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Welsh Assembly Government

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Welsh Assembly Government

Municipal Sector Plan Part 1

Towards Zero Waste
One Wales: One Planet

March 2011

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Ministerial Foreword

Part 1 of the Municipal Sector Plan (MSP) sets the agenda for the management of local authority municipal wastes for the next fifteen years and beyond. The plan builds on the principles of Towards Zero Waste, the overarching waste strategy document for Wales and is influenced following the dialogue with local government colleagues.

The plan is intended to help deliver sustainable development in Wales through the creation of a resource efficient economy. This goes far beyond landfill diversion and high recycling and it is very important that all stakeholders understand and embrace this concept. Wales needs to reduce its overall consumption of resources and to source and use resources in a way that is equitable and ethical. Where waste is produced it should be prepared for reuse or recycled using closed loop methods in order that ecological and carbon footprint reductions are optimised. We need to ensure that this closed loop recycling takes place in Wales or the United Kingdom and, where this is not possible, to ensure that materials from Wales are exported to destinations where they are recycled in ways that do not pollute the environment or harm human health.

Until we reach the goal of a zero waste society we shall produce some wastes that cannot be recycled. Whilst we wish to minimise the combustion of materials, it is better that wastes that cannot be readily recycled are burned with maximum recovery of energy, whether it is used to generate electricity or heat.

This plan is an optimistic document which seeks to achieve more than the sustainable management of resources alone. There are massive opportunities for the creation of green jobs in the expanding secondary materials sector. I want to see this sector expand in Wales, with the creation of green jobs in Wales and the retention and re-circulation of wealth within the Welsh economy. This will only happen if we collect clean materials carefully and present them to market in a way that reprocessors want and are willing to pay optimal prices for.

The creation of Welsh based reprocessing facilities, and the associated jobs, both direct and indirect, helps not only support local communities financially, but creates opportunities for training and for community regeneration. These socially beneficial gains, allied with financial, economic and environmental benefits, illustrate the opportunities that will be created by promoting the principles and policies detailed in this plan.

I know that there is concern, even apprehension, in some quarters about promotion of this agenda. The introduction of statutory recycling targets as a way of supporting the move to sustainable resource management, and the emphasis on quality and ecological footprint reduction, has been met with some concern about achievability and even desirability amongst a few. I fully intend that this agenda be approached based on partnership and with financial and technical support.

The Assembly Government will create a Collaborative Change Programme to support local authorities achieve recycling targets in a cost effective way that is consistent with, and supportive of, the policies and agenda promoted in this plan and

in Towards Zero Waste. It will continue to support local authorities with generous levels of funding and continue to fund awareness raising, market development and other initiatives that promote this agenda.

I am proud to present Part 1 of the Municipal Sector Plan to all the people of Wales, to their local authorities and to all the stakeholders who will help us create a better society in Wales and to help Wales play its part in creating a better world.

A handwritten signature in black ink, reading "Jane Davidson". The signature is written in a cursive, flowing style.

Jane Davidson AM
Minister for Environment, Sustainability and Housing

Summary

Introduction

The Municipal Sector Plan supports 'Towards Zero Waste', the overarching waste strategy document for Wales, by detailing outcomes, policies and delivery actions for this sector. It forms part of the suite of documents that overall comprise the waste management plan/strategy for Wales in accordance with the plan making requirements enshrined in UK and EU legislation.

The actions contained in this document are intended to deliver the sustainable development outcomes identified in the Sustainable Development Scheme 'One Wales, One Planet' and in Towards Zero Waste. They contribute to the delivery of the Welsh Assembly Government's commitments (including targets) set under relevant EU Directives in a way that meets and delivers key overarching policies and strategies on sustainable development and climate change, as well as those set by other Welsh Assembly Government functions.

This document was subject to full public consultation that was accompanied by a Sustainability Appraisal (incorporating a Strategic Environment Assessment), a Health Impact Assessment (HIA), a Habitats Regulations Assessment (HRA) and the evidence base.

Scope of the Municipal Sector Plan

The Municipal Sector Plan covers only the waste collected specifically by "municipalities", that is all of the Welsh Local Authorities, in accordance with their statutory duties as Waste Collection and Disposal Authorities as laid down in Part II of the Environmental Protection Act 1990 (as amended). For clarity, the wastes covered in this document are those collected by a local authority under sections 45 and 51 of the Environmental Protection Act 1990. The sector plan does not cover other municipal waste that is not collected by Local Authorities, and which is collected instead by private or social economy waste management companies. These wastes will be covered in other sector plans.

The sector plans will be web based 'living documents' and there will be linkages between them, where the actions of one sector will affect and/or support those of another.

Outcomes and Milestones set in Towards Zero Waste

To build a sustainable future, the following milestones have been set:

2025 - Towards Zero Waste

By 2025, there will be a significant reduction in waste, and we will manage any waste that is produced in a way that makes the most of our valuable resources. This means maximising recycling and minimising the amount of residual waste produced, and achieving as close to zero landfill as possible.

This is an intermediate step on the way to our 2050 target of achieving zero waste and 'living within our environmental limits'¹. This is needed because reducing the impact of waste in Wales to 'One Wales: One Planet' levels will require big changes in the way that products and services are designed, and the actions that consumers and businesses take.

2050 – Achieving zero waste

By 2050, we will have reduced the impact of waste in Wales to within our environmental limits. Residual waste will have been eliminated and any waste that is produced will all be recycled. This means that the ecological footprint of waste in Wales will be at One Wales: One Planet levels.

Stakeholders

All stakeholders will need to take responsibility and play a key role in taking forward the Municipal Sector Plan to achieve the outcomes and key milestones. The stakeholders include householders, Local Authorities, social enterprises and businesses, other organisations and the Government.

Key Areas Addressed with the Sector Plan

The approach being followed for Part 1 of the Municipal Sector Plan is to take forward the following four key areas:

- Waste prevention – to reinforce the important role of Local Authorities engaging with householders and communities to reduce waste put out for collection, thus helping to meet environmental outcomes, increasing opportunities for enhancing social wellbeing through waste reuse and reducing the costs of waste collection and management.
- Preparing for reuse – to ensure that a far greater proportion of wastes collected by Local Authorities is “prepared for reuse”, in order to meet environmental outcomes, increase opportunities for enhancing social

¹ Environmental Limits – ‘Our Vision of a Sustainable Wales is one where Wales: lives within its environmental limits, using only its fair share of the earth’s resources so that our ecological footprint is reduced to the global average availability of resources, and we are resilient to the impacts of climate change’ (Source: One Wales: One Planet: A new sustainable development scheme for Wales).

wellbeing through involvement in reuse activities and reduce the costs of waste management.

- Recycling collection service delivery improvements – to deliver sustainable development outcomes in a cost effective way and work towards the new municipal waste recycling targets set in Towards Zero Waste.
- Sustainable treatment and disposal – to deliver sustainable treatment and disposal of municipal waste in a cost effective way and work towards the targets set in Towards Zero Waste.

There is a separate action plan for each of these areas within this document. Some other important issues are also addressed, including achieving better value for money through efficiency savings, and ensuring more transparency and accuracy on the reporting of how and where materials are recycled.

Part 1 also details existing policies, targets and actions in place for other aspects of the collection and management of municipal waste that have already been consulted on and/or are already in place (for example the food waste treatment and residual waste treatment programmes).

Part 2 of the Municipal Sector Plan will address the management of Household Hazardous Wastes (HHW). It will be published for consultation later in 2011.

Summary of the actions within the four key areas

1. Waste prevention

To meet the waste prevention target, to reduce waste arisings of household waste by 1.2 per cent (of the 2007 baseline) a year to 2050, the following actions will be undertaken:

- Service provision changes, for example frequency of residual waste collection.
- Waste awareness, communications and education campaigns.
- Encourage product reuse.
- Packaging essential requirements.
- Support for businesses and public sector.
- Legislation to introduce a levy on single use carrier bags.
- Actions to prevent packaging waste.
- Moving from goods to services.
- Extended producer responsibility.
- Action by retailers through the Courtauld 2 Commitment.

2. Preparing for reuse

To help deliver the preparing for reuse target the following actions will be undertaken:

- Local Authorities to offer a bulky reuse and recycling collection service.
- Waste awareness, communications and educational campaigns.
- Support the infrastructure development for preparing for reuse.
- Further development of the role of the social economy.
- Further research for baseline data.

3. Collection of source separated waste for recycling, composting and anaerobic digestion

The actions to meet the targets set in Towards Zero Waste are as follows:

- Increasing the recycling rates to meet targets.
- Consistency in recyclable materials collected.
- Collecting and delivering quality materials to end markets.
- Greater transparency in the quantity and destination of materials recycled.
- Improve service standards at household waste recycling centres and bring sites.
- Provision of a recycling service for business.
- Increasing the recycling service value for money and performance.
- Supporting the development of recycle, compost and anaerobic digestion digestate markets.
- Working with retailers to increase the recyclability of products and packaging.
- Examination of extended producer responsibility.

4. Sustainable treatment and disposal

To provide sustainable treatment and disposal options for municipal waste, the following actions will be undertaken:

- Energy from waste caps.
- Landfill allowance scheme targets to 2020.
- Residual household waste – indicative levels.
- Food waste treatment and generation of high quality compost/anaerobic digestate.
- Residual waste treatment.
- Examination of landfill bans/restrictions of certain wastes.

The Welsh Assembly Government will be working closely with all stakeholders to take forward the policies and proposals within the sector plan.

1. Setting the Scene

1.1 How Towards Zero Waste and this Sector Plan fit together

Towards Zero Waste - the overarching waste strategy document for Wales - is a long term high level strategic framework which describes the social, economic and environmental outcomes that resource efficiency and waste management will achieve and contribute towards a sustainable future. It also details our high level principles, policies and targets.

Sector plans - are implementation plans that will form part of the suite of documents that comprise the overall waste management plan for Wales as required under EU, UK and Wales legislation. When completed, they will describe the role of the sector, the Welsh Assembly Government and others in delivering the outcomes, targets and policies in Towards Zero Waste.

The sector plans are web based 'living documents' and there are linkages between them, where the actions of one sector affect and/or support those of another. They are evidence based and link to best practice case studies as far as possible.

Towards Zero Waste and the sector plans align with the Assembly Government's Sustainable Development Scheme, One Wales: One Planet. This is prepared under section 79 of the Government of Wales Act 2006, which places on the Assembly Government a duty to promote sustainable development.

The Municipal Sector Plan promotes sustainable development in line with this duty and to support the obligations placed on local authorities (as Welsh improvement authorities) under the Local Government (Wales) Measure 2009. Section 2 of the Measure includes the requirement that local authorities must have regard to sustainability when seeking to improve the exercise of their functions. Other criteria that local authorities must have regard to are: strategic effectiveness; service quality; service availability; fairness; and efficiency and innovation. These criteria are also addressed by this sector plan.

1.2 Scope of the Municipal Sector Plan

The Municipal Sector Plan covers only the waste collected specifically by "municipalities", that is all of the Welsh Local Authorities, in accordance with their statutory duties as Waste Collection and Disposal Authorities as laid down in Part II of the Environmental Protection Act 1990 (as amended). For clarity, the wastes covered in this document are those collected by a local authority under sections 45 and 51 of the Environmental Protection Act 1990 (including kerbside collections, bring banks and household waste recycling centres). This sector plan does not cover other municipal waste that is not collected by Local Authorities, and which is collected instead by private or social economy sector waste management companies (largely as "commercial" waste). This distinction has to be made because the interpretation of the definition of municipal waste used in the UK has changed following a decision in respect of the UK's compliance with Article 5 of the Landfill Directive (1999/31/EC). This sets challenging targets for Member States to reduce

the amount of biodegradable municipal waste sent to landfill. In the Landfill Directive, municipal waste is defined (in Article 2) as “waste from households, as well as other wastes which, because of its nature or composition, is similar to waste from households”. The UK originally applied this definition to only wastes collected by Local Authorities under the powers and duties vested in them in the Environmental Protection Act 1990. Following discussions with the European Commission, it has been agreed that the UK’s approach to meeting those targets should be changed. This change is explained in more detail in Section 3.5.3.3. In essence, most commercial wastes will now be classified as municipal waste regardless of who collects it; and the EU Landfill Directive targets will now apply to this waste too.

This change will not, in itself, alter the current responsibilities and arrangements for managing this waste. Whereas municipal waste only applied to waste managed by Local Authorities, it will now extend to cover also waste managed by private sector waste management companies. Local Authority obligations to manage waste will not be amended. They will continue to manage household waste, and arrange for collection of commercial and industrial waste when requested. The vast majority of commercial and industrial waste is managed by the private sector and we do not expect this to change. It is not the intention through the reclassification of municipal waste to significantly change the existing management arrangements.

This Municipal Sector Plan only covers the municipal waste collected by Local Authorities. This consists of:

- Household waste, including:
 - Everyday waste collected regularly from households for recycling and reprocessing.
 - Bulky² wastes collected periodically from households by or on behalf of the Local Authority.
 - Wastes deposited for recycling at Local Authority operated “bring sites” (e.g. glass and paper banks).
 - Wastes deposited for recycling or disposal at Local Authority Civic Amenity sites/Household Waste Recycling Centres.
 - Street litter (from litter bins and from street cleansing).
 - Wastes from prisons, nursing homes, hospitals, universities, schools or other education establishments, collected by or on behalf of the Local Authority.
 - House clearance waste from domestic properties.

- Non-household wastes, including:

² The term “bulky waste” generally applies to two categories of waste that are listed in Schedule 2 of the Controlled Waste Regulations 1992 for which Local Authorities can make a charge for collection: i) any article of waste which exceeds 25 kilograms in weight; and ii) any article of waste which does not fit, or cannot be fitted into: a) a receptacle for household waste provided in accordance with Section 46 of the Environmental Protection Act 1990; or b) where no such receptacle is provided, a cylindrical container 750 millimetres in diameter and 1 metre in length.

- Wastes from businesses and public offices and buildings collected through Local Authority operated trade refuse schemes.
- Non household construction and demolition waste, arising from work carried out by traders.
- Commercial and industrial waste collected by a Local Authority.
- Non-household waste collected at Civic Amenity sites/Household Waste Recycling Centres.

1.3 Approach

This document constitutes Part 1 of the Municipal Sector Plan and has been prepared following consultation. Part 2 of the sector plan will consider the management of household hazardous wastes (HHW). The action plan set out in this sector plan will need to be implemented if the outcomes are to be met. Responsibility for delivery is identified in the action plan with the Welsh Assembly Government driving and overseeing its delivery in partnership with the delivery bodies.

The approach being followed for Part 1 of the Municipal Sector Plan is to take forward the following four key areas:

- Waste prevention – to reinforce the important role of Local Authorities engaging with householders and communities to reduce waste put out for collection, thus helping to meet environmental outcomes, increasing opportunities for enhancing social wellbeing through waste reuse and reducing the costs of waste collection and management.
- Preparing for reuse³ – to ensure that a far greater proportion of wastes collected by Local Authorities are “prepared for reuse”, in order to meet environmental outcomes, increase opportunities for enhancing social wellbeing through involvement in reuse activities and reduce the costs of waste management.
- Recycling collection service delivery improvements – to deliver sustainable development outcomes in a cost effective way and work towards the new municipal waste recycling targets set in Towards Zero Waste.
- Treatment and disposal – to deliver sustainable treatment and disposal of municipal waste in a cost effective way and work towards the targets set in Towards Zero Waste.

There is a separate action plan for each of these areas within this document. Some other important issues are addressed in Part 1, including achieving better value for money through efficiency savings, and ensuring more transparency and accuracy on the reporting of how and where materials are recycled.

Part 1 also details existing policies, targets and actions in place for other aspects of the collection and management of municipal waste that have already been consulted

³ The term “preparing for reuse” has been introduced in the revised EU Waste Framework Directive; it is included as a component part of the waste hierarchy.

on and/or are already in place (for example the food waste treatment and residual waste treatment programmes).

