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Comhairle Chontae Uíbh Fhailí



Laois County Council
Comhairle Chontae Laoise



Longford County Council
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North Tipperary County Council
Comhairle Chontae Thiobraid Árann Thuaidh



Westmeath County Council
Comhairle Chontae Na h-Iarmhí



Pilot Strategic Environmental Assessment of the Replacement Midlands Waste Management Plan 2005-2010



NON TECHNICAL SUMMARY

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1 INTRODUCTION

Strategic Environmental Assessment (SEA) is a process for evaluating at the earliest appropriate stage, the environmental quality, and consequences of policies, plans or programmes. The purpose is to ensure that any environmental impacts of implementing a Plan are assessed, before it is adopted. Where negative impacts on the environment are likely to arise through implementation of the Plan, measures can be proposed in order to alleviate these impacts. The process also gives interested parties an opportunity to comment and to be kept informed on decisions that may impact on the environment. In this case the plan being assessed is the Proposed Replacement Waste Management Plan for the Midlands Region for the period 2005 to 2010.

This document is a summary of the Environmental Report which is the report containing the findings of the assessment. This SEA is non- statutory and is being carried out on a Pilot basis with funding from the Environmental Protection Agency (EPA). The purpose is to pilot the SEA process so that methodologies can be refined for future use.

2 BACKGROUND TO STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

The European Directive on SEA (2001/42/EC) was adopted into Irish Legislation on the 21st of July 2004. Certain plans and programmes prepared by statutory bodies after this date and which are likely to have a significant impact on the environment will require an SEA.

The SEA process comprises the following outputs:

- An Environmental Report (a report containing the findings of the SEA) on the likely effects of the Proposed Replacement Waste Plan.
- Consultation on the Proposed Replacement Waste Plan and associated Environmental Report
- An SEA Statement (identifying how environmental considerations and consultation have been integrated into the Final Plan).

It is reiterated that the SEA has been prepared on a non-statutory basis.

3 METHODOLOGY

The preparation of an SEA follows a prescribed process, in accordance with the SEA legislation and guidelines issued by the Environmental Protection Agency (EPA). The stages of the process, which is also shown in **Figure 1** include:

- Scoping and Consultation
- Assessment of the Plan
- Mitigation Measures
- Proposals for Monitoring

The assessment of the likely environmental impacts of implementing the Plan were evaluated for; biodiversity, flora and fauna, water, air/climate, soils/landuse, landscape, cultural heritage, material assets, population, human health, energy and transport.

