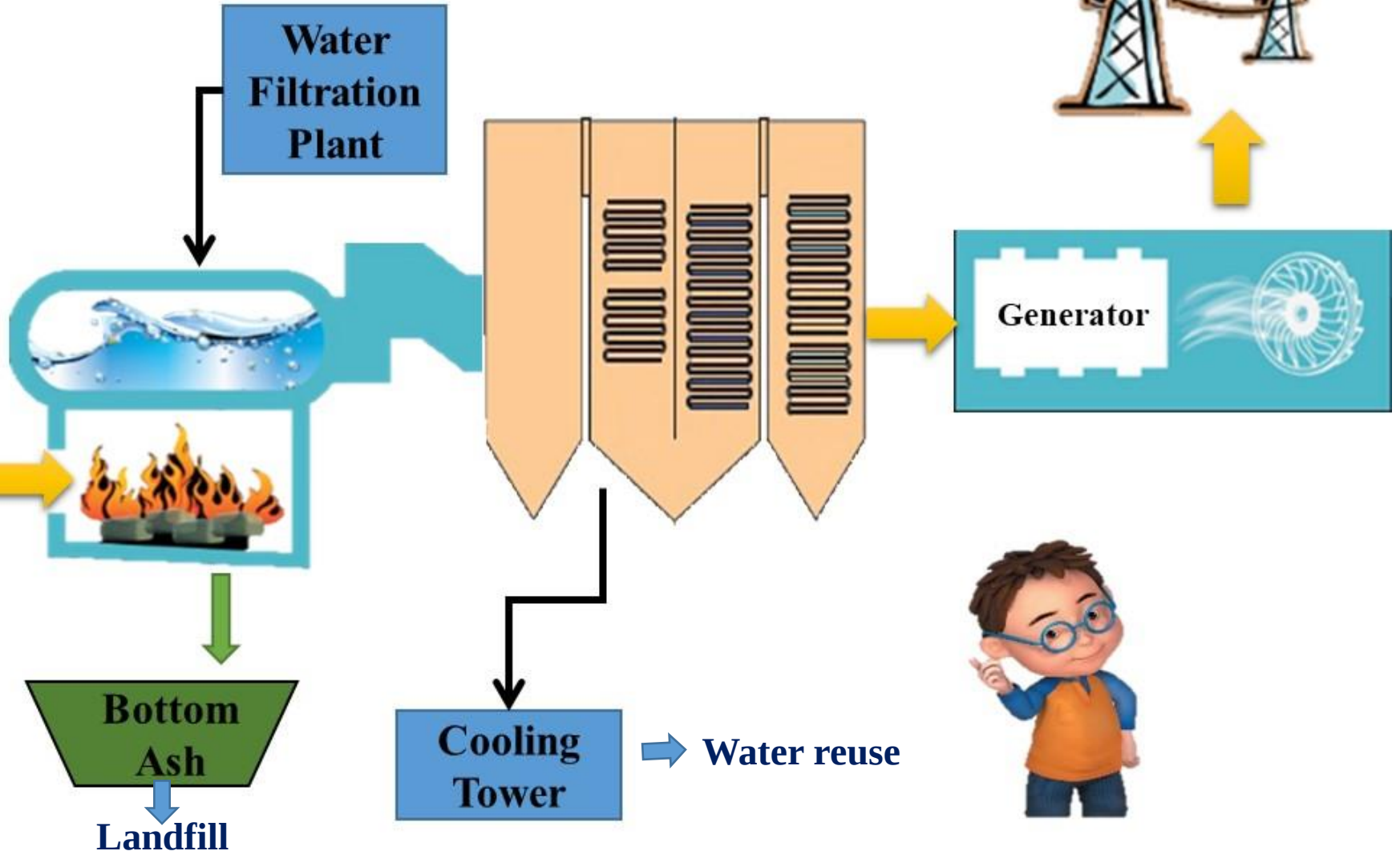
Refuse Derived Fuel (RDF)



Power Generation Process



RDF to Incinerator



Heating Value of Plastic

Resin	Higher Heating value (HV) (KJ/Kg)
PMMA	24053.83
ABS	35158.97
PA	26494.67
PC	26713.82
PC/ABS	29719.53
PE	34799.27
PC/PBT	23511.30
PBT	15723.35
PP	45358.28
HIPS	37758.68
PVC	14116.27
ABS/PVC	22364.59
POM	14472.35

1 KJ = 0.24 KCal