A Sustainability Appraisal (including a Strategic Environmental Assessment), a Health Impact Assessment and a Habitats Regulations assessment were published to accompany the consultation draft of the Municipal Sector Plan.

1.4 Who the Sector Plan is aimed at

The Municipal Sector Plan is primarily to guide action by Local Authorities, supplemented, where necessary, by supporting actions that need to be taken by the Welsh Assembly Government and others.

The Municipal Sector Plan is also a guide for action that needs to be taken by individual householders and others (including some businesses and public sector bodies) as producers of the waste that is collected and managed by Local Authorities or their contractors. The successful delivery of this Municipal Sector Plan, especially in meeting targets set for managing household wastes herein, in the Waste (Wales) Measure 2010, in the EU Landfill Directive, in the revised Waste Framework Directive and in Towards Zero Waste, relies predominantly upon the voluntary participation and goodwill of householders in reducing their wastes, and in putting out waste materials separately for preparation for reuse, recycling, composting and/or anaerobic digestion.

Local Authorities do, however, have powers that they can use to incentivise householders to participate in waste reduction and recycling schemes.

The Municipal Sector Plan also provides a record of objectives, targets and actions for municipal waste and, as such, forms part of the suite of documents that comprise the waste management plan for Wales as required by UK and EU legislation.

1.5 Links to other Sector Plans

The nature and quantity of municipal waste collected by Local Authorities is influenced by the products and services produced by business and commerce. The purchasing decisions made by householders, businesses and the public sector affect the overall composition of municipal waste collected by Local Authorities. This sector plan will therefore have strong links to the sector plans that will be developed for commercial and industrial waste sectors – in particular the Food Manufacture, Service and Retail Sector Plan and the Commercial and Industrial Sector Plan - so that products and packaging are designed to enable householders to produce less waste, and reuse and recycle more. The Welsh Assembly Government will look to the retail sector in Wales and its supply chain to play a major role in enabling waste prevention and high recycling of municipal waste through the better design of products and packaging, support for municipal waste recycling schemes and support for consumer awareness campaigns.

The Collection, Infrastructure and Markets Sector Plan is the key delivery plan to create an environment to support the services and infrastructure required to deliver

the targets set in Towards Zero Waste, and to ensure that the right kind of markets are in place in Wales for recyclates, compost and the digestate from anaerobic digestion of food waste..

1.6 Evolution of this Municipal Sector Plan

The policies for municipal waste set in Towards Zero Waste are based on those developed in Wise About Waste, and take full account of the principles and objectives enshrined in the revised EU Waste Framework Directive with its drive for waste prevention and to make the EU a high recycling society. There has been no change in direction; but ambitions have been stretched further in order to deliver sustainable development outcomes.

In 2007, the Welsh Assembly Government produced the first of a series of three 'Future Directions' papers for discussion with local government. These documents outlined proposals for future targets and approaches for Wales to the management of municipal waste collected by Local Authorities; they also presented the evidence base that guided the Welsh Assembly Government's preferred approach (especially for the 70 per cent recycling target for 2024-25). Following a financial, environmental and feasibility appraisal, it was concluded that a minimum level of 70 per cent recycling would be the most cost effective and deliverable level that should be set, and would save money in relation to the do nothing option of not increasing recycling above the 40 per cent target set for 2009-10. The 'Future Directions' papers have been debated and discussed in significant detail with Local Authorities and other stakeholders. As a result of these discussions, the second and third 'Future Directions' papers incorporated feedback from Local Authorities and other stakeholders.

Options for the management of residual waste, including that collected by Local Authorities, were appraised and determined in the development of the Regional Waste Plans that sought to ensure that the planning process enabled the development of the appropriate infrastructure. The development and first review of the Regional Waste Plans was led by local government, and was subject to full public consultation. The first review of the three Regional Waste Plans was completed in 2008 and the revised plans agreed by the Minister for Environment, Sustainability and Housing in 2009.

Since the publication of the third 'Future Directions' paper in 2009, the consultation on the overarching waste strategy document 'Towards Zero Waste' took place (29 April – 3 August 2009) and the final strategy was published on 21 June 2010. The strategy document builds upon the Future Directions papers which focused upon recycling and composting targets, and on the Regional Waste Plans, which included detailed considerations of the options for residual waste treatment. Towards Zero Waste was partly informed by the evidence base used for the Future Directions work, and by the sustainability appraisal carried out for the first review of the Regional Waste Plans.

At an early stage in the consideration of this Municipal Sector Plan three meetings were held with local government representatives in February and March 2009 to discuss the approach and the content of the sector plan. Further work was delayed

until the outcome of the consultation on Towards Zero Waste, and the shape of the final strategy, were known.

Potential outcomes sought from the Municipal Sector Plan were also discussed at the County Surveyors Society (Wales) Waste Group meeting on 8 December 2009. The group comprises most of the Local Authority Heads of Waste Service from across Wales.

Following the consultation on Towards Zero Waste and consideration of the response received, a Municipal Sector Plan stakeholder event was held in mid Wales on 16 February 2010. A broad spectrum of organisations were invited to attend the event and consulted upon the scope of, and potential actions to be included in, the Municipal Sector Plan. The event was externally facilitated and on the day, three separate workshops were held on Waste Prevention, Preparing for Reuse, and Waste Collections and Treatments. The feedback from the event was very positive and the stakeholders generally agreed that the Welsh Assembly Government was moving in the right direction to achieve 'Towards Zero Waste' in the municipal sector.

The draft Municipal Sector Plan Part 1 was published for public consultation on 21st June 2010 with comments invited throughout the 12 week consultation period via letter, fax, e-mail, telephone or on-line. The consultation approach was designed to clarify whether the Welsh Assembly Government's proposals for municipal waste management are appropriate and sought responses to 23 specific consultation questions. Responses to the consultations questions were elicited through a combination of public consultation and stakeholder workshops, further details of which are provided below.

A total of 47 full written responses were received to the draft plan. A further 4,237 responses and 16 petitions (comprising a total of 1,173 signatures) were received to Question 22 of the consultation and, more specifically, the proposal that, in considering future funding of Local Authority services, kerbside sort collection will be promoted by the Welsh Assembly Government.

Consultation workshops were held with invited stakeholders on 12th July (Cardiff) and 14th July (Llandudno) following the launch of the consultation document. Both events followed a similar process and format and were designed to:

- brief key stakeholders on the structure and content of the draft plan;
- provide an opportunity for stakeholders to seek clarification on aspects of its content;
- encourage dialogue on the plan between stakeholders;
- invite immediate feedback on the consultation questions; and
- highlight the opportunity to further contribute to the plan consultation.

A total of 56 participants attended the workshops, 31 at the Cardiff event and 25 at Llandudno. The views expressed by stakeholders have been incorporated within the analysis of responses to each consultation question where appropriate. A document containing the summary of the analysis and the Welsh Assembly Government's response is being published at the same time as this plan.

1.7 What has been achieved so far in the municipal sector – Summary for background

The following summarises the main outcomes so far delivered by Local Authorities:

Municipal and household waste quantities are now decreasing:

- The total amount of municipal waste (excluding abandoned vehicles) produced in Wales has fallen every year over the last 5 years, with 1.67 million tonnes produced in 2009-10 compared to 1.93 million tonnes in 2004-05 – an overall reduction of 13.4 per cent (a drop of 258,301 tonnes), and an average reduction each year of 2.7 per cent on the 2004-05 figure.
- Over the same period, household waste has fallen by 8.5 per cent (a drop of 134,112 tonnes) from 1.58 million tonnes to 1.45 million tonnes, with an average reduction of 1.7 per cent each year on the 2004-05 figure.

Municipal and household waste recycling levels are increasing each year:

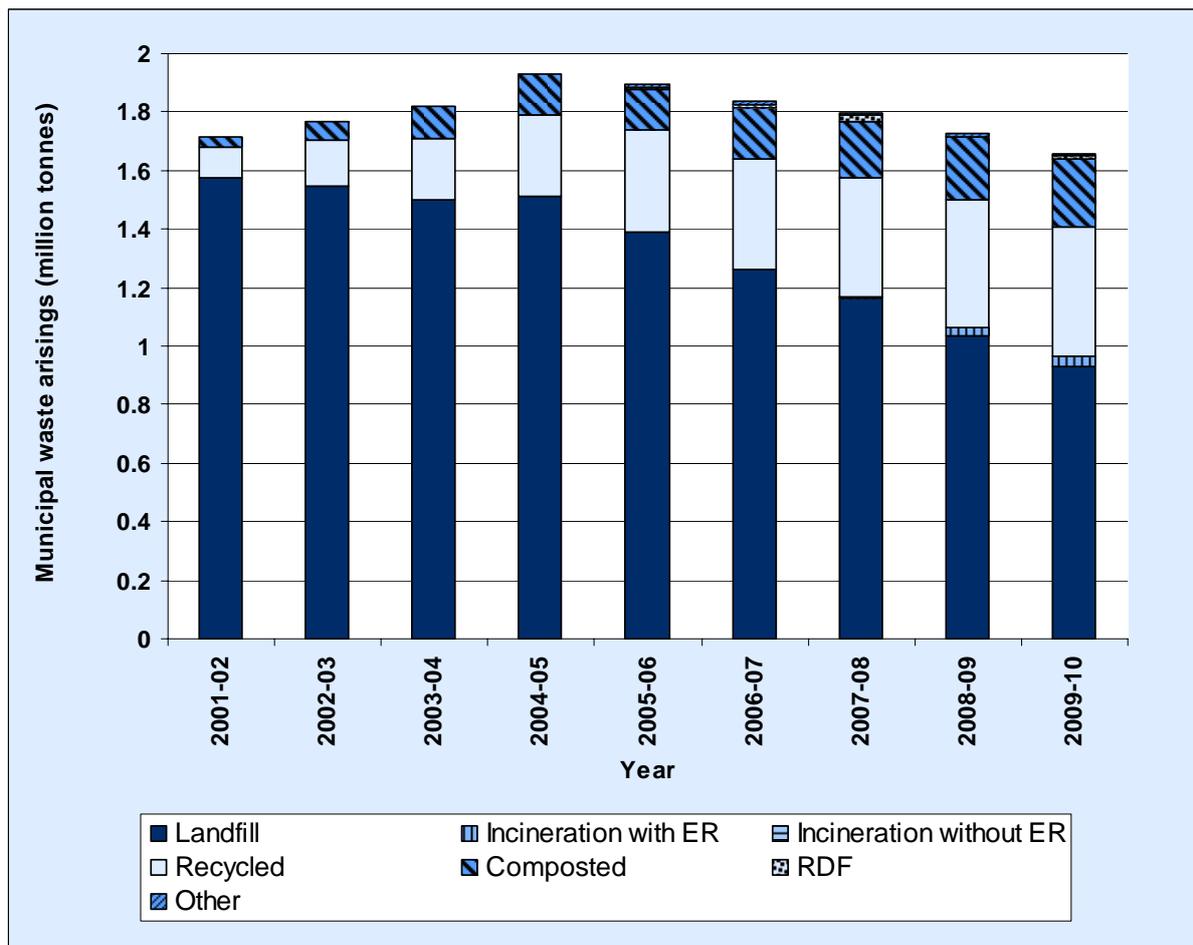
- The percentage of municipal waste (excluding abandoned vehicles) recycled or composted in Wales has been continually increasing since 2000-01. The 2009-10 rate of 40 per cent (including rubble, incinerator residues, matter from beach cleansing and plasterboard) is more than five times higher than the 2000-01 rate of 7 per cent.
- The trend is continuing in 2010-11, with the first two quarters (April - September 2010) showing a provisional combined overall municipal waste recycling/composting rate for Wales of 44 per cent (excluding abandoned vehicles, rubble, incinerator residues, matter from beach cleansing and plasterboard).

The amount of residual municipal waste landfilled is decreasing each year:

- Whilst landfill is still the main form of management of residual municipal waste, the use of landfill sites has been steadily decreasing over the last 8 years from a quantity of 1.57 million tonnes sent to landfill in 2001-02 to 0.93 million tonnes in 2009-10 – an overall reduction of 40.8 per cent (a drop of 641,766 tonnes).

Figure 1 provides an overview of trends from 2001-02 to 2009-10 for municipal waste landfilled, re-used, recycled and composted:

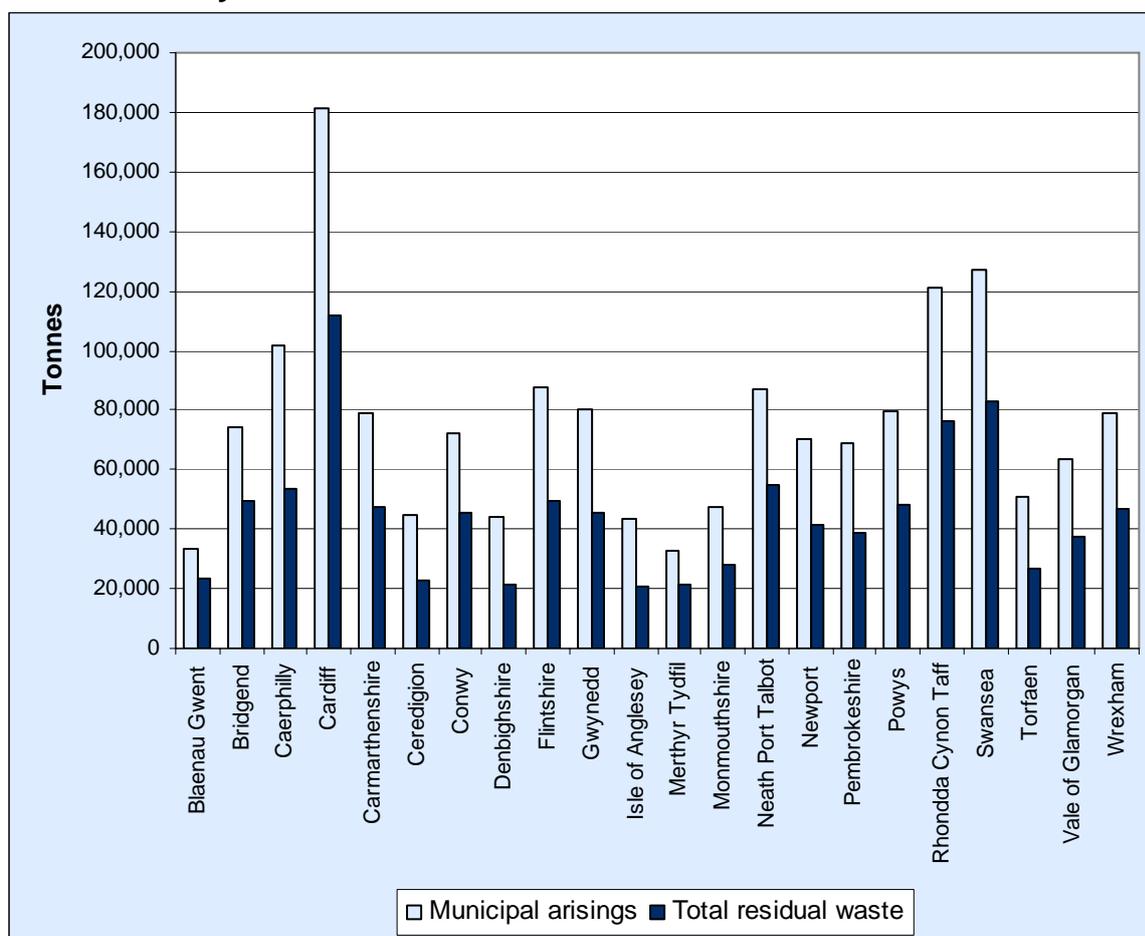
Figure 1 Management of municipal waste (tonnes) from 2001-02 to 2009-10



Note: RDF = Refuse Derived Fuel (e.g. used as fuel in a cement kiln); ER + Energy recovery.