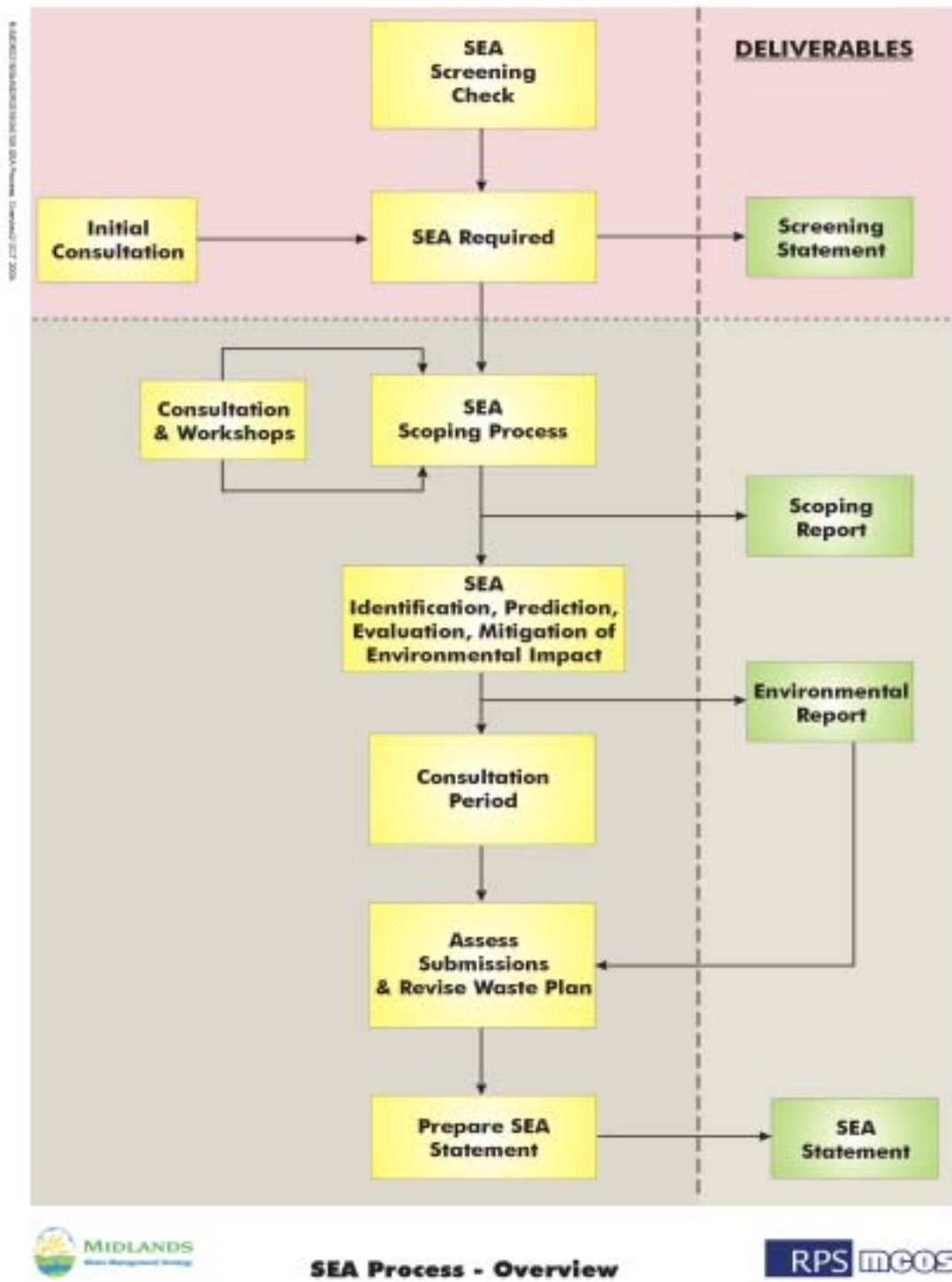


Figure 1: Overview of SEA Process

(Source: RPS MCOS)



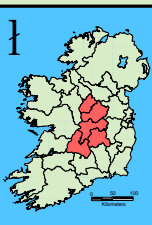
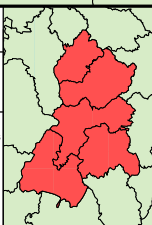
Project **Midlands Waste Plan**

Figure **2**

Title **Midlands Region - Location Map**



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Issue Details

Drawn: RH	Project No. MDR0316
Checked: WP	File Ref.
Approved: LOT	MDR0316M10001D01
Scale: NTS	Drawing No. Rev.
Date: 06/12/2004	M10001 D01

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It is also a requirement of the SEA process to outline alternatives to the Plan, and to outline the reasons for selecting the alternatives dealt with. Alternative scenarios were assessed and compared in the first Waste Plan for the Midlands (adopted in 2001) to determine the preferred option or Best Practicable Environmental Option (BPEO) for managing the Region's waste. Therefore the examination of alternatives was not revisited during preparation of the Plan for 2005-2010. The BPEO is the basis on which the waste management policies for the region are set for the next five years and in the longer term.

4 WASTE MANAGEMENT PLAN CONTEXT AND SUMMARY

In 2001 the Midlands Regional Waste Management Plan was adopted jointly by Offaly County Council, Laois County Council, Longford County Council, Westmeath County Council and North Tipperary County Council. The area covered by the Plan is shown in **Figure 2**. The Waste Plan was developed from the Midlands Waste Management Strategy Study (1999), and set out to replace a system over-reliant on landfill disposal with a new integrated approach to waste management over a 15-20 year period. The long-term targets for the Region to be achieved by 2013 for household, commercial and industrial, and construction and demolition waste streams were set at and remain:

- Recycling 46%
- Energy Recovery 37%
- Landfill Disposal 17%

The first formal Review of the Waste Plan has taken place, culminating in a Proposed Replacement Waste Plan to cover the period 2005-2010. The Plan sets out the framework for the sustainable management of waste in the Region for the next 5 years. The Midlands Strategy and the Plan are based on the EU Waste Management Hierarchy, which prioritises waste prevention, reuse, recycling and energy recovery ahead of landfill (See **Figure 3**). This approach is re-affirmed through integrated solutions and sustainable management of waste arisings.

