



Step changes in waste management

Using the lessons learnt in Europe

Keith Corden
Technical Director, SKM

Qualifications and experience

Chartered Engineer (CEng)

Chartered Waste Manager (MCIWM)

Chartered Environmentalist (CEnv)

15 years in solid waste and resources management

- European and worldwide experience
- Designing and delivering award winning waste facilities
- Procuring multi £Bn, long term waste infrastructure and services projects for Local Authorities



Step changes in waste management

→ The Tenth Malaysia Plan

→ Solid Waste Management and Public Cleansing Act

→ Lessons Learnt in Europe – risks and pitfalls

Six Key Risks

1. Public engagement and behavioural change
2. Suitability of collection systems
3. Infrastructure risks
4. Funding
5. Procurement and contract structures
6. Service management



1. Public engagement and behavioural change

Risk – failure to engage with the public will result in an unsuccessful or undeliverable project

- Entire waste management system
- Engagement is a two way process
- The public need to understand
 - Media (newspapers, radio, TV)
 - Surveys (postal, street surveys)
 - Doorstep (interviews, advice)



2. Suitability of collection systems (1)

Risk – not understanding what waste you have may result in the wrong collection and treatment choices



Data gathering

- Composition
- Arisings / generation rates
- Waste flow modelling
- Effects on Collection
- Effects on Treatment



2. Suitability of collection systems (2)

Risk – the collection system does not meet the householders' needs and does not fit with the waste treatment technology

- Housing and vehicle type
- Ease of use
- Reliable and flexible
- Effectively communicated
- Fit with technology
- Cost