The current municipal waste arisings and levels of residual municipal waste for 2009-10 for each individual Local Authority are shown in Figure 2.

Figure 2: Total municipal waste and residual waste levels (in tonnes) for each Local Authority in 2009-10



Source: Waste Data Flow

Further details of annual and quarterly municipal waste statistics in Wales can be found on:

http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/bysector/municipal/annualreports/?lang=en

http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/bysector/municipal/quarterly/?lang=en

1.8 Compliance with targets

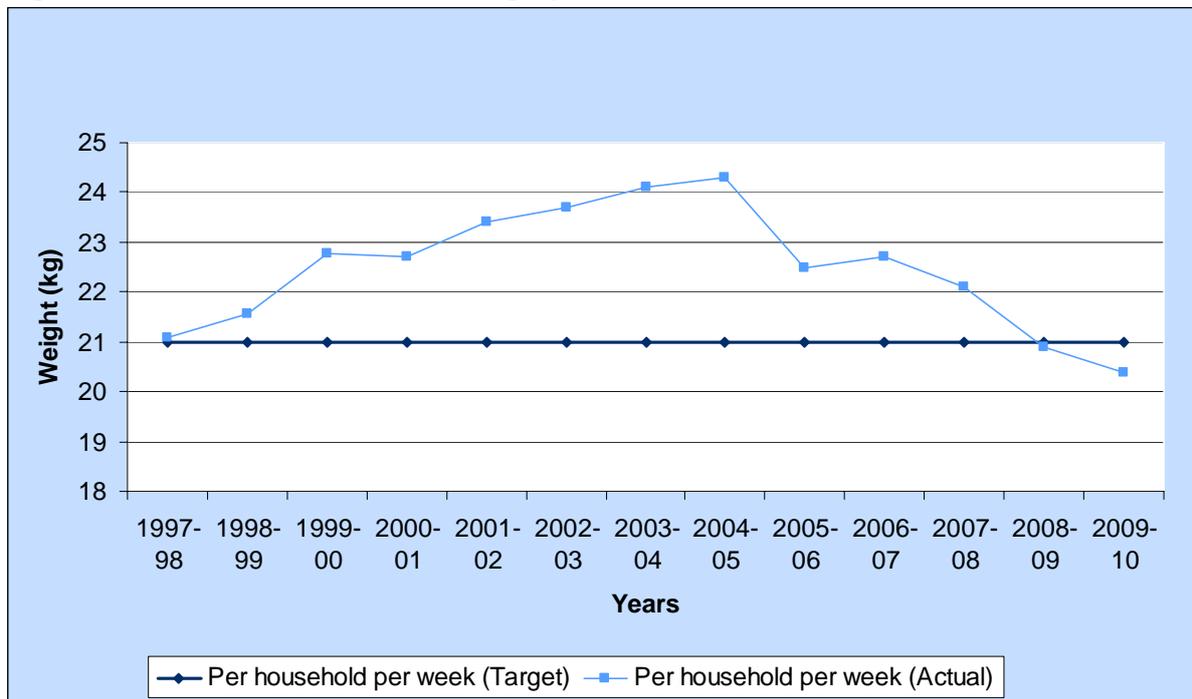
1.8.1 Waste reduction targets

Wise About Waste set the following targets for the stabilisation and reduction of household waste:

- by 2009-10 (and to apply beyond) waste arisings per household should be no greater than those (for Wales) in 1997-98;
- by 2020 waste arisings per person should be less than 300kg per annum.

The target to reduce household waste per household per week to 1997-98 levels (21 kg) by 2009-10 was met, with a figure of 20.4 kg (see Figure 3).

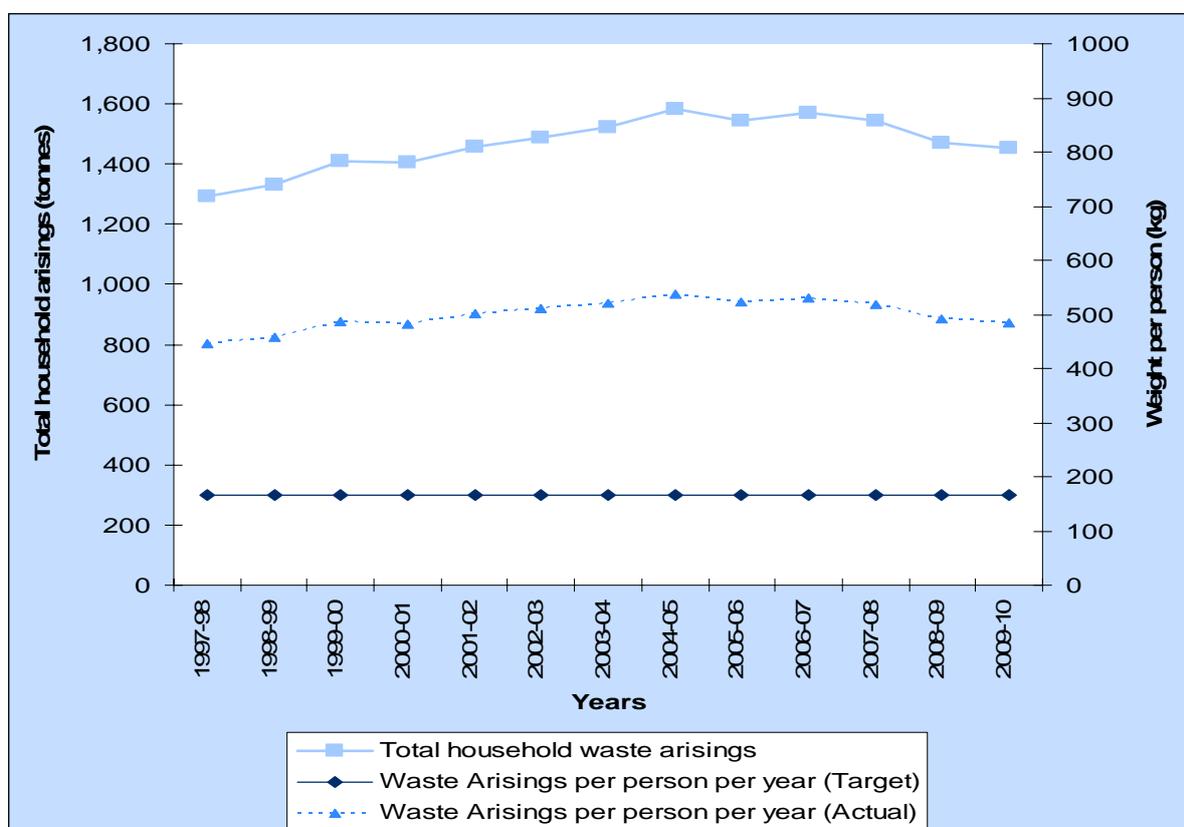
Figure 3 Household waste arisings per week in Wales



Source: Welsh Assembly Government

Progress towards achieving the long term 2020 target of 300 kg of household waste per person per annum is more modest (Figure 4). The amount of household waste per person peaked in 2004-5 to 538 kg per person per annum; this has since decreased to 484 kg for 2009-10, although this is still greater than the 1997-98 figure of 446 kg. This target has not been met at an EU level. This was set in the 5th EU Environmental Action Programme and subsequently dropped in later programmes.

Figure 4 Household waste arisings total and per person from 1997-98 to 2009-10



Source: Welsh Assembly Government

1.8.2 Recycling/composting targets

Wise About Waste set the following recycling and composting targets for each Local Authority to deliver:

- By 2003-04 achieve **at least** 15 per cent recycling/composting of municipal waste with a minimum of 5 per cent composting (with only compost derived from source segregated materials counting) and 5 per cent recycling.
- By 2006-07 achieve **at least** 25 per cent recycling/composting of municipal waste with a minimum of 10 per cent composting (with only compost derived from source segregated materials counting) and 10 per cent recycling.
- By 2009-10 and beyond achieve **at least** 40 per cent recycling/composting with a minimum of 15 per cent composting (with only compost derived from source segregated materials counting) and 15 per cent recycling.

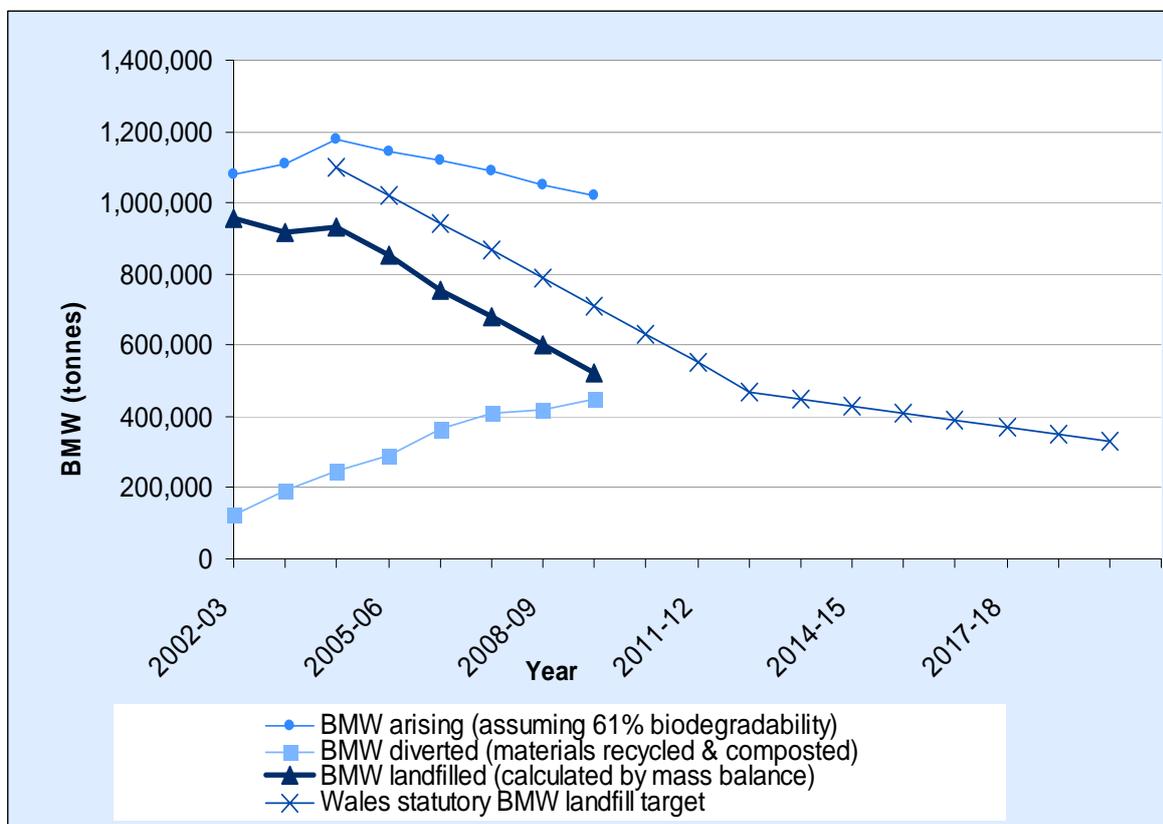
The recycling/composting targets as set in Wise About Waste for 2003-04 and 2006-07 were met as a whole for Wales, but not all of the 22 Local Authorities met their individual targets:

- In 2003-04, 13 Local Authorities met the combined recycling and composting rate of 15 per cent, all 22 Local Authorities met the minimum dry recycling rate of 5 per cent with 16 Local Authorities meeting the minimum composting rate of 5 per cent.
- In 2006-07, 17 Local Authorities met the combined recycling and composting rate of 25 per cent, all 22 Local Authorities met the dry recycling rate of 10 per cent, with 7 Local Authorities meeting the composting rate of 10 per cent.
- In 2009-10, 12 Local Authorities met the combined recycling and composting rate of 40 per cent, all 22 Local Authorities met the minimum dry recycling rate of 15 per cent. with 12 meeting the minimum composting rate of 15 per cent.

1.8.3 Landfill Allowances Scheme Targets

The Landfill Allowances Scheme (LAS) for Wales started in October 2004. Local Authorities have been set targets that progressively reduce the amount of biodegradable municipal waste sent to landfill. Up to 2008-09, all Local Authorities had met all their targets in each year of the scheme, and all authorities had also met individually their 2009-10 allowances in 2008-09 (Figure 5).

Figure 5 Trends in Local Authorities performance on landfilling biodegradable municipal waste (BMW) – 2002-03 to 2009-10



1.9 The costs and funding of the municipal waste service

1.9.1 Current levels of expenditure and funding

The total gross cost of the municipal waste service for Wales is £274,063,034 (2009-10). This is funded via a number of sources, as follows:

- Welsh Assembly Government funding (total £230,543,379; **84.1 per cent** of total cost):
 - Revenue Support Grant (RSG) (£164,455,000).
 - Sustainable Waste Management Grant (SWMG) (£59,000,000).
 - Regional Capital Access Fund (RCAF) – capital (£5,000,000).
 - Procurement support – RCAF - revenue (£1,899,379).
- Local Authority raised funding (total £43,519,655; **15.9 per cent** of total cost):
 - Council Tax.
 - Charges⁴ for green waste, and bulky wastes collection from households.
 - Charges for trade waste collection from business.
 - Income from recycle/compost.

In terms of Welsh Assembly Government funding versus Local Authority funding (mostly via Council Tax), the split is approximately 85:15 per cent.

In 2008-09 (2009-10 figures not currently available), the average municipal waste service cost was, according to figures provided by Local Authorities and collated by the Welsh Local Government Association (WLGA), in the region of **£163 per household** for the year, broken down approximately as follows:

- Refuse collection and disposal service - around **£78 per household**.
- Dry recycling and organics service cost - around **£80 per household**, broken down approximately as:
 - Dry recycling collection and management service - around £32 per household.

⁴ Schedule 2 of the Controlled Waste Regulations 1992 sets out a number of types of household waste for which Local Authorities may make a charge for collection. These wastes include those from domestic properties which require special handling, for example because they are unusually bulky or potentially dangerous.

- Organics⁵ collection and management service - around £21 per household, and
- Civic amenity site/household waste recycling centre provision - around £26 per household.

Further details are provided in Table 1 below.

In 2009-10 the municipal waste performance indicator recycling rate was 39 per cent. Landfill tax stood at £40 per tonne.

Table 1: Breakdown of cost of Local Authority municipal waste service provision in Wales in 2008-09

Description	Average Cost (£)	Total Cost for all Local Authorities in Wales (£)	Total number of households with the service (HH)
Total Cost of Municipal Waste Collection and Management in Wales		265,438,531	
Average Total Service Cost per HH	163.48	213,118,181	1,303,612
Average Dry Recycling Gross Cost per HH	36.13	45,663,369	1,263,976
Average Dry Recycling Service Cost per HH	32.38	40,924,707	1,263,976
Average Service Costs per HH: Recycling Collection	25.74	32,535,503	1,263,976
Average Service Costs per HH: Recycling Treatment	6.05	7,649,598	1,263,976
Average Dry Recycling Income Per HH	-3.70	-4,675,389	1,263,976
Organics Gross cost per HH	21.49	21,235,716	987,947
Organics Service Costs per HH	21.35	21,091,616	987,947
Service Costs per HH: Organics Collection	14.76	14,582,816	987,947
Service Costs per HH: Organics Treatment	4.92	4,862,715	987,947
Residual Gross Cost per HH	93.87	122,372,598	1,303,612
Service Costs per HH: Refuse Collection	39.74	51,809,366	1,303,612
Service Costs per HH: Refuse Disposal	38.73	50,493,897	1,303,612
CA Site Recycling Service Cost per HH	25.96	33,844,916	1,303,612
Awareness Service Cost per HH	2.26	2,951,191	1,303,612

Source: WLGA

As Council Tax contributes around 17.5 per cent of the £163 cost per household, then that means out of an average Council Tax bill in Wales of £908, around £28.5 per year goes towards the costs of managing municipal waste. The remaining £134.5 for each household is provided by Welsh Assembly Government grants.