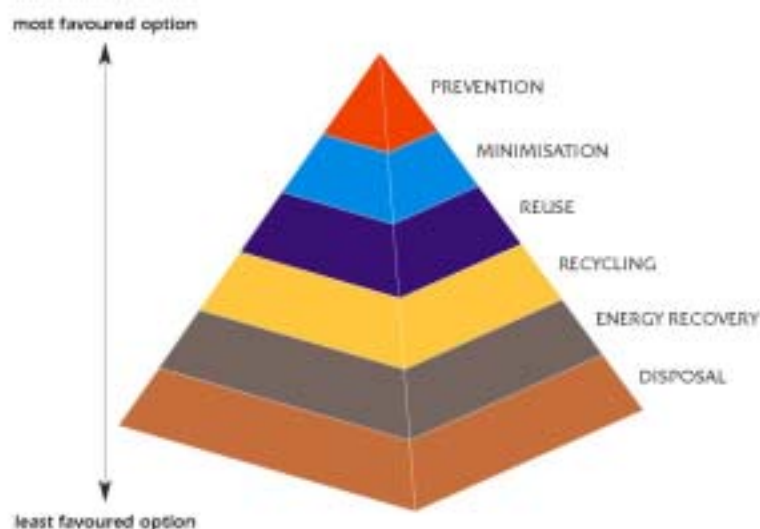


Figure 3: EU Waste Management Hierarchy

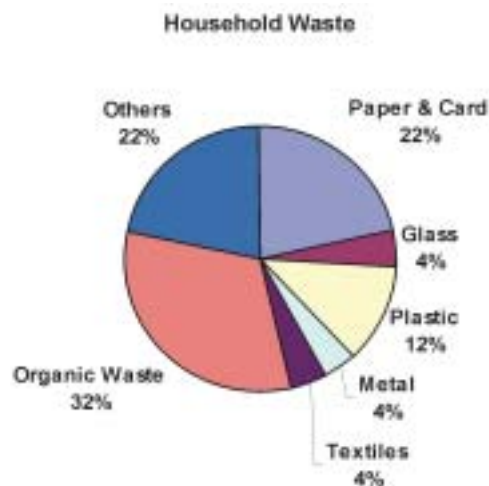
The Waste Plan policies cover:

- Waste Prevention and Minimisation
- Waste Collection
- Reuse and Recycling
- Materials Recovery and Waste Transfer Stations
- Biological Treatment
- Mechanical Biological Treatment (MBT)
- Energy Recovery
- Landfill Disposal
- Inter-Regional Movement of Waste
- Policies relating to Priority Waste Streams

5 PROGRESS SINCE THE PREVIOUS WASTE PLAN (2001)

Waste generation in the region in 1999 was 1.06 tonnes per household per year. However this has risen to 1.20 tonnes per household for 2003. This is in line with national increases in waste generation. The following waste was generated in the region in 2003; 113,550 tonnes of household, 89,000 tonnes of commercial/ industrial and 265,000 tonnes of construction and demolition waste. The composition of household waste is shown below.

Figure 4: Composition of Household Waste



In general progress on implementation of the previous Waste Plan (adopted in 2001) has been slow. This is reflected mainly by the lack of provision of key waste infrastructure, in particular biological and thermal treatment. The following is a summary of progress for each stage of the waste hierarchy:

- **Waste Prevention and Minimisation** - Environmental Awareness Officers have been appointed in each local authority working with schools, householders, and business to prevent waste generation. Further progress on prevention/minimisation is needed, including greater responsibility from industry to minimise waste transferred to consumer level. In 2005 use-related charges are being introduced to householders across the country either through a weight or volume based system, aiming to encourage waste reduction and recycling.

- **Waste Recycling** – The overall municipal recycling rate was 23% in 2003 (from 14% in 1998) and 10% of household waste was recycled. However, if targets are to be met a concerted greater effort is required with regard to collection and treatment of organic waste for composting/ biological treatment.



