Best Practicable Environmental Option

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Best Practicable Environmental Option (BPEO)

- Maximise the effective use of construction and demolition waste in the UK
- Based on the SMARTWaste™ product groups develop a range of waste management options with respect to:
  - technical
  - environmental
  - social
  - legislative
  - economic considerations
- Undertake BPEO for main waste categories with industrial project collaborators
- Produce industry-based guidance on the BPEO to end-users
BPEO is defined by the 12th Report of the Royal Commission on Environmental Pollution as:

'The BPEO procedure establishes, for a given set of objectives, the option that provides the most benefits or the least damage to the environment as a whole, at acceptable cost, in the long term as well as in the short term.'

- Waste hierarchy
- Proximity principle
- Regional self-sufficiency

- An aid to decision making (does not give the decision but a range of options) dependent upon cost and environmental factors
The story so far……

- Analysis of current available technology for construction and demolition waste (including cost reduction)
- Construction and demolition waste generation
- Market opportunities
- Identification of case studies to determine the BPEO for categories of waste
- Site visits
- An evolving BPEO methodology - scenario based with a number of options given.
BPEO Methodology (1)

1. Define the Objective
2. Generate options for achieving the objective
3. Assess the options using criteria (LCA?)
4. Summarise and present the assessment
5. Identify the BPEO (e.g. justify choice)
6. Review the option
BPEO Methodology (2)

- Obtain baseline information on waste type and characteristics by asking a number of questions e.g. Is the waste segregated? Is the waste clean?

- BPEO for each type of waste in the product groups will be dependant on the data entered (flowchart approach)

- A range of options will be available based on environmental and other criteria

- The BPEO is dependant on the initial classification of the waste

- BPEO will also be determined for mixed waste
Proposed Criteria

- Technical: current and future management routes, innovation, specifications
- Environmental: transportation, impacts on water, air, land, global and local
- Social: health, community, employment, transport
- Legislative: landfill tax, landfill directive, packaging regulations, European Waste Classification System
- Economic: markets, supply, financial cost, environmental cost, viability, proximity
Life Cycle Assessment (LCA)

- Evaluate environmental impacts associated with waste options
- Detailed information and objective data
- Answers strategic waste management questions (which the waste hierarchy fails to do)
- Does not cover social and economic issues (as yet)
- Only provides information on potential impacts
- Developed for municipal solid waste (e.g. WISARD)
- Identification of boundaries is key
A BPEO Example

Classification of waste: Joist off-cut (solid wood, soft wood, untreated)

BPEO Assessment (criteria)

Option 1: Reuse as a joist

Option 2: Joist is reengineered for a higher grade application

Option 3: Chipping for various end uses e.g. Heat recovery at high temperature
Barriers to BPEO for construction and demolition waste

- Lack of reliable data
- Lack of case studies from all waste management sectors
- Agreement on the criteria and associated weighting
- Ownership of resulting guidance
- Uptake of resulting guidance
- Translation into practice
The future for this project

- BPEO will be determined for all main categories of construction and demolition waste (based on the SMARTWaste™ product groups)

The future

- Easy to use web-based tool
- Linked to a Geographical Information System (GIS) with spatial datasets on waste facilities, waste producers
- Location specific BPEO
- Linked to a Cost Benefit Analysis approach
- BPEO guidance for specific construction and demolition products
Thank you

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