The average cost in Wales for each tonne of household waste collected and managed, was around £145 in 2008-09 (when Landfill Tax was £32 per tonne).

⁵ It has not been possible to separate out figures for green waste and food waste. In 2008-09 green waste collection predominated.

1.9.2 Historical provision of additional grant funding to Local Authorities

As well as support through the Revenue Support Grant, since 2002 the Welsh Assembly Government has provided additional funding to Local Authorities to support additional effort on recycling in the form of the Sustainable Waste Management Grant (SWMG), and this has generally increased each year as follows:

2001/02 - £ 1.5m
2002/03 - £11.0m + supplementary credit approvals (SCA) of £3,000,00
2003/04 - £22.0m + SCA of £5,000,000
2004/05 - £21.0m
2005/06 - £26.0m
2006/07 - £32.0m
2007/08 - £35.0m
2008/09 - £50.0m
2009/10 - £59.0m
2010/11 - £73.0m

Total: £330.5 million (£338.5 million including SCA)

Other funding has also been provided, and a summary of all grant directly paid to Local Authorities from 2001-02 to 2009-10 is provided in Table 2:

Table 2: Total amount of additional grant funding provided to Local Authorities from 2001-02 to 2010-11

Project Type	Value (£)
Sustainable waste management grant (SWMG) to all 22 Local Authorities	330,500,000
Supplementary credit approvals (SCA)	8,000,000
Regional Capital Access Fund (RCAF) – one off grants to groups of Local Authorities	19,489,000
Discretionary grants to Local Authorities to support procurement projects amounting to £2,363,500 between 2007 and 2009. These were one-off grants to individual/groups of Local Authorities.	2,363,500
Total	360,352,500

Source: Welsh Assembly Government

1.9.3 The future financial knowns

1.9.3.1 Landfill Tax

Landfill Tax is increasing by £8 per tonne per year from a present figure of £48 per tonne (2010-11 rate) to £80 per tonne on 1 April 2014. Any municipal waste sent by Local Authorities to landfill will be subject to this increase in Landfill Tax. The Landfill Tax cost for the total of 1,035,000 tonnes of municipal waste landfilled in 2008-09 (when the tax was £32 per tonne) would have been £33.12 million. At a tax

rate of £80 per tonne the total amount Landfill Tax for landfilling this amount of municipal waste in 2014-15 would be £82.8 million, an increase of £49.68 million. This would be the cost of the “Do nothing” approach.

1.9.3.2 Affordability and funding support

a) Affordability for meeting the targets in Towards Zero Waste

If no action is taken by Local Authorities to further reduce, reuse, recycle and recover the municipal waste that they collect and manage, and they continue to landfill at current levels, their costs will rise substantially (as shown above – the extra costs in Landfill Tax would be nearly £50 million in 2014-15, if landfill continues at the same level as in 2008/09). This will be due not only to the annual increase in Landfill Tax but also to the likely increases in landfill operator costs driven by increased environmental, health and safety and operations costs. The increased costs of landfilling are proving to be an important economic disincentive, and the year on year increases in the tax will encourage the adoption of more sustainable forms of waste management.

Modelling has shown that increasing levels of recycling and treatment/recovery will cost less than continuing to landfill. In terms of diverting waste from landfill via recycling and/or residual treatment, modelling has also shown that a high recycling scenario is more cost effective than a high residual treatment scenario. Details are as follows.

The evidence work for the October 2007 Future Directions paper that first proposed the 70 per cent recycling target included a financial appraisal. This identified that higher rates of recycling and lower levels of residual treatment would be more cost effective than lower rates of recycling and greater levels of residual treatment. The Regulatory Impact Assessment (RIA) for the Proposed Waste (Wales) Measure 2010 looked at the extra costs of reaching the 70 per cent recycling target in 2025 starting from a baseline of 52 per cent recycling in 2012-13 (which is the first target year for the Measure). There are no additional costs associated with this option compared to the “Do Nothing” option of continuing with 52 per cent recycling and paying the additional costs of landfilling. The 70 per cent option realises additional income from the sale of recyclate. The Do Nothing option assumes that recycling, preparation for re-use and composting rates would peak at 52 per cent, this is a result of existing policy interventions, and would plateau thereafter in the absence of further policy interventions. Continuing to recycle at this rate will not realise the cost savings envisaged by higher rates of recycling.

Modelling indicates that the cost of treating municipal waste will fall below landfill costs by 2012-13 for food waste (assuming the use of anaerobic digestion) and by 2014-15 for residual waste. As such, the economic argument for securing treatment as an alternative to landfill is inescapable, notwithstanding the other drivers in respect of meeting EU Landfill Directive targets to reduce the landfilling of biodegradable municipal waste.

b) Funding support

The Welsh Assembly Government is providing significant financial support to enable Local Authorities to recycle more waste. An additional £272m was made available to Local Authorities between 2001-02 and 2009-10 to support improvements in recycling rates.

In recognition of the future increase in costs for the management of municipal waste, and the need to spend on new treatment services to reduce increased costs associated with the increase in Landfill Tax, the Welsh Assembly Government is supporting two major investment programmes: one for the treatment of separately collected food waste; the second for the treatment of residual waste (further details of these programmes are provided in Section 3.5.4.1).

In terms of support for the Food Waste Treatment hubs the following is being provided:

- i. A contribution of 20 per cent of the net present value of the initial capital costs of the facilities, payable upon full service commencement (funded from the Strategic Capital Investment Fund (SCIF)).
- ii. A contribution of 15 per cent of the net present value of the facility gate fee, payable per annum on an annuity basis from full service commencement.
- iii. £2 million per annum SCIF procurement/programme development support, over 3 years (indicative for beyond 2010-11).

In terms of support for the Residual Waste Treatment consortia, the Welsh Assembly Government is committed to providing:

- i. A contribution of 25 per cent of the net present value of the facility gate fee, payable per annum on an annuity basis from full service commencement.
- ii. £2m per annum Regional Capital Access Fund (RCAF) procurement/programme development support.

The above additional sources of funding were agreed between the Welsh Assembly Government and the Welsh Local Government Association on the basis of affordability, and whole life costings, whereby there is a cross over point in future where the cost of treatment becomes cheaper than the cost of landfilling.

Commensurate with the additional funding support from the Welsh Assembly Government, Local Authorities will be expected to deliver efficiency savings, and to maximise income from the sale of recyclate, compost and AD digestate, as well as recovering in full the costs of services that they can charge for under current legislation (green waste, bulky wastes, and trade wastes).

1.10 Nature of the future challenge

This section briefly identifies the drivers and challenges outlined in Towards Zero Waste, and updates them where necessary, in respect of municipal waste collected by Local Authorities.

1.10.1 Key sustainable development and other drivers

The key drivers for the more sustainable management of municipal waste include:

- The Welsh Assembly Government's goal that sustainable development should drive everything that we do in Wales.
- Under Section 2 of the Local Government (Wales) Measure 2009, local authorities have a statutory duty to make arrangements to continuously improve how they exercise their functions and, in doing so, have regard to, inter alia, sustainability.
- The imperative to ensure that the more sustainable management of waste helps contribute to the reduction of greenhouse gas emissions globally.
- The Welsh Assembly Government's stated goal to achieve One Planet living within the lifetime of a generation.
- The need to become more resource self sufficient, in order to ensure resilience for our economy in terms of the security of supply of affordable material resources.
- The need to meet EU Directive targets set for the recycling of waste from households and to reduce the landfilling of biodegradable municipal waste.
- The revised EU Waste Framework Directive requirement for action to be focussed higher up the waste hierarchy, with far greater attention focussed on waste prevention (including reuse), preparing for reuse and making the European "recycling society".

Some Local Authorities have signed up to the Welsh Assembly Government's Sustainable Development Charter, and have made sustainable development their central organising principle. Through this, they have committed to promoting and delivering wellbeing through their decisions and operations, by:

- ensuring that all decisions promote long term, sustainable wellbeing of people (including employees) and communities, and do not promote short term fixes that will continue to lock us into unsustainable patterns and lifestyles;
- ensuring that all decisions take full account of, and where possible fully integrate, the various social, economic and environmental outcomes that are being sought;
- engaging with, and involving, the people and communities that will be affected by these decisions, so that working in partnership for sustainable development becomes part and parcel of the way we work.

The expectation of these local authorities is that they are:

- clear about their role, responsibilities and commitments in relation to sustainable development;
- provide clear leadership for sustainable development, within their organisation and with those they work with;
- promote continuous improvement so that they continue to reduce the environmental impact of all their activities;
- embed sustainable development into all their decision-making, including financial decision-making;
- strive to be an exemplar organisation, to lead and inspire others to act.

Local Authority Charter signatories will be expected to apply this approach when implementing their Waste Municipal Plans

1.10.2 Waste prevention

In order to respond to these drivers, Wales faces a major challenge to reduce the amount of waste produced, and to increase reuse and recycling to the highest level possible. (Ecological footprint modelling shows that if annual growth in municipal waste is modelled at 0 per cent then 70 per cent recycling reduces the ecological footprint associated with municipal waste by 23 per cent). Whilst there has been significant progress in recent years in terms of reducing quantities of municipal/household waste, and achieving a substantial increase in recycling, concerted further action is required to meet the new targets set in Towards Zero Waste.

The steady reduction from 2004-05 to 2009-10 in municipal and household waste collected by Local Authorities has taken place largely during a period of significant economic growth and an increase in the number of households and population across Wales. The reduction is likely to reflect a combination of factors including:

- Service changes by Local Authorities that appear to have influenced householder behaviours to reduce the amount of waste put out for collection (for example switching to fortnightly collection of residual waste and/or reducing residual bin sizes).
- Greater awareness by householders of the amount of waste that they are producing; the requirement for them to separate out their recyclable and compostable wastes may be making them more aware of the quantity and nature of the wastes that they are producing, thus influencing them to waste less.
- Efforts by the major retailers, through the Courtauld Commitment, which have successfully stabilised the amount of packaging put onto the market.
- Efforts by Local Authorities, WRAP and the Welsh Assembly Government to promote, through awareness campaigns, the need to reduce waste and, in many cases, save money (including campaigns on food waste, junk mail and reusable nappies).

- The success of social enterprise and business initiatives to increase reuse through the use of the internet, and through local business, charity and community efforts involving car boot sales, donations to charities, jumble sales etc.

Two other activities have also reduced the waste collected by Local Authorities although they have **not** reduced the amount of waste produced:

- The promotion of home composting/treatment (this is not a waste prevention activity since the waste is still generated, but it is then treated at home and not collected by Local Authorities for treatment, hence this waste no longer appears in official statistics).
- The prevention by Local Authorities of the use of civic amenity sites/household waste recycling sites by businesses and traders (noting that this is not actually waste prevention since the waste is still produced by businesses, it is just managed elsewhere).

These activities have reduced the cost of Local Authorities and, in most cases, definitely offer a better environmental outcome compared to landfill. However, in the case of preventing businesses using civic amenity sites, it could be that the waste is just landfilled by another means, or, worse, fly-tipped. (This issue is covered later in Section 3.4.5.1 g Provision of a recycling service for businesses where the Welsh Assembly Government proposes that Local Authorities make household waste recycling centres available for businesses to recycle, at a charge.)

The challenge now is to further reduce the amount of waste produced by householders. The main existing powers that Local Authorities have to help ensure that less household waste is produced are:

- Consideration of options to change services to those more likely to reduce waste, for example reduced frequency of residual waste collection (moving from weekly to fortnightly), charging for garden waste (under the Environmental Protection Act 1990), reducing bin sizes and compulsory recycling using Section 46 of the Environmental Protection Act 1990 powers in respect of specifying the receptacles that householders must use.
- Regulating retailers in respect of excess packaging – this is under the Packaging Essential Requirements Regulations that tackle over packaging and which are enforced by Local Authority Trading Standards.
- Potentially reducing the Council Tax or providing other rewards for householders who significantly reduce their wastes (although this has to be balanced against the administrative costs of such initiatives).

The Welsh Assembly Government recognises that much more effort needs to be applied to ensure that products that are consumed in Wales generate a lot less

waste at end of life. As concluded by the EU's Environment Council in December 2010⁶, the EU's extensive use of resources and its high dependence on the import of resources combined with worldwide population growth and economic development threatens future supply and access to resources for Europe. There will have to be a far more efficient global use of materials in the future, driven by the law of supply and demand as economies in the developed world grow. This will lead to competition for resources and the price of raw material commodities will inevitably increase. It has already been recognised by the UN, OECD and the European Union that concerted action to improve materials resource efficiency is required, and that this must include strong action to reduce waste. The European Union's approach to this is evolving from Sustainable Consumption and Production (SCP) through to its new initiative on Sustainable Materials Management (SMM). The European Environment Council has identified that the shift towards a sustainable and resource-efficient European economy will require, in addition to technological innovation, innovation at the socioeconomic level, i.e. new business models (e.g. product-service schemes, industrial symbiosis and integrated chain management), new consumption patterns and new governance models geared towards the sustainable management of materials throughout the life-cycle.

The Welsh Assembly Government will strive to make its voice heard in the deliberations on SCP and SMM at an EU and worldwide level in order to ensure that action on global supply chains helps Wales meet its household waste reduction target and ultimate goal of achieving One Planet levels of waste by 2050.

1.10.3 Preparing for reuse and recycling

Whilst progress by Local Authorities in meeting the recycling (including reuse) targets set in Wise About Waste has on the whole been good, performance has varied. Also, it is of course easy to improve from a low base, but much harder to improve further when recycling levels are already reasonably high. Moving from 40 per cent to 70 per cent recycling (including reuse) is acknowledged as a significant challenge, although levels of 70 per cent recycling are already being achieved in some regions of the EU and in some communities across the UK (including in Wales, for example St Arvans, and with 67 per cent being achieved in Presteigne after only a few months of its new pilot service under their Zero Waste Presteigne project). The challenges that Local Authorities will face include:

- Persuading enough householders (ideally over 90 per cent) to separate out enough recyclable and compostable material to meet the targets. This will require an expanded programme of communication to promote behaviour changes.
- Providing comprehensive preparing for reuse and recycling services which are simple and reliable to collect materials of a sufficient quality to ensure that they are reused or recycled in a closed loop fashion, ideally used within manufacturing in Wales.

⁶ Council conclusions on sustainable materials management and sustainable production and consumption: key contribution to a resource-efficient Europe, 20 December 2010

- Whether enough of the waste that is produced is reusable or recyclable.
- Capturing a fair share of the income from the recyclate and compost/anaerobic digestion to subsidise collection costs.
- Placing a greater focus on the quality of the recyclate separated out by householders, not just simply the quantity. This means reducing the level of contamination of the key materials with items that cannot be recycled,. This requires good communication to householders, and the best time to do this is at the time of collection when contamination is noted by the collection staff. Generic campaigns on quality and reducing contamination are also important as a back up.

1.10.4 Treatment

Whilst progress in reducing residual waste and landfill has been good, Local Authorities now also face challenges in ensuring the provision on time of adequate treatment capacity for separately collected food waste and for the residual municipal waste that will remain after waste reduction and recycling have been maximised. The Welsh Assembly Government is providing major support to groups of Local Authorities for the joint collaborative procurement of the necessary treatment services and infrastructure, but this requires strong commitment to partnership working, and meeting deadlines set under the two procurement programmes.

2. Outcomes and milestones set in Towards Zero Waste

This section describes the outcomes that we are seeking to achieve in our overarching strategy document 'Towards Zero Waste'. The next sections describe the role of the Municipal Sector Plan in meeting them.

Building a sustainable future is fundamental to our approach. This means we will consider the environmental, social and economic implications of our actions. Each are considered in turn below.

A sustainable environment

Towards Zero Waste shows how we will reduce the impact of waste in Wales to within our environmental limits by focussing on reducing the ecological footprint of waste to 'One Wales: One Planet' levels by 2050. This approach will reduce the impact of climate change from waste activities, achieve sustainable consumption and production, sustain our economy and manage and conserve the planet's resources.