Bring Bank, Co. Offaly

- **Waste to Energy** – A Waste to Energy (Thermal Treatment) facility is required for the treatment of 'residual waste' after recycling has been carried out. To date little progress has been made on this issue.
- **Waste Disposal** – The reliance on landfill is still high where 60% of municipal waste and 76% of household waste is landfilled annually. There is approximately 5-10 years landfill capacity remaining in the region.

6 STATE OF THE ENVIRONMENT IN THE MIDLANDS

The Environmental Report contains a summary of the current environment for the Midlands Region. The purpose is to establish an environmental baseline for the area likely to be impacted by the Plan and to identify key environmental issues or problems associated with waste activities. The current conditions were established for the region as a whole and also for major waste facilities. The main sources of data were existing datasets from government agencies.



The River Shannon, which borders the Region

7 KEY ENVIRONMENTAL ISSUES AND PROBLEMS

Existing environmental problems in the Midlands Region relevant to waste management have been identified as part of the SEA. All forms of waste treatment and disposal will have some environmental consequences or issues. These issues relate generally to increased waste generation, and collected and uncollected waste, illegal dumping and burning, landfilling and associated emissions, and historical landfills. See **Table 1** below.

In the last 5 years there has been an increase in facility gate fees, a rapid growth in waste and initially a shortage in disposal capacity which has now been addressed. Problems of unauthorised disposal have occurred as a result and there is also a substantial proportion of waste in the region (which could be up to 14,000 tonnes) that is unaccounted and possibly illegally disposed of.

Table 1: Key Environmental Issues due to Waste Activities

Type of Waste Activity	Main Aspects of Environment under Threat	Description of Impact
Illegal dumping	Groundwater, surface water, soil and landuse, landscape, flora and fauna.	Illegal dumping can impact on water quality (surface and groundwater) due to uncontrolled leachate from decay of waste. Dumping also has a negative impact on the landscape (e.g. litter) and can lead to loss of habitat or impacts on sites of cultural heritage.
Illegal 'backyard burning'	Air quality, human health	'Backyard burning' of waste is a source of almost 73% of dioxins emitted to air in Ireland. This is due to uncontrolled burning at low temperatures.
Historical and closed landfills	Groundwater, surface water, air quality, soil and landuse, landscape, flora and fauna.	Historical and closed landfills are generally unlined and are a threat to groundwater and surface water due to ongoing leachate generation. Also methane (greenhouse gas) emissions may not be captured. Sites can cause soil and land contamination and impact on the landscape, flora and fauna, cultural heritage.
Poorly designed or managed waste facilities (in particular landfill and composting facilities)	Air quality (including noise, dust and odour), landscape, groundwater, surface water, soil and landuse	Poorly designed or managed facilities can have nuisance impacts due to odour, dust, bioaerosols (composting) noise, and traffic. Other impacts can include ground or surface water pollution, and impacts on landscape.

8 EVOLUTION OF THE ENVIRONMENT WITHOUT THE WASTE PLAN

The SEA Directive requires that the likely evolution of the environment without the implementation of the Waste Plan be looked at. This is termed the "Do Nothing" scenario. There are two possible scenarios:

- (a) Evolution of the environment without a Waste Management Plan;
- (b) Evolution of the environment without a Review of the Waste Management Plan.

(a) Were the Waste Management Plan not implemented, waste management would not be controlled and detrimental impacts would occur. Waste generation would continue to increase with increased impacts on the environment and there would be no framework for managing waste in an integrated way. This would hinder development of more modern facilities, which will have less impact on the environment (e.g. in relation to air and water emissions, energy efficiency).

- (c) In the absence of a Review of the Waste Management Plan recent national and EU legislation would not be complied with, and waste policy and waste targets would not be achieved. Without the Review the policies and targets set in 2001 would continue to be used to manage waste in the Midlands for the next 5 years. Also any lack of progress could not be corrected and acted upon.

It is noted that progress on the 2001 Waste Plan was slow compared to the 'do nothing scenario', and there was no mechanism for periodic review. However it is now proposed that Annual Reports be prepared by each Local Authority to outline progress in relation to targets in the Plan.