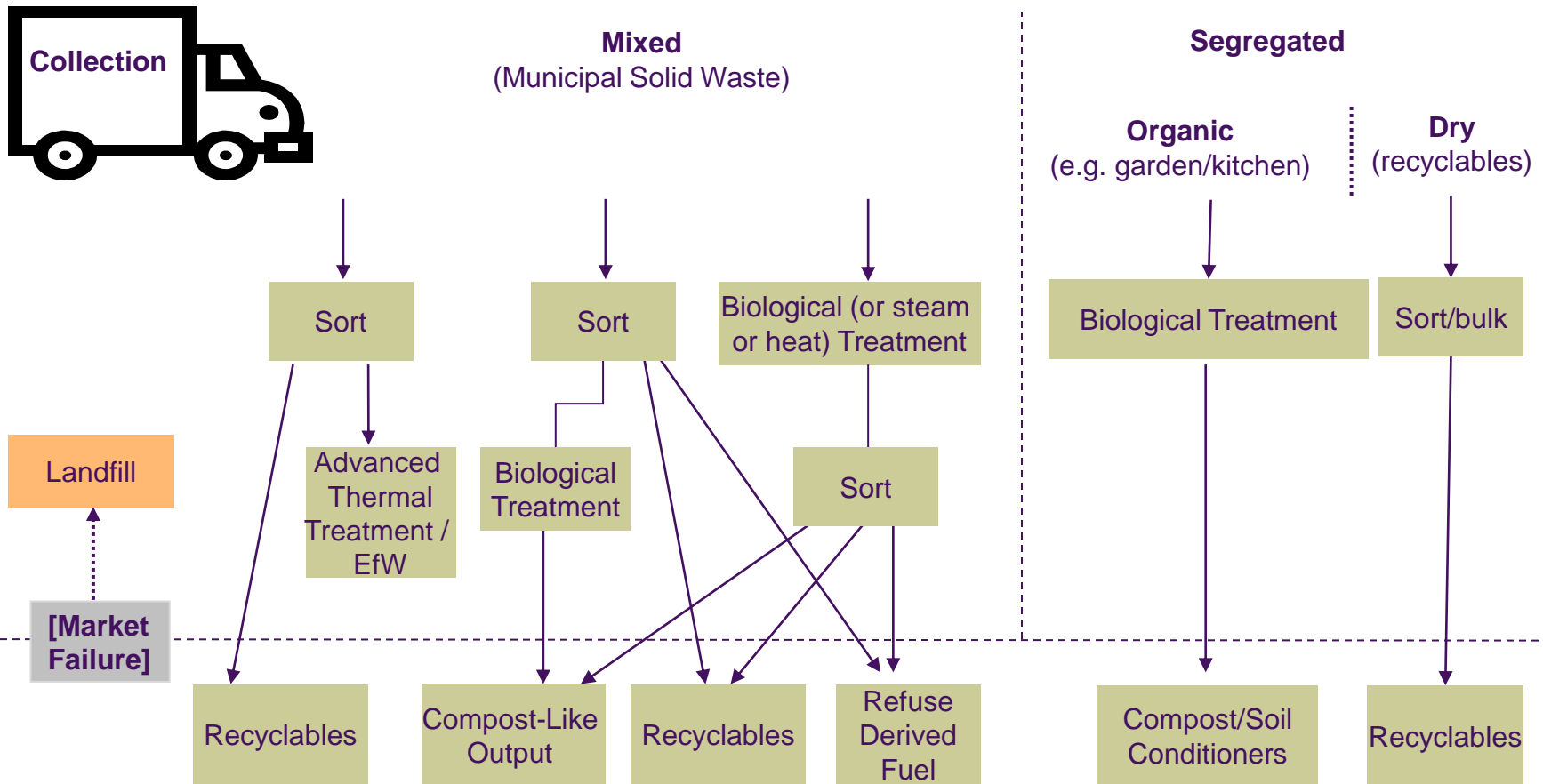


3. Infrastructure risks

Risk - getting the wrong technology or the wrong site will result in an unsuccessful or undeliverable project

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3. Infrastructure risks – technologies

- ➔ Mechanical Recovery Facilities (MRFs)
 - Automated / hand picking
 - Dirty MRFs (residual waste)
 - Waste sorting equipment
 - Markets for outputs

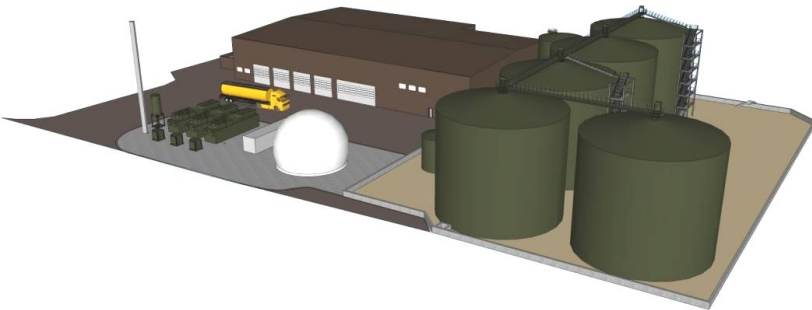


3. Infrastructure risks – technologies



Biological processes

- Composting
- Anaerobic Digestion (AD)
- Mechanical Biological Treatment (MBT)



3. Infrastructure risks - technologies

- ➔ Thermal processes
 - Incineration
 - Incinerator Bottom Ash (IBA) output
 - Advanced Thermal Treatment (ATT)
 - Pyrolysis
 - Gasification



3. Infrastructure risks - technology

- Landfill
 - Lining
 - Capping
 - Leachate treatment
 - Landfill gas utilisation



3. Infrastructure risks – sites / Planning

Risk – Planning failure can, at best, slow down and, at worst, stop your project

- Local opposition is inevitable
- Proactive stakeholder engagement
- Plant design
- Environmental benefits
- Early site assessments



4. Funding

Risk – Failure to secure funding for your project

- Funding options
 - Project funded (banks)
 - Corporate funded
 - PPP, PFI
- Bankability
 - Proven technologies



5. Procurement and contract structures

Risk – procuring the wrong service or the wrong service delivery partner

- Documentation
 - Specification
 - Evaluation criteria
- Risk transfer
 - Client
 - Contractor
 - Not the banker!



6. Service management

Risk – the service fails due to poor service management

- Performance management
 - to agreed level of performance and quality.
- Relationship management
 - open and constructive
- Contract administration
 - Changes, payments etc.



Summary

Lessons learnt (the hard way) in Europe:

- Get the public on side early
- Consult with all key stakeholders
- Get good baseline data
- Develop collection / treatment strategies to fit
- Undertake detailed technology appraisals
- Consider planning implications early
- Develop transparent procurement strategy
- Open and constructive service management

Terima Kasih

Keith Corden
Technical Director SKM
kcorden@globalskm.com
+60 16 626 2689