To do this:

- We need to focus on waste prevention, and more sustainable ways of consuming and producing.
- Where waste is produced, we need to focus on very high levels of recycling, and make sure that it is the right type of recycling (i.e. closed loop).
- Food waste should be sent to anaerobic digestion plants to generate valuable renewable energy and fertiliser.

A prosperous society

Towards Zero Waste shows how our actions on resource efficiency and waste management will support the development of a prosperous society that:

- Provides more 'green' jobs within the waste and resource management industry across a range of skill levels in Wales and increase the number of high skilled, high value green jobs.
- Is resilient against future competing demands including, rising costs and security of supply of global material resources, saving money and maintaining or increasing profit through more efficient resource management.

A fair and just society

The sector plans will implement the targets, actions and policies in Towards Zero Waste in a manner in which citizens can, through actions on waste prevention, reuse and recycling:

- Achieve their full human potential.
- Enrich their communities.
- Contribute towards the wellbeing of Wales.
- Improve their local environment.
- Actively improve the quality of their life.

There will be equality of opportunity for all citizens of Wales to contribute to waste prevention, reuse and recycling irrespective of where they live, their health and ability, mobility or personal circumstances.

To implement our outcomes, we are working towards two key milestones.

2025 Towards Zero Waste

By 2025, there will be a significant reduction in waste (27%), and we will manage any waste that is produced in a way that makes the most of our valuable resources. This means maximising recycling and minimising the amount of residual waste produced, and achieving as close to zero landfill as possible.

This is an intermediate step on the way to our 2050 target of achieving zero waste and 'living within our environmental limits'⁷. This is needed because reducing the impact of waste in Wales to 'One Wales: One Planet' levels will require big changes in the way that products and services are designed, and the actions that consumers and businesses take.

Towards Zero Waste will require:

Waste prevention - We need to reduce our waste arisings by around 1.5 per cent (of the 2007 baseline) each year across all sectors in order to achieve our One Planet goal for 2050. We will move from a product orientated society, to a service orientated society where products are leased/rented with repair centres being the norm. Citizens will be empowered to 'buy smarter' and they will take responsibility for the consequences of their purchases, avoid producing waste, and reuse products as far as possible. Reuse of unwanted items will be encouraged. As far as possible, items that are discarded as waste are 'prepared for reuse' and are able to continue to be a resource and reused by others. Retailers will sell products that generate significantly less waste and the lifespan of products will be increased.

A strong economy in resource management - This means that recyclates will be collected and managed with supply to Welsh manufacturing in mind. We will need:

⁷ Environmental Limits – 'Our Vision of a Sustainable Wales is one where Wales: lives within its environmental limits, using only its fair share of the earth's resources so that our ecological footprint is reduced to the global average availability of resources, and we are resilient to the impacts of climate change' (Source: One Wales: One Planet: A new sustainable development scheme for Wales).

- High levels of clean recyclates to drive the market - all sectors in Wales will be recycling at least 70 per cent of their waste – this includes businesses, households and the public sector.
- Waste collection systems will enable high levels of high quality recycling to be achieved, so that the recyclate can feed as far as possible into reprocessing facilities in Wales (retaining the economic value of recyclate within Wales).
- There will be a focus on serving local recyclate markets that are ‘closed loop’ recycling systems to achieve the best environmental benefits.
- Strong markets for recyclates and anaerobic digestion digestate.

Residual waste will be minimised - substantially less residual waste will be produced than at present, and it will be phased out of landfill sites to high efficiency energy from waste plants.

Landfill will be eliminated as far as possible - to reduce Wales’ greenhouse gas emissions and make the most of our valuable resources we need to divert waste from landfill, and manage the emissions from existing landfill sites.

Legacy wastes will be tackled - alternative ways of treating these will be found, and efforts will be made to ensure that products are redesigned so that they do not become problematic legacy wastes in the future.

2050 – Achieving zero waste

By 2050, we will have reduced the impact of waste in Wales to within our environmental limits. Residual waste will have been eliminated and any waste that is produced will all be recycled. This means that the ecological footprint of waste in Wales will be at One Wales: One Planet levels. It will be achieved by continuing and enhancing our current efforts on:

Achieving One Planet levels of waste – ‘Living within our environmental limits’ - Greater effort will be made to challenge waste at all stages of its production. All products will use as little material as possible, with the majority of it sourced from recyclate, with as few virgin resources used as possible. Resources will be highly valued to a level that none will be wasted.

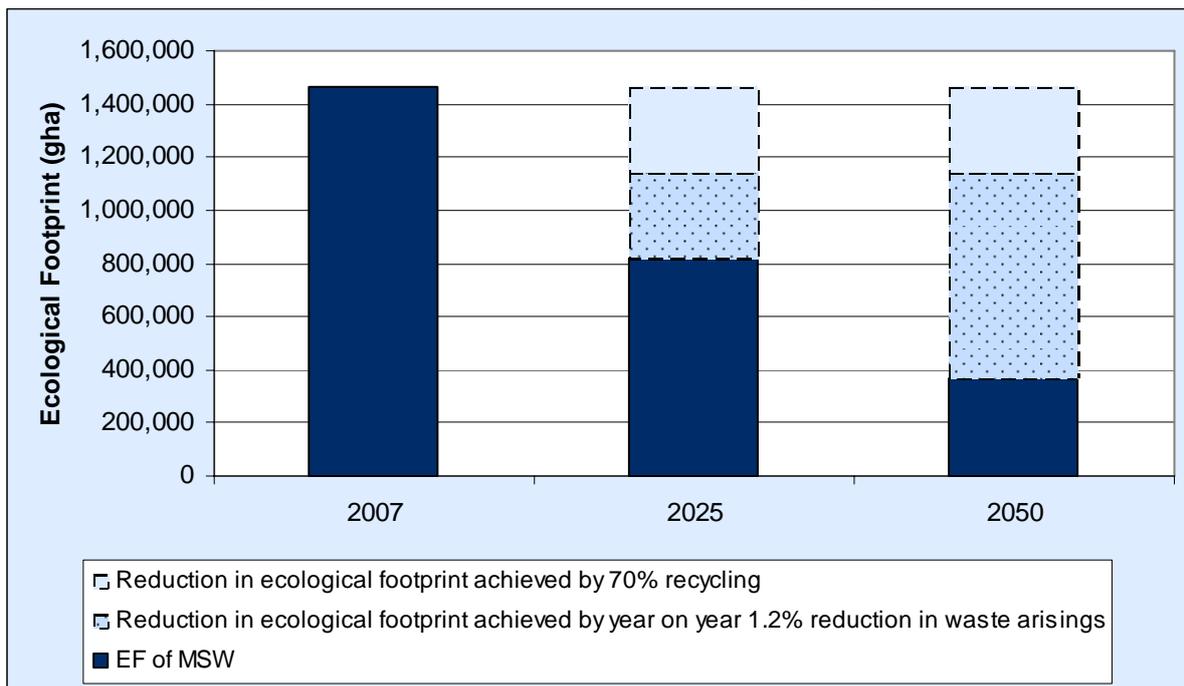
Aiming to phase out residual waste and achieve ‘zero waste’ through ensuring that all waste is prepared for reuse or recycled - Any waste that is produced, will be prepared for reuse, recycled, composted (for green waste) or anaerobically digested (for food waste). All products and packaging will be designed for disassembly and preparation for reuse or recycling, and the collection services and facilities to recycle all of the material will be in place. All recycling operations will be ‘closed loop’, or employ ‘upcycling’⁸. As far as

⁸ Upcycling - upcycling happens where high embedded energy raw materials are substituted by lower embedded energy secondary raw materials that can be subsequently be closed loop recycled.

possible, recycle will be used directly in Welsh manufacturing processes. This means there will be far less need for residual waste treatment facilities such as energy from waste plants with the number and/or capacity required progressively reducing from 2025 to 2050.

Figure 6 shows the contribution made by waste reduction and 70 per cent recycling to the ecological footprint reduction of the municipal waste stream. This illustrates why 70 per cent recycling and the -1.2 per cent waste reduction efforts are both very important, and especially so in respect of the 70 per cent recycling target for 2025.

Figure 6: Ecological footprint (EF) of municipal solid waste (MSW) showing the impact of meeting the waste prevention and recycling targets



3. Action

3.1 Introduction

This chapter covers four key areas for action in respect of municipal waste collected by Local Authorities:

- Waste prevention – to reinforce the important role of Local Authorities engaging with householders and communities to reduce waste put out for collection, thus helping meet environmental outcomes, increasing opportunities for enhancing social wellbeing through the greater reuse of items before they are discarded as waste, and reducing the costs to Local Authorities of waste collection and management.
- Increasing the preparation for reuse of items discarded as waste – to ensure that a far greater proportion of wastes collected by Local Authorities are “prepared for reuse”⁹, in order to meet environmental outcomes, increase opportunities for enhancing social wellbeing through involvement in reuse activities and reduce the costs to Local Authorities of waste management.
- Recycling collection service delivery improvements – to deliver sustainable development outcomes in a cost effective way and work towards the new municipal waste recycling targets set in Towards Zero Waste, including a programme of efficiency savings.
- Treatment and disposal – to deliver sustainable treatment and disposal of municipal waste in a cost effective way and work towards the targets set in Towards Zero Waste.

Each of the key action areas is subdivided into:

- Benefits.
- Specific objectives.
- Roles and responsibilities.
- Targets.
- Actions.
- The need for additional evidence.
- Indicators and review.
- Summary of actions.

⁹ See Section 3.3 for an explanation of the term “preparing for reuse”.

3.2 Waste Prevention (including reuse)

What is waste prevention?

The revised **Waste Framework Directive** defines waste prevention as:

‘Measures taken before a substance, material or product has become waste, that reduce the quantity of waste, including through re-use of products or the extension of lifespan of products the adverse impacts of generated waste on the environment and human health or the content of harmful substances in materials and products’.

The **Organisation for Economic Co-operation and Development (OECD)** breaks down waste prevention into three components:

- **Strict avoidance** involves the complete prevention of waste generation by virtual elimination of hazardous substances, or by reducing material or energy intensity in production, consumption and distribution.
- **Reduction at source** involves minimising the use of hazardous substances and/or minimising material or energy consumption.
- **Product reuse** involves the multiple use of a product in its original form, for its original or alternative purpose, with or without reconditioning. This includes refurbishment and repair. Reuse is important, and is the part of the waste hierarchy most often overlooked. Not only does it move material use up the waste hierarchy, but it also provides social and economic benefits to Welsh communities, such as opportunities for jobs and increasing skills.

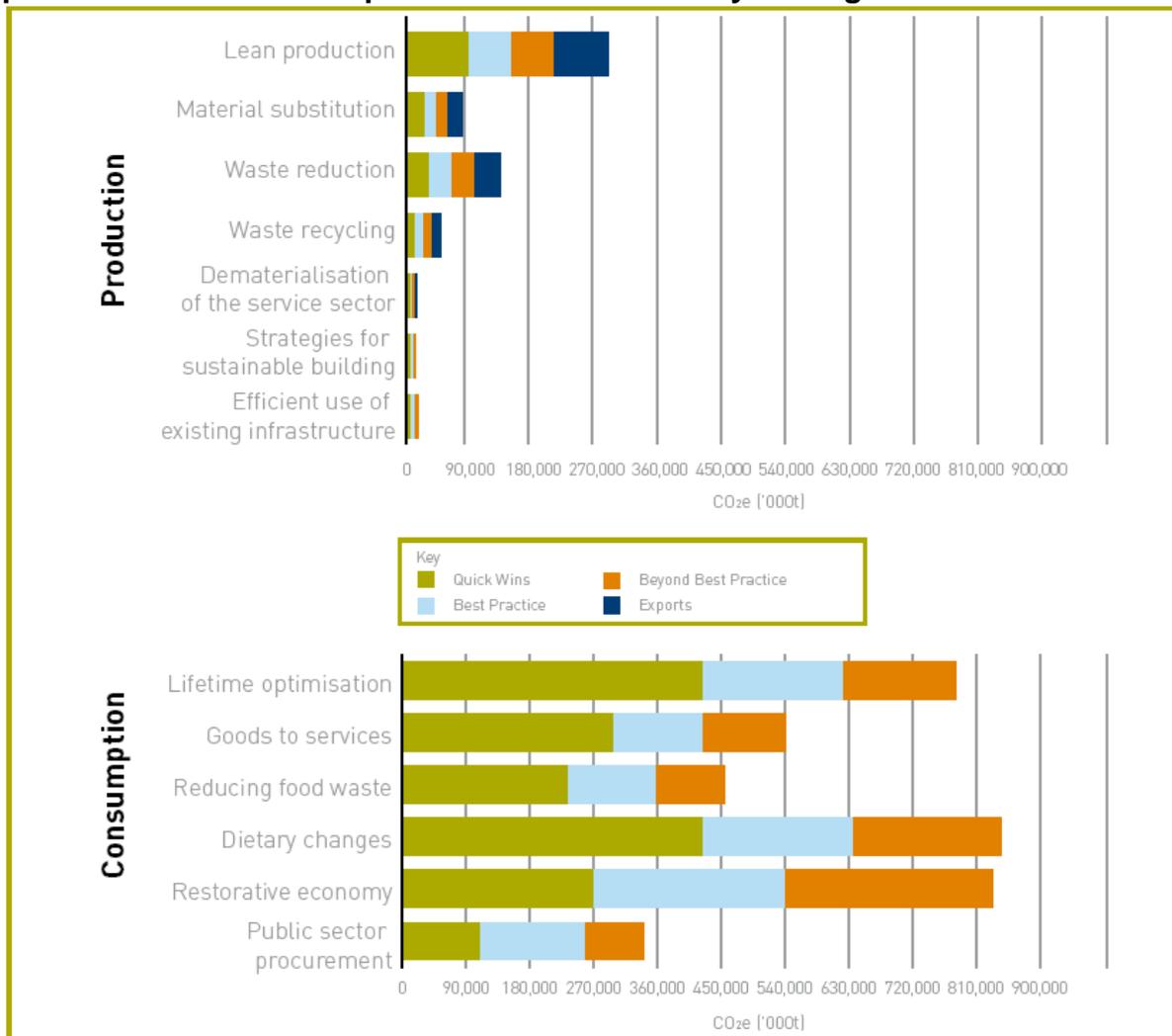
3.2.1 The benefits of waste prevention

Waste prevention **saves money**. For example, for individuals in the UK, food waste is identified to cost each person £480 each year in wasted food that could have been eaten. In respect of Local Authority costs, every tonne of household waste reduced results in a cost saving to Local Authorities in relation to the cost of collecting and managing that waste. It is estimated that the total cost for Local Authorities of collecting and managing each tonne of municipal waste is around £161 for 2009-10.

Waste prevention is the best way of **reducing the ecological footprint** of municipal waste in Wales. Waste prevention, through reducing our consumption, also significantly reduces global greenhouse gas emissions – those that occur in other parts of the world where the products that we consume are manufactured and the raw materials within them are extracted and processed – all of which use energy and generate greenhouse gases. A recent report published by WRAP (*Meeting the UK Climate Change Challenge: The Contribution of Resource Efficiency*) shows that changing the way we use goods as consumers is crucial to reducing greenhouse gas emissions. It shows that there is considerable scope for reducing emissions by ensuring that householders change their behaviour in respect of the way they use goods.

Figure 7 shows the cumulative greenhouse gas (GHG) emission reduction in production and consumption material sufficiency strategies in WRAP’s report ‘Meeting the UK Climate Change Challenge: The Contribution of Resource Efficiency’, November 2009 (hereafter referred to as the “WRAP Resource Efficiency Report 2009”), taking into account emissions from a consumption perspective. It shows that implementing the consumption/demand lead strategies are crucial to reducing GHG emissions.

