Development Drivers for Waste Management

Professor David C Wilson
Independent Consultant and
Imperial College, London

www.davidcwilson.com

Scope of this Keynote Presentation

• Development Drivers
  ➢ historically
  ➢ around the world
  ➢ from different perspectives

• Aim to draw out
  ➢ common threads
  ➢ how to move towards a more sustainable future
Drivers for Waste Management over the last Millennium

1000- 1850

- Drivers relatively weak
  - Disgust
  - Keep streets clear
- Legislation failed
  - Poor were hungry
  - Rich unwilling to pay to clean up for the poor
- One constant driver
  - Resource value of the waste
19th Century Paris

La Cité des Chiffonniers
(Ragpickers City)
c 1860

London
1800-50

Parishes collected waste

- Motivation largely financial/ driven by markets
- Private sector bid for franchises
- Driven by industrial revolution/ urban expansion
  ➢ need for bricks and breeze
Dustyards in Dickens’ London

1850-1900: the Public Health Revolution

• 1830s Cholera Epidemic
• Miasmic theory
• Pathogenic diseases

Paris sweepers, c. 1886
1870s: Legislation requires local authorities to collect waste

1850-1900: Public collection displaces the informal sector

A ‘Runner’ on rue Mouffetard, around 1860
Disposal

‘.. each one a mini volcano deluging its neighbourhood with a sooty lava of ash, dust and charred paper’

Girling, 2005

Preston’s Refuse Destructor, 1886

1900-1970: Continued focus on collection

• Public health the main driver
• Occasional resurgence of recycling, otherwise a steady decline
• Disposal: ‘out of sight, out of mind’
• Environmental concerns as early as 1929, but no action until the 1960s
1970-2000: emergence of the environment as a driver

Phase 1 - Control (1970s)

- Focus on reducing environmental impact
- Phase out uncontrolled disposal
- Improve operational management of landfill
- Basic air pollution control
Phase II- the ‘Technical Fix’ (from the 1980s)

- Focus on ‘ramping up’ technical standards
- Multi-step gas cleaning

Leachate and gas control
WENT landfill, Hong Kong

Europe has moved forward in a series of steps
Current Perspectives – Developed Countries

Environment → integrated policy

Technical standards (BAT) important, but not enough
- Landfill taxes etc
- ‘Pay as you throw’
- Targets
- Mandatory recycling
- Extended producer responsibility

- COMMAND AND CONTROL REGULATION
- ECONOMIC INSTRUMENTS
- INFORMATION DISSEMINATION AND USE
- VOLUNTARY APPROACH
Environment → resource management

- Waste hierarchy
- Focus on waste prevention
- More integrated concept of resource management (‘closing the loop’)
- Climate change
  - Waste to energy

Public awareness

- Waste and resources coming onto agenda
- But waste prevention and recycling requires a step change in behaviour
- Sins of the past make NIMBY an issue
### Different perspectives

<table>
<thead>
<tr>
<th>Country/Stakeholder group</th>
<th>Perceived drivers/directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK local authority</td>
<td>Landfill Directive, LATS</td>
</tr>
<tr>
<td>New EU Member States</td>
<td>Transposing the Acquis</td>
</tr>
<tr>
<td></td>
<td>Availability of funding</td>
</tr>
<tr>
<td>Sweden, Switzerland</td>
<td>(Even) more energy recovery</td>
</tr>
<tr>
<td>Flanders</td>
<td>No landfill, waste prevention, maximum energy recovery</td>
</tr>
<tr>
<td>NGOs</td>
<td>No incineration, zero waste</td>
</tr>
</tbody>
</table>

### US perspectives

- **Free market is the dominant driver**
- Stringent technical standards
- Public opinion
  - High recycling levels
  - NIMBY
- Incentives for waste to energy
Hazardous waste drivers

- Public health/ environment
- Public opinion
- US drivers here are strong:
  - Strict liability
  - Community right-to-know

The rise in professionalism
- example of the UK

- Association of Cleansing Superintendents 1898
- Institute of Public Cleansing 1928
- Institute of Wastes Management 1973
- Chartered Institution of Wastes Management 1999
Current Perspectives – ‘Emerging’ and Developing Countries

Public Health

• Still the major driver
• Focus on waste collection
• Surat, India – 1994
  ➢ plague
• Lusaka, Zambia – 2004
  ➢ New peri-urban collection system eliminated cholera in the area
Environment

- Relatively low on agenda
- Changing e.g. in China
  - 10th and 11th 5-year plans
- Phase out open dumps
- Legislation often in place, implementation weak
- Water shortages as a driver
  - e.g. South Africa

‘Image’ as a driver

- Competition between cities for foreign investment
  - e.g. India, China, Egypt, Russia
- International showcase event
  - Beijing 2008 (Olympics)
  - New Delhi 2010 (Commonwealth Games)
- Tourism
  - Caribbean islands
Availability of finance

- International Financial Institutions (IFIs) key
- All projects must meet environmental criteria
- Some anomalies:
  - Affordability
  - EU standards

Resource value of waste

- Industry needs recycled materials
  - Former centralised economies
  - Now depend on imports
- ‘Value’ → ‘livelihoods’
  - Active informal sector
  - Door-to-door collection
  - Adding value
  - Tunisia – producer responsibility
Climate change drivers

- Focus on methane
- Clean Development Mechanism (CDM)
- Very bureaucratic…
- .. but provides a steady income, and
- an incentive to maintain your new landfill site

Mariannhill landfill gas recovery and flaring station (Photo: World Bank)

Institutional issues

- Weak institutions a major issue
- Recent Zambia workshop:
  - Management commitment
  - Leadership
- Waste ‘not an honourable profession’
- Major IFI focus on:
  - Capacity building
  - Good governance
Private sector participation

- An IMI requirement
- EBRD:
  - Tender collection
  - Disposal with public sector company
- Can be in conflict with existing services
- Key principles:
  - competition
  - transparency
  - accountability
  - Responsibility for providing the service remains with the municipality

Public awareness/ cultural issues

- Hierarchy of public concerns
  1. Survival – livelihood
  2. Public health
  3. Environment
- Moving up the agenda
- Community participation
- NIMBY is a problem
- Cultural/ climate differences important
Common threads

What are the Development Drivers?

4 groups of drivers

1. Resource value of waste
2. Public Health
3. Environmental protection
4. ‘Closing the loop’
...underpinned by 2 more

1. Resource value of waste
2. Public Health
3. Environmental protection
4. ‘Closing the loop’
5. Institutional and responsibility issues
6. Public awareness and cultural issues

Conclusions

• No one single driver
• Rather 6 broad groups
• Balance varies
  ➢ between countries
  ➢ over time
  ➢ with point of view
Towards Integrated Sustainable Waste Management (ISWM)

- Need to identify the next appropriate steps
- Will vary with local situation
- Helps to understand the development drivers
- Key role for us as professionals

Thanks

- To the 20+ international colleagues who contributed their perspectives
- To you for listening!

www.davidcwilson.com
+44 (0) 118 946 1117