9 RESULTS OF ASSESSMENT OF THE PLAN

There are two main stages to the methodology, the assessment of alternatives and the assessment of the Waste Plan itself. As part of the Midlands Waste Management Strategy Study (1998) a number of alternative waste management processes were considered including options with and without thermal treatment and a number of different recycling targets. These scenarios were assessed by a modelling exercise to determine their environmental impact. The preferred option or Best Practicable Environmental Option (BPEO) for managing the Region's waste was selected. This is and remains: *To achieve maximum landfill diversion through implementation of maximum realistic recycling, and thermal treatment of combustible wastes.*

The second stage of the methodology is the assessment of the environmental impacts of the Waste Plan. The following is a summary of this assessment for each stage of the waste hierarchy. It identifies the positives and negatives of each stage from waste prevention to disposal. **Figure 5** shows an overview of waste sources, types of recycling, treatment and disposal and their potential impacts.

9.1 Waste Prevention and Minimisation

Definition: The reduction of the quantity and of the harmfulness to the environment of waste products.

Assessment Summary:

- No negative impacts are identified;
- Waste prevention and minimisation are key target areas for improvement;
- In the past waste generation has been coupled with economic growth. Thus emphasis should be placed on implementing such policies given the forecasts for further national economic growth in the short to medium term;
- Specific targets for waste reduction should be set and there should be some defined method for monitoring the success of prevention and minimisation.