Figure 7: The cumulative greenhouse gas (GHG) emission reduction in production and consumption material sufficiency strategies



Source: ‘Meeting the UK Climate Change Challenge: The Contribution of Resource Efficiency’, November 2009, WRAP

Waste prevention activities can also **increase skills, jobs and social justice**. A shift to more highly skilled, craft-based production methods and increased repair and maintenance work will provide more employment opportunities to offset the reduced demand for new products.

Action on preventing waste should focus on materials which will result in a faster reduction in our ecological footprint. For household waste, these are:

- Food waste.
- Plastic.
- Paper.

WEEE (waste electronic and electrical equipment), batteries, oil, clinical waste, hazardous items, textiles, shoes, wood, nappies, carpet, furniture also have a combined high impact on our ecological footprint and should also be targeted as a priority. Some of these materials will be considered in more detail in Part 2 of the Municipal Sector Plan that is due to be published for consultation later in 2011.

3.2.2 Specific objectives

In order to meet the key milestones and key social, economic and environmental outcomes identified in Towards Zero Waste, the following waste prevention objectives are proposed:

1. The annual reduction target set (see Section 3.2.4) is met through concerted, collective action by householders, local government, retailers, manufacturers, importers, the Welsh Assembly Government and others.
2. Retailers sell products that generate significantly less waste at all stages of their life-cycle, through, for example, extending the lifespan/durability of products (one of the components of the WRAP Resource Efficiency Report 2009), reducing packaging to the minimum level required to protect the product, educating customers on making the right purchasing decisions, and avoiding promotions that result in increasing waste (this will be addressed in the Retail Sector Plan).
3. Citizens move from buying goods, to using services so that more products are leased/rented with an increased likelihood that products are repaired and maintained to extend their life, upgraded with new replacement components, and/or replaced and refurbished on a large scale for beneficial reuse. (This also increases the likelihood of recycling when the leased products are returned/ replaced). Lease/rent agreements are structured so as to encourage a reduction in environmental impacts. This takes forward the “goods to services” component of the WRAP Resource Efficiency Report 2009.
4. Businesses and individuals are encouraged to value the goods which are purchased and use them until the end of their natural lives. Business models allow both businesses and individuals to share in the benefits of reduced consumption of raw materials.
5. Citizens are encouraged and enabled to make more informed choices on the products that they buy, and to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that unwanted or discarded products are reused as far as possible (taking forward the “lifetime optimisation” of products and the “not throwing away edible food” components of the WRAP Resource Efficiency Report 2009).

6. Reuse¹⁰ of unwanted items is encouraged so that they do not become waste, or their entry into the municipal waste stream is significantly delayed.
7. All collection services are carried out without endangering human health, and without harming the environment.
8. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention and reuse, irrespective of where they live, their health, mobility and personal circumstances.
9. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).
10. Key priority materials, food waste, plastic and paper as defined in Towards Zero Waste are targeted for waste prevention.
11. A “pathway to zero hazardous household waste” is developed. (This will be covered in Part 2 of the Municipal Sector Plan).
12. Obligations for Wales under EU and UK waste legislation are met.

3.2.3 Waste Prevention Roles and Responsibilities

Responsibilities for reducing municipal waste are identified as follows:

- **Householders:** People produce the waste that Local Authorities collect from households, and people are able to take actions themselves to prevent a significant quantity of this waste, and there are incentives for them to do this. For example, some of the items that are wasted have a monetary value, and in some cases materials thrown away could have been reused or their life extended thus avoiding or delaying the purchase of new products. Most householders will wish to reduce their own monetary outgoings through avoiding the purchase of items that they throw away without use (e.g. edible food) and many may wish to realise value from the items that they no longer have a use for, or may wish to pass on that value to a charity by donating unwanted items. Also, many householders may feel that they have a social responsibility to reduce waste to help achieve sustainable development outcomes for present and future generations. But often they lack awareness or information on what they can do.
- **Local Authorities:** As the organisations responsible for the collection of household waste, and closest to the communities and individuals responsible for creating the waste, Local Authorities are at the front line of influencing the behaviours of householders. The services Local Authorities provide can really influence the amount of waste generated by householders. Assisted by the Waste Awareness Wales campaign, Local Authorities have a key role in raising awareness and changing behaviour ,

¹⁰ Re-use' means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

and in tailoring service provision to support the necessary behaviour change. They have a duty to reduce the costs that they expend on waste collection and management, and promoting waste prevention and reuse will help reduce those costs.

- **Retailers and manufacturers:** With the exception of garden waste, and wasted food grown in the garden, the vast majority of what is thrown away by householders has been purchased from a retailer. Therefore retailers, and the manufacturers who supply them with products, have a significant responsibility for helping secure more waste prevention and less waste – both in terms of wasted products and the packaging that they were enclosed in at the time of purchase. This will link closely to their corporate social responsibilities (CSR).
- **Other organisations and businesses producing waste collected by Local Authorities:** Local Authorities also collect wastes from businesses and public sector organisations, and it is important that these too play their part in reducing their wastes, and reducing the costs associated with this.
- **Social enterprises and businesses:** That are involved in reuse are abundant in Wales, and have been making a contribution for over thirty years. Many are award winning businesses like Frame in Haverfordwest. They each have a valuable role to play in ensuring that more pre-used items are valued and used again.
- **Government:** Government has a strong role at a national and international level to drive waste prevention. This includes setting and applying levers (for example the Landfill Tax and legislation), seeking voluntary agreements with key parties, providing funding support and advice, commissioning research, supporting innovation (e.g. eco-design) and ensuring national awareness raising and behavioural change campaigns (for example the Waste Awareness Wales campaign)..

3.2.4 Targets

Due to the complexity of what constitutes municipal waste collected by local authorities, the Welsh Assembly Government has decided that waste prevention targets are better applied separately to household waste and to commercial waste. This avoids the perverse incentives of:

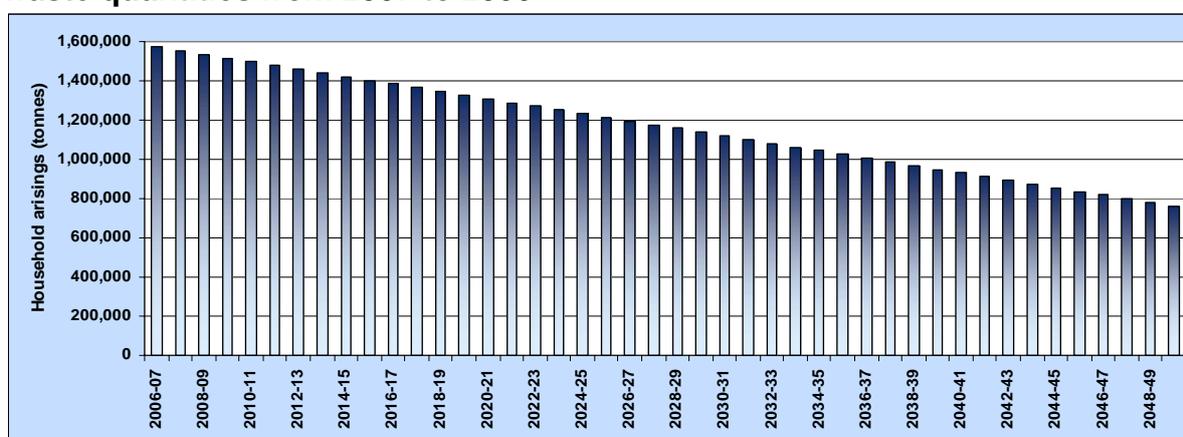
- Local Authorities trying to meet municipal waste reduction targets by reducing the amount of commercial waste they collect through discouraging businesses or public bodies from using their services, or through not promoting the service widely – thus penalising businesses who may wish to take advantage of Local Authority recycling services; and/or
- Local Authorities being penalised for increasing the amount of municipal waste collected as a result of increasing the amount of commercial waste collected for recycling.

The following aspirational waste prevention target is therefore set for household waste:

Household Waste	
Proposed waste Prevention Target	To reduce waste arisings of Household Waste by 1.2 per cent (of the 2007 baseline) a year to 2050

Figure 8 shows the impact of the -1.2 per cent per annum target on quantities of household waste between the baseline of 2007 and 2050. Over this period it will mean an overall reduction of 52 per cent in the quantity of household waste produced.

Figure 8: The effect of the -1.2 per cent annual reduction target on household waste quantities from 2007 to 2050



Source: Welsh Assembly Government.

Responsibility for delivering this target is shared between central and local government, consumers, and the retail and manufacturing sectors. The target is a marker for action and to monitor progress.

3.2.5 Actions

The Welsh Assembly Government does not under-estimate the effort required to achieve an annual reduction of -1.2% in household waste (against the 2007 baseline) over the period until 2050, although it should be noted that this is within the context of an average annual reduction in household waste of -1.7% that has already occurred between 2004-05 and 2009-10. Action needs to be taken at a local, national and international level.

Local Authorities and, the Welsh Assembly Government, with support from the Waste Awareness Wales campaign, will need to focus their efforts in the following five main directions in respect of ensuring that the household waste prevention target is met (taking on board the WRAP resources report recommendations):

- Influencing householders to reduce their waste by providing them with bins and/or bags that give more obvious feedback to the householder as to the amount and type of waste they put out for collection. (As evidenced in the provision of specific food waste collection systems.)

- Funding projects, that change consumption behaviour and promote well thought-out shopping, will reduce waste and generate benefits for society and the environment.
- Increasing reuse significantly through behaviour change campaigns that encourage donating through existing well established channels (eg. charity shops) and using pre-used items.
- Working with retailers and their manufacturing supply chains to ensure that products and packaging generate less waste at the end of their useful lives, where possible seeking voluntary action, backed up by legislation where necessary. This includes extending the life of products, and ensuring that they are reusable, where appropriate.
- Influencing action at an EU and worldwide level through participating in the developing international policies and initiatives on Sustainable Consumption and Production and Sustainable Materials Management.

To help deliver the -1.2 per cent waste prevention target per year for household waste the following specific actions will be undertaken:

3.2.5.1 Actions for local government

a) Service provision changes

Evidence suggests a strong link between the method of collection of waste from householders and the reduction of waste. Waste arisings are more likely to be reduced by introducing services that restrict residual waste capacity and services that highlight more clearly to people how much of specific waste streams they are wasting. The recommended service provision provided by each of the Local Authorities in Wales is set out in the ‘collections blueprint’ that is being published at the same time as this plan, but in summary is as follows:

- Reduced residual waste container capacity – for example the use of 140 litre instead of 240 litre wheeled bins, or restriction on the number of bags that can be put out.
- Reduced residual waste collection frequency – once a fortnight is sufficient (when weekly food waste collection is provided).
- No “side waste”¹¹ collected for residual waste.
- Separate food waste collection (not co-mingled with green waste).
- Promotion of home composting/treatment for garden waste.
- Apply charging for green waste collection (as allowed under the Controlled Waste Regulations 1992), and collecting it only once a fortnight.

In making any changes to services, Local Authorities should ensure that people with special requirements are given support and appropriate guidance, and not

¹¹ “Side waste” refers to waste not placed in the container provided, but left beside it on the pavement, usually because the prescribed container is full.

disadvantaged. Due consideration should also be taken to periods of heavy use (e.g Christmas), and when adverse weather affects collections. Any charges applied under powers already available to Local Authorities should be fair. It is also important that waste collection staff have the necessary training when changes are made to the service.

Where not already in place, the implementation of the above service provision would have a positive impact on waste reduction. The Defra Household Waste Prevention Evidence Review (WR1204) was used as part of the evidence base to develop this policy direction¹².

Although there is no evidence that the above service changes result in an increase in flytipping, local authorities will need to have a strategy in place to reduce the likelihood of flytipping happening when they introduce the service changes.

b) Waste awareness, communications and educational campaigns

Education and awareness raising play a large role in encouraging people to buy better quality, durable and serviceable goods, and to get maximum value out of what they have purchased (especially for food), as well as buying second hand or fewer products in general.

The Waste Awareness Wales (WAW) campaign has identified that waste prevention is not well understood by householders (WAW Public Attitudes to Waste Research 2010). Waste prevention is a more difficult and amorphous concept to grasp as it does not relate to a specific action, such as recycling.

In addition, householders do not make the link between their purchasing habits and the waste that is created in the home. Communications therefore need to be tailored to how consumers think and what influences their purchasing decisions as well as their actions within the home.

Following engagement and discussion with local authorities a new approach to communications has been proposed, and each element of the waste hierarchy will be developed and implemented differently.

For waste prevention, the WAW campaign will focus on 'Sustainable Consumerism' – the consumer can avoid waste creation both through changes in purchasing habits and through changing behaviour at home.

Campaigns will be developed on:

- Smart Shopping
 - Provide advice on how to prevent and reduce waste when purchasing (such as further development of Love Food Hate Waste).
 - Encourage the buying of reused goods.

¹² WR1204, Household Waste Prevention Evidence Review: L3 m3-3 (D) – Impact of Household Waste Prevention Interventions and Campaigns. See - http://randd.defra.gov.uk/Document.aspx?Document=WR1204_8343_OTH.pdf.

- Promote the buying of goods made out of recycled material
- Smart Living
 - Provide advice on how to reduce waste at home and out and about
 - Encourage people to ‘make the most’ of the things they own – extending the life of products
 - Promote the hiring rather buying of products

Local Authorities are at the “front line” of interactions with householders, and it is proposed that there will be enhanced effort by Local Authorities in Wales on:

- Public awareness raising campaigns on the importance of reducing waste, run primarily by Local Authorities with campaign literature produced centrally, and backed up by national campaigns where appropriate. Campaigns will focus on information about more sustainable purchasing, for example choosing durable, reused, reusable, repairable, upgradeable, less-packaged, and fewer goods, and making the most of items that are purchased (especially food) as well as discouraging disposal of reusable items and introducing waste prevention into school curricula. Local campaigns could include calls to action, pledges to act, and/or specific “zero waste” days or weeks (there are examples of Local Authorities running such campaigns, e.g. Somerset). The “Love Food, Hate Waste” campaign will continue at the local and national level. Local Authorities should promote waste prevention and sustainable purchasing both within their organisations, their buildings, those they fund and contract for services and the wider community.
- Targeting waste reduction behaviour change campaigns at a local and national level that are specific to materials with the greatest impact on Wales’ ecological footprint. There will be a focus on food waste, paper, plastics, textiles and other miscellaneous waste as these are the priority materials identified as having the greatest impact. Local Authorities will be encouraged and supported by Waste Awareness Wales.
- Empowering communities to develop long term solutions to prevent waste, raise awareness and facilitate behaviour change through working with local community based organisations, including those who are members of Cylch, the Wales Community Recycling Network, to provide support for community initiatives, and through providing engagement and support for local community groups and networks, and local community champions.
- Working with already well established reuse services (e.g. charity shops) to increase their use by householders.
- The use of novel media, including social networking sites, to reduce wasteful behaviour.

Key priorities for changing behaviour campaigns (as recommended by the WRAP Resource Efficiency Report 2009) will be to encourage householders to:

- Use material goods for their intended life and not dispose of a product while it is still useful (**lifetime optimisation**).
- Ensure that **edible food is not thrown away**.
- **Maintain and repair products more** so that materials are used more productively and employment opportunities are realised.

The Waste Awareness Wales campaign will include a detailed waste prevention campaign for 2010–2011 and beyond to be delivered through Local Authorities and backed up by national campaigns where appropriate. Waste Awareness Wales will produce campaign materials and guidance for Local Authorities and other stakeholders to maximise ways to increase waste prevention behaviour.

