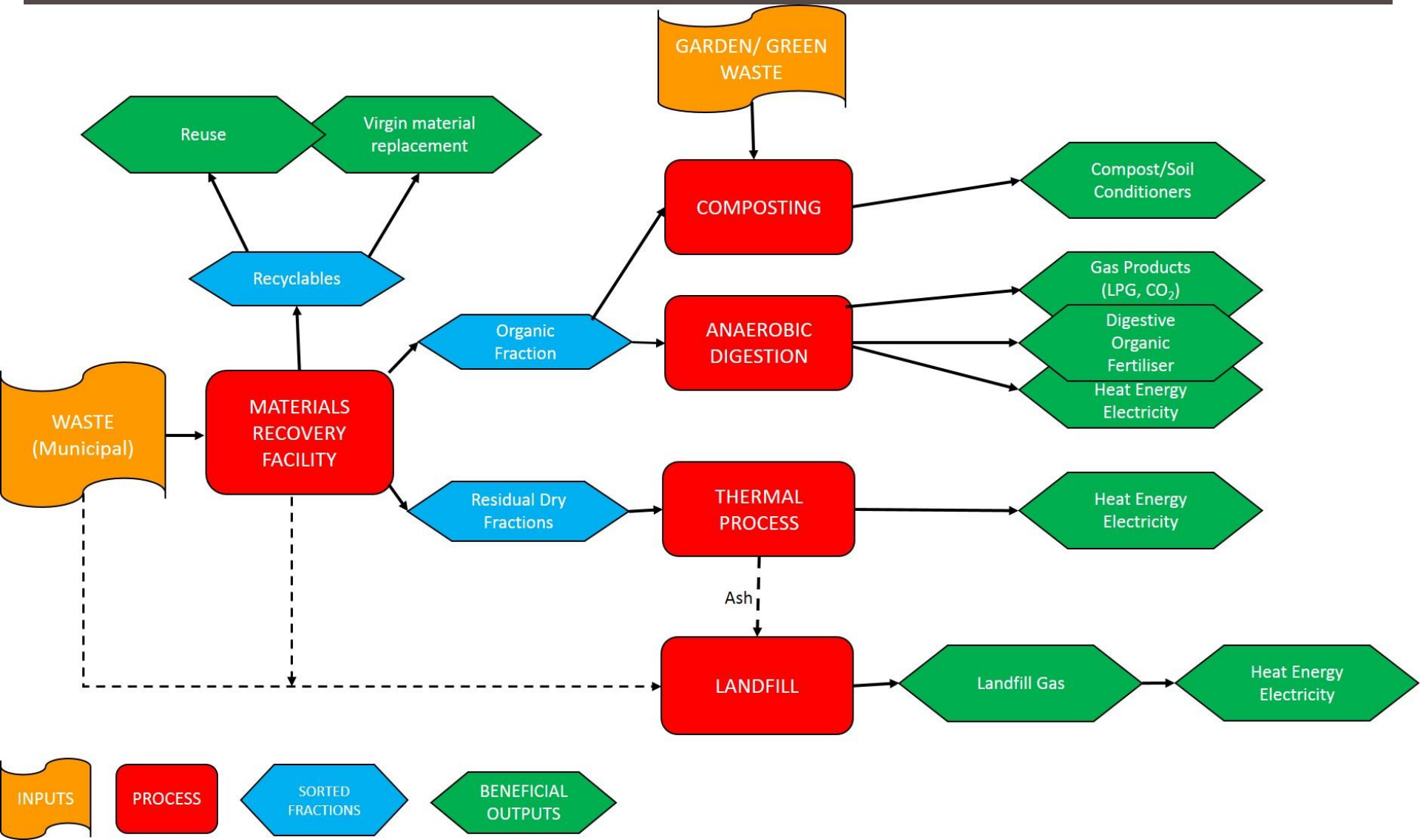


TRENDS AND OPPORTUNITIES – WASTE TO ENERGY (WTE)

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Geoff Purnell
UKZN and Bosch Stemele

GENERIC ADVANCED WASTE MANAGEMENT SYSTEM



CURRENT TRENDS IN WTE

■ Thermal Processes WtE

- Aerobic – Gasification, Incineration
- Anaerobic – Pyrolysis
- (Non-Energy Recovery - e.g. Autoclave, Thermal Drying)

■ Global Trends

- Incineration of MSW's relatively common in UK, Europe, and increasing
- Incineration in USA (and UK) has “historic” bad reputation
- Other thermal processes not relatively common – still in “acceptance” phase?

■ Local Trends

- “Unintentionally practiced” at many dump sites!! No energy recovery....
- Medical wastes incinerated/Autoclaved – No energy recovery!
- “Suspect” offers direct to politicians in SA have been made e.g. “you will no longer need expensive landfills!” – “we can make your waste disappear and give you cheap electricity”!

CURRENT TRENDS IN WTE

■ Anaerobic Digestion (AD) WtE

■ Global Trends

- AD of Organic Wastes (food, agricultural) very common in Germany (over 8 000), the Netherlands (over 120) and many other countries - and increasing.....
- Generally privately developed and owned
- Business case very dependent on energy subsidies, policy etc. of particular countries

■ Local Trends

- AD used in larger WWTW – some recover methane for heating of AD process – known technology
- Commercial AD's are in the process of being established in Mapumalanga, Gauteng and KZN using mixtures of agric organic wastes - UMDM looking at facilitating AD units in KZN Midlands for agric wastes – many drivers!
- Commercial interest largely driven by REIPPPP (NERSA), or 3rd party power requirements

OPPORTUNITIES FOR WtE

- **Thermal Processes WtE**
 - Limited by very high capital cost
 - Sophisticated technology
 - Public perception – cf Medical Waste Incinerators
 - May have a role to play in specific situations with specific wastes e.g. hazardous wastes, but will it result in WtE?
- **Anaerobic Digestion WtE**
 - REIPPPP - Big opportunity!
 - “Green Funding” – Big Opportunity
 - Case for AD of food and other compatible organic wastes in MSW stream in cities
 - Apart from WtE, AD end products have significant financial value – market price of LNG, market price for food grade CO₂, value of digestate as fertilizer (organic?)

OPPORTUNITIES FOR WTE

- Landfill Gas
 - Is it WtE??
 - Limited resource, and hopefully decreasing over the medium to long term!
 - Was initially largely driven by CDM (value of CER's has dropped)
 - 25MW allocation in REIPPPP
 - May have a future role to play in specific large landfills
 - Process and technology well developed.

OBSTACLES TO MOVING FORWARD

- **Thermal Processes WtE**
 - Not included in REIPPPP (obviously – is it strictly renewable?)
 - Incineration technology exists and works, but sophisticated to operate within environmental controls
 - Costs (Capex, O&M) in SA not well researched
 - Environmental Opposition!
 - Legislation – Co-Operative Governance
- **Anaerobic Digestion WtE**
 - REIPPPP – expensive “up-front” application/bid costs
 - Legislation – Co-Operative Governance