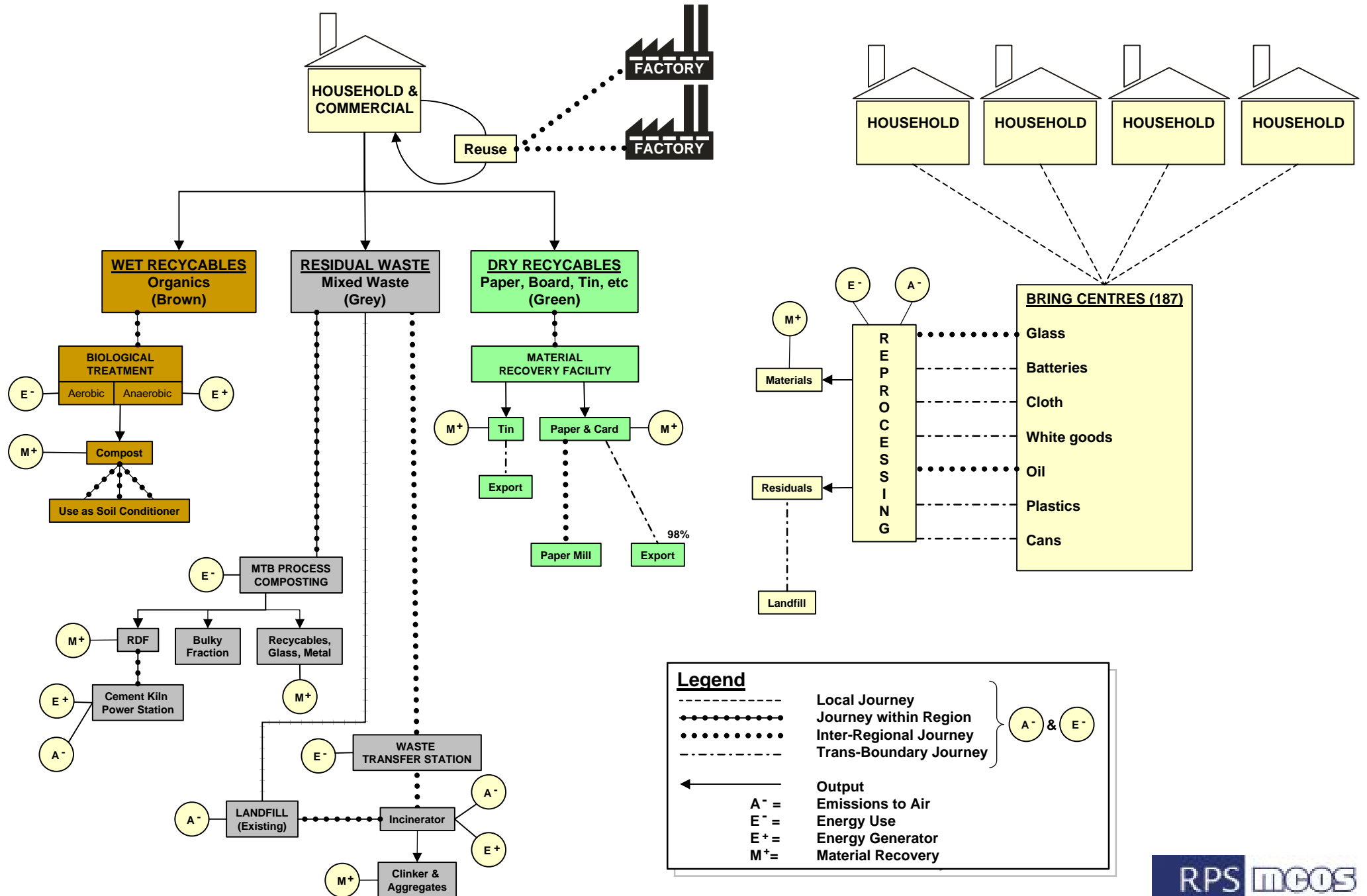
9.2 Waste Collection

Definition: The gathering, sorting or mixing of waste for the purposes of its being transported, includes the transport of waste. A three-bin system (a bin each for dry recyclables, organics, and residual waste) is proposed in the Waste Plan.

Assessment Summary:

- Maximum collection of waste minimises the risk of illegal dumping/ burning and the associated impacts on the environment;
- Increased collection facilitates will result in higher recovery/recycling rates and therefore greater diversion from landfill;

Figure 5: Overview of Waste Sources, Treatment Options and Potential Impacts



- Separation into three bins will lead to lower cross-contamination levels;
- However three-bin system may require an additional collection with environmental costs associated with additional journeys: emissions, energy use and traffic;
- Also there may be an odour nuisance associated with the 'organic' bin;
- In relation to waste collection in general, due to its commercial nature it can be difficult to control to ensure that the 'proximity principle' and sustainability are considered. The 'proximity principle' is situating waste management facilities near to the major sources of waste to minimise transport distances, and therefore minimise environmental and economic cost;
- As mitigation, providing an affordable collection system is the best way to maximise collection and to minimise impacts of illegal dumping and uncontrolled burning;
- Also collection vehicles could be redesigned to be able to take individual fractions of waste together in order to minimise the number of collection journeys.
- There is a need for an integrated approach in waste collection to minimise impacts on the environment.

9.3 Reuse

Definition: Using a product or component in its original form more than once. Can also apply in the case of industrial or commercial waste, e.g. recirculation of process liquids.

Assessment Summary:

- This is a more favoured option than recycling, treatment (waste to energy) or disposal;
- There are energy savings as there is generally no processing (except transport and cleaning in certain cases);
- Reuse within households or industry is possible with little cost;
- Reuse reduces the quantities of waste for collection, treatment and/or disposal;
- It also reduces use of energy resources and materials through the reuse of products.
- However reuse is only feasible for a limited number of products, e.g. glass bottles;
- Also there can be environmental costs (impacts) in collection, transport and cleaning;
- As mitigation more consideration should be given to reuse policies at an industrial and household level, e.g. the potential for "glass bottle" returns. An initiative is needed at a national scale;
- Also promote the elimination of "built in obsolescence" and "throw away culture";
- Consider the promotion of repair of items rather than disposal, e.g. consider the promotion of the collection and reuse of spare parts for cars, machinery etc.

9.4 Recycling

Definition: The subjection of waste to any process or treatment to make it re-usable in whole or in part. Recovering and processing usable products that might otherwise become waste (e.g. recycling of aluminium cans, papers, bottles, organic waste, building materials etc.)