Experience suggests that local community based initiatives on waste prevention stimulate interest and innovation, and provide a base on which to build concerted wider action. Not only would such projects create innovative ideas, but they would also provide evidence on which to base future policy planning. However, in the light of current circumstances in respect of public funding, any funding for such initiatives would have to be found from within existing resources, meaning re-prioritisation would be required.

c) Ensuring appropriate guidance given to protect health in respect of home composting and fortnightly collection

It is important that the management of waste does not cause harm to human health. The Health Impact Assessment (HIA) for Towards Zero Waste recommended that, in respect of home composting, Local Authorities should provide clear instructions on the proper use of composting bins, suitable composting materials, pest control and maintenance (e.g. cleaning and storage of gloves), and also provide information that some people can be more sensitive to an allergic reaction, and how to prevent or address this. Such guidance will be produced centrally for Local Authorities to use.

Reducing the collection of residual household waste to fortnightly may cause some difficulty to individuals who need to dispose of sensitive or personal wastes in their household bin. At least two Welsh Local Authorities are looking at supporting fortnightly residual waste collections with the separate collection of nappies and incontinence pads. Guidance also needs to be provided on how these materials can be encapsulated to prevent odours or embarrassment. There is also a generic issue on the storage of waste prior to collection. Prior to the wastes being put out on the kerbside for collection, inappropriate waste storage in unsanitary conditions has the potential to increase vermin proliferation and potential exposure to microbial agents. This can be controlled through the proper storage of these wastes in containers that prevent the access of vermin and other agents of infection. Local Authorities need to take measures to influence and support appropriate and sanitary waste collection through the provision of guidance to householders, and enforcement action where necessary. Local Authorities also need to undertake appropriate risk assessments and control measures for the potential impacts on the workforce of a reduced frequency of residual collection.

These matters were considered as part of the review of the HIA of Towards Zero Waste that formed part of the Sustainability Appraisal that supported the development of this sector plan.

Local Authorities need to also ensure appropriate enforcement action is taken to prevent increases in flytipping when fortnightly residual collections are introduced. Awareness campaigns can help to reduce the likelihood of flytipping, especially in relation to the relevant laws and penalties that apply.

d) Increasing product reuse

Reuse is waste prevention because it stops an item entering the waste stream. Under the law in England and Wales, something that is donated for reuse does not count as waste. It is therefore not included in municipal waste figures and counts as waste prevention.

At the moment unwanted items are re-used via at least the following different routes:

- 1) Passed on to friends or relatives.
- 2) Sold on the internet (e.g. eBay).
- 3) Sold via car boot sales.
- 4) Sold via house clearances to second hand shops.
- 5) Sold via auctions.
- 6) Sold as antiques or collectable items.
- 7) Given away via internet based exchanges (e.g. Freecycle, Freegle).
- 8) Donated to jumble sales.
- 9) Donated to charity shops.
- 10) Donated to social enterprises.

Given the popularity of many of the above activities that span the social spectrum, there is anecdotal evidence of a considerable appetite amongst the public to both sell and/or donate items for reuse, and to use pre-used items. There is also what appears to be a buoyant commercial market for pre-used items, as witnessed by the number of auctions and secondhand shops that exist and the current fashion for vintage items. This demonstrates that a commercially run service for reuse can be run at a profit, and not at a cost, at least for desirable items, of which there appear to be many. However, it is recognised that there is a need to better assess the potential market for reuse in terms of both the supply of items for reuse and the demand for them. This market needs to be assessed for its commercial opportunity and its potential contribution towards helping meet the waste reduction targets. The Welsh Assembly Government will work with WRAP and potentially the other devolved administrations to carry out a market study.

People need to be encouraged not only to ensure that the unwanted items they possess are reused, but they also need to be encouraged to purchase or accept items provided for reuse by others. The WAW Sustainable Consumerism campaign

will be initiated to encourage people to value existing items more, in the same way that antiques and collectable items are valued. Local Authorities need to promote strongly all of the above ways to reuse, backed up by national campaigns where appropriate.

e) Rewards for reducing waste

Local Authorities should consider introducing rewards for householders who reduce their waste. There are examples of this in England and the Welsh Assembly Government will work with Welsh Local Authorities to establish the viability of replicating them in Wales.

f) Packaging Essential Requirements

Local Authority Trading Standards (the representative body of which is Local Government Regulation, LGR) are responsible for enforcing the Packaging Essential Requirements Regulations that seek to prevent excess packaging.

The Commercial and Industrial Sector Plan, supported by the Food Manufacture, Service and Retail Sector plan, will look at what further action can be taken in relation to the Packaging Essential Requirements Regulations. Government action in this area is also identified in the UK Packaging Strategy published in 2009.

g) Support for waste prevention for businesses and the public sector whose waste is collected by Local Authorities

Local Authorities in Wales collect waste from businesses and public sector bodies. They need to signpost these organisations to the advice on waste prevention that is provided on the Welsh Assembly Government's Business Wales website.

Businesses and public sector will want to make efficiency savings and preventing waste can save significant sums of money. Actions for these sectors will be explored in detail in the Industrial & Commercial Sector Plan and the Public Sector Plan which are currently in development.

In the Food Manufacture, Service and Retail Sector Plan, an action has been proposed to work with the Waste Awareness Wales campaign on developing the website and location pages to include information provided by Local Authorities for business collections. Although the sectors covered in this plan are food manufacturers, wholesale and retail and service sector, this revised facility will be applicable to all companies.

Local Authorities need to be able to report more accurately the amount of commercial waste they collect. To help this the WasteDataFlow (WDF) municipal waste data recording and reporting system will be improved to enable the reporting separately of commercial waste, separated from household waste.

3.2.5.2 Actions for the Welsh Assembly Government

h) Legislation to introduce a levy on single use carrier bags

Legislation has been introduced in Wales to apply a levy to the purchase of single use carrier bags. One of the main aims of this is to reduce the use and wastage of such bags, and to encourage the reuse of bags. Both are waste prevention activities. Although the amount of waste prevented will be relatively minor, it is seen as an important step in encouraging more sustainable behaviours that will lead to even greater reduction in other waste streams. It is intended that the reduction in consumption of single use carrier bags will also result in less litter, pollution and harm to wildlife.

i) Actions to prevent packaging waste

Policies and actions with respect to reducing packaging are contained in the UK's Packaging Strategy published in June 2009 – 'Making the most of packaging - A strategy for a low-carbon economy'. The Packaging Strategy is supported by all four UK administrations, including the Welsh Assembly Government. Chapter 5 – "Optimising Packaging" refers to preventing and reducing packaging waste. Actions to reduce packaging waste include:

- The Welsh Assembly Government will work with others to raise the profile of eco-design and increase its uptake by business. Various organisations (e.g. the Eco Design Centre for Wales) offer free advice to business fora on this. Over the next couple of years, government will work with them to raise awareness of these services, making use of their visits and contacts with companies. Central information points for eco-design will be set up which will explain clearly what advice is out there and for whom.
- The Welsh Assembly Government and the other UK administrations will review the scope for promoting refillable and reusable packaging, which offer cost-saving opportunities for businesses, and could reduce waste for them and consumers alike.
- WRAP will identify priority sectors for packaging reductions, and work with Government, trade organisations and key business partners to negotiate the next generation of voluntary agreements for the period 2010-15. Also, given the scope for benefits for both business and the environment, government looks forward to receiving ambitious proposals from signatories to the Courtauld Commitment and WRAP for new targets covering the period 2012-15.
- Consumers need to let businesses know when packaging goes beyond what they regard as normal or acceptable. They can do so by choosing alternative products, bringing it to the attention of the retailer or manufacturer, or asking Trading Standards to investigate. Government will work with others to raise consumers' awareness and make enforcement action easier. This will include developing a tool with enforcement bodies to help enforce the Regulations. WRAP will work with manufacturers and retailers of products commonly thought to be excessively packaged.

Guidance on the Packaging Essential Requirements is published every 12-24 months and recent guidance was published by the UK's Department for Business Innovation and Skills in May 2010.

The Welsh Assembly Government funds WRAP's retailers programme that includes actions to reduce packaging. The Courtauld 2 Commitment was launched through WRAP on 4 March 2010; this is phase 2 of the initial Courtauld Commitment that is a voluntary commitment by retailers to tackle waste, including that created from the use of packaging. WRAP will be working with the whole retail supply chain to improve resource efficiency of products and their packaging.

Mandatory deposit/return schemes (e.g. for beverage or soft drink containers) are a tool for government that has been applied successfully in some other EU countries. However, such schemes would only have a major impact on waste arisings if they applied to packaged products widely used in Wales, and thus such schemes could only really work on a UK level. A recent study commissioned by Defra (with Welsh Assembly Government support) concluded that the case has not been made for the requirement for deposit-return schemes across the UK. However, this issue will be kept under review, and dialogue will be continued with retailers and suppliers.

j) Moving from goods to services

In the future, it is expected that the service economy might be able to contribute to waste prevention. There are some sectors where WRAP believes a shift towards a hire rather than a sales culture will be the logical next step towards a sustainable future¹³. They estimate that shifting a fifth of household spending from purchasing to renting could cut carbon emissions by about 2 per cent, or 13 million tonnes of CO₂ a year, by lowering the rate of manufacturing and consumption of raw materials. WRAP considers that there can be a greater move from goods to services in niche and high-end products, and that potentially all items which are used less frequently, or are fashion driven, could make this change. Businesses can make their goods work harder for them and make more profit per unit. WRAP's research identified five categories of goods suitable for renting: high-end clothing; glassware and tableware; tools and equipment for house and garden; vehicles; and telephone, audio and recreational equipment.

More householders may wish to take advantage of service contracts (e.g. for domestic appliances), rather than purchasing the items. The Welsh Assembly Government will explore with WRAP how product leasing can be promoted and supported more strongly – in particular how we can implement the actions in WRAP Resource Efficiency Report 2009 for the scenarios 'Restorative economy' and 'Goods to services'. This can also examine how environmental objectives can be integrated into lease contracts, especially those operated by the public sector.

The WRAP resources report shows that the longer a product is used, the more often it can deliver its service and the higher its resource productivity. For products that

¹³ WRAP Stakeholder Briefing, Issue 3, Winter 2009 - http://www.wrap.org.uk/downloads/SH_brief_Winter_09_1_.5f9ce84d.8512.pdf.

are seldom used, by sharing the product with a number of people (changing use patterns), the resource productivity of the product will be increased and the consumption of natural resources in the production stage reduced.

k) Extended producer responsibility

The Welsh Assembly Government will work with retailers and their supply chains to seek voluntary extended producer responsibility action with the outcome of delivering more waste prevention in Wales. This could mean the following actions to support waste prevention (using a life cycle or ecological footprint approach to identify priorities for action):

- Eco-designing to extend the lifespan of products - increasing the durability of products, designing for ease of replacement and upgrading of parts, and extending product lifespan through careful maintenance all delay the end of life of a product meaning that materials are used more productively.
- Eco-designing to use less material in a product – this will result in less waste at the end of life of the product.
- Eco-designing to incorporate into a product materials with a lower ecological footprint – thus reducing the contribution that waste at end of life makes to the overall ecological footprint of Wales.

Extended producer responsibility means going beyond the statutory requirements of current producer responsibility legislation covering specific waste streams such as packaging and waste electrical and electronic equipment (WEEE), and could also apply to products not covered by existing producer responsibility legislation. The Welsh Assembly Government will also explore whether it would be practical or desirable to introduce extended producer responsibility legislation in Wales should voluntary initiatives fail to support the achievement of the -1.2 per cent per annum prevention target.

Through the WAW Smarter Living campaign, effort will be directed at householders to encourage a change in lifestyle and behaviour which, in many cases, will achieve cost savings for the individual/household. The WAW campaign will promote the opportunities available for hiring goods rather than buying them, and also provide information as to how product life can be extended. When a working product is no longer needed, the WAW campaign will explain how it can be offered for either reuse or recycling and achieve the best environmental and social benefit locally.

l) Use and application of other instruments

The Environment Strategy First Action Plan 2006 committed the Welsh Assembly Government to scope the desirability and practicality of introducing charging for the collection and management of other types of household waste that at the moment cannot be charged for by Local Authorities, in particular the residual fraction. This scoping was carried out and the results were published as part of the evidence that supported the development of the consultation draft of Towards Zero Waste. Local Authorities already have powers under the Environmental Protection Act 1990 and the Controlled Waste Regulations 1992 to charge for the collection of bulky

wastes and garden wastes from households, and for the collection and management of wastes from commercial premises.

The present Welsh Assembly Government has no plans to introduce additional powers for Local Authorities to charge for waste collection and disposal, for example to cover residual waste, beyond the current provisions. Our aim is to create a truly comprehensive recycling society where everyone can recycle wherever they are - at home, at work, at leisure or on the go. To date, the public have responded magnificently, meeting recycling targets for municipal waste for 2003-04 and 2006-07 and were very close to meeting the target for 2009-10. Also, household waste levels have reduced in recent years, even before the impacts of the economic conditions over the last two years. Whilst this progress is maintained there is no need for charging to be introduced.

m) Transposition of the revised Waste Framework Directive (2008/98/EC)

The EU Waste Framework Directive lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste, and by reducing the overall impacts of, and improving the efficiency of, resource use. Revisions to the Waste Framework Directive (2008/98/EC) were adopted in December 2008 and are transposed by The Waste (England and Wales) Regulations 2011 that are due to be in force shortly.

In respect of aspects of the revised Directive that apply to the prevention of municipal waste collected by Local Authorities, the Directive includes requirements for member states to:

- Apply the waste hierarchy in waste management legislation and policy.
- Establish waste prevention programmes describing existing prevention measures, evaluating the usefulness of other measures and determine benchmarks for measurement of adopted prevention measures.
- Take measures, as appropriate, to promote the re-use of products and preparing for re-use activities, notably by encouraging the establishment and support of re-use and repair networks, the use of economic instruments, procurement criteria, quantitative objectives or other measures.

This sector plan will form part of the Welsh Assembly Government's compliance with the requirements of the Directive in respect of waste management and waste prevention plans.

n) Working with UK and Europe

The Welsh Assembly Government will work at all levels available to promote the need for concerted action to tackle the production of waste, and will provide input into the evolving actions on Sustainable Consumption and Production and Sustainable Materials Management at the UK and EU level. This includes action on Integrated Product Policy and eco-design. The Welsh Assembly Government will also contribute to the European Commission's review of the Thematic Strategies on

the Prevention and Recycling of Waste, and on the Sustainable Use of Natural Resources that are underway. It will also seek to influence the work of the Retail Forum that has been set up by the European Commission.

3.2.5.3 Actions for other stakeholders

o) *Action by retailers*

Courtauld Commitment

The first phase of the Courtauld Commitment achieved two of its three targets - to design out packaging waste growth (zero growth achieved in 2008) and reduce food waste by 155,000 tonnes (exceeded with 270,000 tonnes less food waste arising in 2010 than in 2008). This is not an inconsiderable achievement, particularly at a time when the grocery retail market grew by 5% and the UK population had grown by 0.5%.

A third target - to reduce the total amount of packaging waste over the same period – has not been achieved. However, total packaging has consistently remained at approximately 2.9 million tonnes between 2006 and 2009.

At the end of the original agreement in 2010, WRAP was able to report that the grocery retail sector had prevented 1.2 million tonnes of food and packaging waste over the five years of the agreement, saving an estimated £1.8 billion and avoiding 3.3 million tonnes of CO₂ equivalent emissions.

The second phase of the Courtauld Commitment was launched in 2010 and covers the three calendar years from 2010 to 2012, with final reporting for the calendar year 2012 taking place in 2013. The new commitment moves from a sole focus on household food and packaging waste reduction to a more holistic supply chain approach, which continues to include the waste arising in UK homes. The new Commitment contains the targets highlighted below, which are to be achieved by the end of 2012:

- **Packaging** – to reduce the weight, increase recycling rates and increase the recycled content of all grocery packaging, as appropriate. Through these measures the aim is to reduce the carbon impact of this grocery packaging by 10 per cent.
- **Household food and waste** – to reduce UK household food and drink waste by 4 per cent.
- **Supply chain product and packaging waste** – to reduce traditional grocery product and packaging waste in the grocery supply chain by 5 per cent - including both solid and liquid wastes.