Assessment Summary:

- This is a more favourable option than treatment (energy recovery) or disposal, however it is less favourable than reuse;
- It reduces volumes for treatment /disposal (thus reduces energy and emissions costs)
- Recycling also provides recovered material for a different use;
- It also minimises the use of new raw materials and the processing of those materials;
- There would be savings on CO₂ emissions from energy consumption; however there are also energy and emission costs associated with collection, transportation,

reprocessing of recyclables and disposal of residual material. Cleaning products for recycling also has the negative impact of increased water use;

- There also can be negative impacts due to footprint of the collection and reprocessing facilities; (i.e. the size and location of facilities);
- There is potential “nuisance” with emissions if facilities are not managed efficiently, e.g. noise, odour, visual, traffic;
- Also there is a lack of process facilities for recyclables nationally – the majority exported abroad to UK, Europe and further a field, e.g. China, with associated transport cost. This is not sustainable in the overall global context. However, facilities nationally may not be feasible due to economies of scale, market forces etc. More information is required on whether these "costs" outweigh the environmental benefits;
- There is a lack of outlets for recyclable materials;
- The potential environmental impacts of recycling waste, albeit less than that of treatment or disposal, re-emphasises the need to put significant effort into policies for the reduction and minimisation of waste.

9.5 Biological Treatment

Definition: The degradation of organic waste by micro-organisms. The main types are composting and anaerobic digestion. Composting is aerobic degradation of organic waste, in vessels or windrows, with the end product used as soil conditioner. Anaerobic digestion is the anaerobic breakdown of biodegradable material with methane recovery.

Assessment Summary:

- It reduces amount of waste for thermal treatment or final disposal;
- There is a clean end product with commercial value as a soil conditioner;
- Home composting can be done on an individual household basis;
- However there are potential negative impacts due to the footprint of the facility;
- There can be impacts due to waste generated traffic near the facility;
- There also can be odour, dust and nuisance associated with windrow (open air) composting if not designed/managed correctly;
- Facilities are a potential source of air emissions and leachate;
- Acceptance of product could be an issue. Marketability, consumer confidence, and ability to land-spread the product must be considered;
- There should be quality control of the end product;
- The collection, treatment and marketing of compost need to be co-ordinated on a regional basis.
- Treatment methods need to be refined in order to minimise emissions from treatment facilities that have an environmental impact (particulates and dust, odours etc).

9.6 Thermal Treatment/ Energy Recovery

Definition: A range of heating or combustion technologies used to treat waste. The individual technologies differ significantly but each involves the generation of large quantities of heat and electricity.

Assessment Summary:

- There is a large scale significant reduction in bulk of the waste to be disposed of;
- There is the potential to dispose of all waste (except hazardous waste) at one facility;
- One outlet minimises the environmental cost of collection, transport and handling;

- Energy recovery (heat and electricity) would replace fossil fuels and therefore save on CO₂ emissions;
- Potential negative impacts include emissions to the atmosphere and potential negative health risks;
- There is the potential for traffic hazards and nuisance near the facility;
- There are potential negative impacts due to the footprint of the facility, however this is small compared to landfill;
- There is a hazardous residue to be disposed of (from air scrubbers);
- Due to the nature and extent of investigations required in the provision of a thermal treatment facility for the region it is unlikely that such a facility will be in place within the time scale of the 2005-2010 Waste Plan.

9.7 Mechanical Biological Treatment (MBT)

Definition: Removal of glass, metals and bulky fractions, in-vessel composting and residual refuse derived fuel (RDF) as an end product.

Assessment Summary:

- One central facility can be used to treat “residual waste” (remaining household waste once clean recyclables have been removed) and organics;
- There is a volume reduction prior to landfill, i.e. may contribute to meeting requirement of the Landfill Directive;
- The treatment stabilises waste making it easier to handle and dispose;
- Materials are recovered for recycling. Some systems produce compost as a soil conditioner. Other systems produce a RDF;
- There is a benefit in terms of emissions saved by using renewable energy source if the end product is used as a fuel in power plants or cement kilns;
- However there are handling and transport costs for separated bulky waste, recyclables;
- Also it can be a ‘dirty’ process to recover materials, with health & safety risk to workers;
- There could also be an impact due to the footprint of the facility;
- Emissions and other nuisance factors are possible if the facility is not managed effectively (e.g. odour, noise due to waste traffic);
- There is an uncertain market for the end product. Also MBT is a new technology, which has not been fully developed and the type, operation and efficiency of facilities can vary significantly.

9.8 Landfill Disposal

Definition: Landfilling is the disposal of waste at a facility with disposal onto land. Modern landfills are engineered to prevent leachate escaping into ground or surface water, and capped to prevent landfill gases escaping to the atmosphere and to reduce ongoing generation of leachate. They also have systems to recover landfill gases and either use them to produce energy or flare them off to reduce methane emissions.

Assessment Summary:

- Adheres to the proximity principle;
- Facilities can strive to be energy neutral or to maximise energy recovery (collection and harnessing of landfill gas). However in the region landfill gases are not recovered;
- Potential to dispose of all waste (other than hazardous) in existing landfills up to 2011;
- However, potential environmental impacts include emissions of greenhouse gases (methane, carbon dioxide) to the atmosphere;
- There is also the potential for ongoing leachate emission from unlined cells in historical landfills;

- Landfills can be a source of potential nuisance, if not properly managed (e.g. odour, noise, visual, traffic);
- The footprint (land area) required for disposal is generally large compared to process/ treatment methods;
- There is a weak economic rationale in disposing of material that could be recovered or that could provide for a substantial part of the energy supply;
- There are significant economic and environmental costs in terms of aftercare of closed facilities;
- As more biodegradable wastes are managed by alternative methods, the generation of landfill gases will reduce with a knock-on effect on the economic feasibility of recovering energy from landfills;
- Landfilling is unsustainable in the long term – new facilities would be needed with additional footprint costs, and economic and environmental costs related to aftercare;
- The continued reliance on landfill to dispose of the majority of waste generated is contrary to national and EU waste management policy.

10 MITIGATION MEASURES

Mitigation measures have been proposed in the Environmental Report to limit negative impacts predicted to occur due to implementing policies or parts of waste policies. The primary mitigation measures that should be adopted are the use of siting criteria. These criteria aim to avoid or significantly reduce potentially harmful environmental impacts through guiding the location of strategic waste management facilities. Measures are also proposed for individual waste policies to lessen impacts on the environment (biodiversity, water, air, landuse, cultural heritage, transport, energy etc.) where these impacts have been predicted.

11 PROPOSALS FOR MONITORING

Environmental indicators are proposed to enable significant impacts of the Waste Plan on the environment to be monitored. The indicators have been selected taking into account existing monitoring networks operated by the Local Authorities or by other Governmental Agencies. Waste indicators are also identified in the Waste Plan to measure performance of the plan and to establish whether targets are being met.

12 CONCLUSIONS

Following the environmental assessment carried out on the Proposed Replacement Waste Management Plan for the Midlands Region the following broad conclusions can be drawn:

- The Policies relating to the higher end of the waste hierarchy (prevention, minimisation, and reuse) generally do not have an environmental impact, particularly if they are implemented at source i.e. within the household, or industry. It is recommended that there be major emphasis on waste prevention, minimisation and reuse policies in the Proposed Replacement Waste Plan.
- Since the original Midlands Waste Plan was adopted in 2001 there has been a lack of progress in developing major waste infrastructure in the Midlands region. These issues need to be addressed in order to achieve the national waste targets set by the government for 2013. Waste management infrastructure including biological and thermal treatment facilities need to be put in place as a matter of urgency.
- There should be mechanisms for monitoring implementation of the Waste Plan during its lifetime. This would allow progress or lack of progress to be reviewed and acted upon as early as possible within the timescale of the Plan.
- The issues of the level of waste collection charges, waste facility gate fees etc. are largely outside the brief of the SEA. However, collection charges should not act as an encouragement to illegal dumping or burning of waste.
- It is recommended that siting criteria proposed in the Environmental Report be adhered to when locating waste facilities in order to minimise impacts on the environment due to these facilities.
- The Midlands Local Authorities should look at the possibility of implementing a pilot initiative in the region to provide for glass bottle returns. This could be carried out in conjunction with e.g. a drinks manufacturing company and if successful could be developed as a national initiative.
- The Midlands Local Authorities should encourage a national initiative to provide recycling processing facilities within the state. Also the environmental cost of transporting waste materials significant distances needs to be evaluated on a national scale.
- This Environmental Report is the first stage in an iterative process being carried out in tandem with the Proposed Replacement Waste Management Plan. A two-month consultation period will follow. The recommendations of this consultation period and the potential improvements identified within the Environmental Report will feed into the Proposed Replacement Waste Management Plan, where appropriate. The SEA Statement will document how these issues have been taken into account in the adopted Waste Management Plan for the region for the next 5 years.