To deliver this new commitment, retailers, brands and their suppliers are working in partnership with WRAP to develop new packaging solutions and technologies across the whole UK supply chain. This includes using innovative packaging formats; reducing the weight of packaging (e.g. bottles, cans and boxes); increasing the use

of refill and self-dispensing systems and collaboration on packaging design guidance.

The new commitment will:

- Cover the whole of the UK retail grocery supply chain including households, with the aim of making them more carbon and resource efficient. Retailer signatories will be responsible for their own-label products and direct sourced / private label brands (including supporting packaging systems); whilst brand-owners will be responsible for their own product portfolios. It will also encourage the supply chain to work in partnership with their suppliers to reduce the environmental impacts of their products.
- Cover packaging, food and drink and traditional grocery non-food product wastes throughout the supply chain.
- Require the annual reporting of progress by signatories.
- Take more account of the environmental / carbon / sustainability impacts of products, particularly in the context of how packaging systems and product re-design can help to reduce product wastage and lead to more sustainable products and consumption behaviour by consumers.

A parallel agreement is also in place for the Home Improvement and DIY sector

3.2.5.4 The need for additional evidence

The Welsh Assembly Government will explore ways to build on its existing evidence base, drawing, as appropriate, on studies carried out elsewhere, and commissioning, as necessary, and with others as appropriate, new research. Areas where additional evidence in respect of waste prevention needs to be sourced or commissioned includes:

- Ways to develop a pathway to zero hazardous household waste.
- Indicators to further measure household waste prevention.
- The most effective behaviour change campaigns for waste prevention, reuse and preparing for reuse.
- A market study of the supply and demand of items for reuse, including the identification of any barriers to reuse, and how these could be overcome.
- Desirability and feasibility of Wales specific legislation on extended producer responsibility.

3.2.6 Indicators and review of progress

3.2.6.1 Monitoring and measuring

The following indicators are proposed (Table 3):

Table 3: Proposed indicators for waste prevention

What we will monitor	How we will monitor	Who will monitor it
Waste Prevention (including reuse)		
<i>Quantity of household waste produced</i>	We will continue to measure total household waste arisings through Local Authorities reporting their waste statistics via WasteDataFlow.	Welsh Assembly Government
<i>Extent and effectiveness of waste prevention awareness campaigns</i>	We will monitor the following: 1. Number, type and extent of waste prevention, reuse, and preparing for reuse campaigns in each Local Authority. 2. Evaluation of the effectiveness of each type of campaign by environmental and social outcomes.	Local Authorities as co-ordinated by Waste Awareness Wales/Data Unit
<i>Willingness to participate in, waste prevention</i>	We will periodically carry out attitude and behavioural surveys of the public to gauge the attitude to, and participation in, waste prevention activities.	Waste Awareness Wales
<i>Extent of reuse</i>	We will examine the feasibility of measuring the level of reuse of items that are not managed as waste in order to see how strong the market is, and whether there are any changes with time.	Welsh Assembly Government, working with charity shops and other initiatives that achieve reuse

3.2.6.2 Review

It is accepted that waste prevention will become an increasing priority as we seek to drive a higher proportion of waste up the hierarchy. Consequently, the Welsh Assembly Government will carry out an ongoing review of how much municipal waste can be reduced and what guidance is required to assist with the greater reduction of municipal waste.

A waste reduction action plan will be taken forward by forming a Steering Group. The Steering Group will be responsible for monitoring the progress and giving an overall direction to the plan.

3.2.7 Summary of waste prevention actions

Table 4 provides a summary of the actions to deliver the household waste prevention target and achieve the objectives set in Section 3.2.2.

Table 4: Summary of actions on waste prevention

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
a) Service provision changes	Local Authorities/ Welsh Assembly Government	Short term – by 2013	<p>The Welsh Assembly Government to produce guidance on service provision e.g. bin size, frequency of collection.</p> <p>Service changes funded via Sustainable Waste Management Grant.</p> <p>Service delivery staff provided with the required skills, training and qualifications.</p> <p>Reducing the amount of household waste collected will reduce service costs.</p>	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p> <p>5. Citizens are encouraged and enabled to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that more unwanted or discarded products are reused as far as possible.</p> <p>8. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention and reuse, irrespective of where they live, their health, mobility and personal circumstances.</p> <p>9. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).</p> <p>10. Key priority materials, food waste, plastic and paper as defined in Towards Zero Waste are targeted for waste prevention.</p> <p>12. Obligations for Wales under EU and UK waste legislation are met.</p>
b) Waste awareness, communications and educational campaigns	Local Authorities/ WAW	Short to medium term: From 2010 to 2020	<p>Programme of communication and support.</p> <p>Funded via: Grant to Waste Awareness Wales (WAW) & SWMG</p>	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p>

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
(including pilots)			to Local Authorities with part earmarked for awareness raising activities. Informed by Waste Prevention Steering Group	4. Businesses and individuals are encouraged to value the goods which are purchased and use them until the end of their natural lives. 5. Citizens are encouraged and enabled to make more informed choices on the products that they buy, and to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that unwanted or discarded products are reused as far as possible. 6. Reuse of unwanted items is encouraged so that they do not become waste, or their entry into the municipal waste stream is significantly delayed. 10. Key priority materials, food waste, plastic and paper as defined in Towards Zero Waste are targeted for waste prevention. 12. Obligations for Wales under EU and UK waste legislation are met.
c) Ensuring appropriate guidance given to protect health in respect of home composting and fortnightly collection	WAW and Local Authorities	From short term, 2010, onwards	WAW to provide appropriate guidance for use by Local Authorities.	7. All collection services must be carried out without endangering human health, and without harming the environment.
d) Increasing product reuse	Local Authorities/ WAW	Short to medium term: From 2010 to 2020	Local Authorities to promote strongly all of the routes for reuse, backed up by national campaigns where appropriate. Local Authorities to support the work of charity shops, and websites promoting the free exchange of	1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others. 4. Businesses and individuals are encouraged to value the goods which are purchased and use them until the end of their natural lives.

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
			<p>items and also ones whereby items are sold for reuse.</p> <p>Funded via SWMG and Welsh Assembly Government funding to WAW.</p>	<p>5. Citizens are encouraged and enabled to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that more unwanted or discarded products are reused as far as possible.</p> <p>6. Reuse of unwanted items is encouraged so that they do not become waste, or their entry into the municipal waste stream is significantly delayed.</p> <p>12. Obligations for Wales under EU and UK waste legislation are met.</p>
e) Rewards for reducing waste	Local Authorities	From short term, 2010, onwards	Introduce reward schemes.	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p> <p>5. Citizens are encouraged and enabled to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that more unwanted or discarded products are reused as far as possible.</p>
f) Packaging Essential Requirements	Local Authority Trading Standards Welsh Assembly Government Retailers	Short to medium term: From 2010 to 2020	<p>Local Authority Trading Standards to better enforce the Packaging Essential Requirements Regulations that seek to prevent excess packaging.</p> <p>Government action in this area is also identified in the UK Packaging Strategy published in 2009.</p>	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p> <p>2. Retailers sell products that generate significantly less waste at all stages of their life-cycle.</p> <p>12. Obligations for Wales under EU and UK waste legislation are met.</p>

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
g) Support for waste prevention for businesses and the public sector whose waste is collected by Local Authorities	Local Authorities/ Envirowise Welsh Assembly Government	Short to medium term: From 2010 to 2020	Promotion through other sector plans. Provision of information and advice through targeted campaigns. WasteDataFlow will be improved to enable the reporting separately of commercial waste, separated from household waste.	1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others. 4. Businesses and individuals are encouraged to value the goods which are purchased and use them until the end of their natural lives. 12. Obligations for Wales under EU and UK waste legislation are met.
h) Legislation to introduce a levy on single use carrier bags	Welsh Assembly Government	From April 2011	Regulations made under the Climate Change Act.	5. Citizens are encouraged and enabled to take greater responsibility for the consequences of their purchases, including avoiding producing waste, and ensuring that more unwanted or discarded products are reused as far as possible.
i) Actions to prevent packaging waste	Welsh Assembly Government/UK Government Retailers	Short to medium term: From 2010 to 2020	Implementation by Government of actions to reduce packaging waste in the UK Packaging Strategy implemented.	1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others. 2. Retailers sell products that generate significantly less waste at all stages of their life-cycle. 12. Obligations for Wales under EU and UK waste legislation are met.
j) Moving from goods to services	Welsh Assembly Government and WRAP	Medium to longer term: 2015 to 2025 and beyond	The Welsh Assembly Government will explore with WRAP how product leasing can be promoted and supported more strongly – in particular how we can implement the actions in WRAP Resource Efficiency Report 2009 for the scenarios ‘ Restorative economy’ and ‘Goods to services’.	3. We move from buying goods, to using services so that more products are leased/rented with an increased likelihood that products are repaired and maintained to extend their life, upgraded with new replacement components, and/or replaced and refurbished on a large scale for beneficial reuse.

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
k) Extended producer responsibility	Welsh Assembly Government and Retailers	Medium to longer term: 2015 to 2025 and beyond	The Welsh Assembly Government will work with retailers and their supply chains to seek voluntary extended producer responsibility action with the outcome of delivering more waste prevention in Wales.	2. Retailers sell products that generate significantly less waste at all stages of their life-cycle.
l) Use and application of other instruments	Welsh Assembly Government	Medium to longer term: 2015 to 2025 and beyond	<p>Future Welsh Assembly Governments will need to consider what additional instruments and levers they might need to apply if it becomes apparent that existing provisions are not sufficient to secure the meeting of future prevention, and recycling targets.</p> <p>The monitoring and reporting of key indicators will be critical to ensure early warning of any problems.</p>	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p> <p>12. Obligations for Wales under EU and UK waste legislation are met.</p>
m) Transposition of the revised Waste Framework Directive (2008/98/EC)	DEFRA	By early 2011	Will include definitions, policies and targets regarding the prevention of waste.	12. Obligations for Wales under EU and UK waste legislation are met.
n) Working with UK and Europe	Welsh Assembly Government	Short to medium term: From 2010 to 2020	Welsh Assembly Government will provide input into the evolving actions on SCP and SMM at the UK and EU level, and will also contribute to the European Commission's review of the Thematic Strategies on the Prevention and Recycling of Waste, and on the Sustainable Use of Natural Resources. It will also seek to influence the work of the Retail Forum that has been set up by the	1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.

Action	By Whom	By When	How and implications	Link to objectives in section 3.2.2
o) Action by retailers	Retailers/WRAP	Short to medium term: From 2010 to 2020	<p>European Commission.</p> <p>Implement and deliver Courtauld 2 commitments.</p> <p>Agree additional targets and commitments from 2013 to 2020.</p>	<p>1. The annual reduction target set will be met through concerted, collective action by householders, local government, retailers, Welsh Assembly Government and others.</p> <p>12. Obligations for Wales under EU and UK waste legislation are met.</p>

3.3 Increasing the reuse of items discarded as waste ('preparing for reuse')

What is "preparing for reuse"?

The revised **Waste Framework Directive** states in Article 4 that the following waste hierarchy shall be applied as a priority order in waste prevention and management legislation and policy:

- a) Prevention
- b) Preparing for reuse**
- c) Recycling
- d) Other recovery – e.g. energy recovery, and
- e) Disposal

"Preparing for Reuse" means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be reused without any other pre-processing.

It is distinguished from **reuse** which means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived. Reuse is therefore counted as waste prevention under the waste hierarchy.

3.3.1 The benefits of preparing for reuse

'Preparing for reuse' refers to the reuse of wastes which have been discarded for disposal (and for collection by the Local Authority). It is different from where items are directly reused and have not been discarded for disposal, and thus not collected by the Local Authority (for example a donation of an item to a charity).

WRAP have reported¹⁴ that research by Sheffield University estimated that nearly half of electrical goods and a third of clothing are disposed of even though they are still in working and good condition. WRAP research suggests that if everyone in the UK used everyday domestic goods, such as clothes, crockery, tools and televisions, for their full life cycle then they could save £47 billion a year, or over £1,800 per household per year. To achieve this would mean enlarging the market in unwanted, but workable, goods. Businesses such as eBay and traditional charity shops are already part of life in the UK but further potential exists and WRAP is carrying out research into the environmental benefits of reuse business models.

¹⁴ WRAP Stakeholder Briefing, Issue 3, Winter 2009 - http://www.wrap.org.uk/downloads/SH_brief_Winter_09_1_.5f9ce84d.8512.pdf.

In Wales, many “bulky waste” items collected from households by Local Authorities or deposited at civic amenity sites are landfilled; this is a large waste stream which needs to be reduced in order to help meet ecological footprint reduction goals and waste prevention targets, and reduce Local Authority disposal costs. It is likely from the research reported by WRAP that much of these items are still in working order. Some waste materials are already reused by social enterprises, as illustrated in Table 5.

Table 5: Quantity of waste items reused in Wales by social enterprises responding to a survey carried out by Cylch

Materials and tonnages collected for reuse	2006-07	2007-08	2008-09
	Tonnes	Tonnes	Tonnes
Furniture	2,542.25	2,059.79	2,856.11
Wood	277.55	240.64	601.74
Specific materials not known	968.23	239.07	242.95
Other electrical goods	48.62	23.93	144.06
Fridges & Freezers	31.09	30.37	53.97
Other White Goods	41.73	33.88	34.19
Textiles & Footwear	..	7.51	29.16
Tools	..	14.24	24.10
Carpet	..	9.66	11.80
Bicycles	..	27.19	5.05

Paint	0.45	8.68	5.04
Total	3,909.	2,789.	4,142.
Reused	93	55	46

Note: Data item not available

Source: Cylch Let's Prove It! Report 2008-09

As discussed in Section 3.2.5.1 (d), there is anecdotal evidence that there is a strong appetite amongst the public for the reuse of items (i.e. giving them a second, third or more life), and that a commercial market exists, meaning that increasing preparing for reuse may not necessarily increase costs for Local Authorities.

In the pursuit of sustainable development the Welsh Assembly Government would like to see further progress in the reuse of items. This is also a requirement of the revised Waste Framework Directive.

3.3.2 Specific objectives

In order to meet the key milestones and key social, economic and environmental outcomes identified in Towards Zero Waste, the following preparing for reuse objectives are proposed:

1. The 'preparing for reuse' indicative targets in Towards Zero Waste are met cost effectively.
2. As far as possible, items that are discarded as waste are 'prepared for reuse' and are able to continue to be a resource and reused by others.
3. Citizens are able to benefit socially (through greater social cohesion and community well-being) from 'preparing for reuse' activities – through job creation and training, and closer engagement with their communities.
4. The opportunity is afforded to all the citizens of Wales to contribute to preparing waste for reuse, irrespective of where they live, their health, mobility and personal circumstances.
5. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).
6. All preparation for reuse services must be carried out without endangering human health, and without harming the environment.
7. Obligations for Wales under EU and UK waste legislation are met.

3.3.3 Preparing for reuse roles and responsibilities

Responsibilities for preparing municipal waste for reuse are identified as follows:

- **Householders:** People throw away items that could be reused and people are in the prime position to ensure that these items are cared for and passed on in a state that someone else can use them. The items that are wasted have, in some cases, a monetary value, and in some cases materials thrown away could have been reused or their life extended thus avoiding or delaying the purchase of new products. The key is to raise awareness of both the financial benefits to people of reusing items, and to explain better the economic, environmental and social impacts of wasteful behaviour.
- **Local Authorities:** As the organisations responsible for the collection of municipal waste, and closest to the communities and individuals responsible for creating the waste, Local Authorities are at the front line of influencing the behaviours of householders. They have a key role in raising awareness, and in tailoring service provision to influence behaviours. Many items disposed of by householders (especially in the “bulky waste” stream) could be reused if collected and handled in a way that does not damage them beyond repair or reuse.
- **Social enterprises and businesses:** That are involved in reuse have a valuable role to play in ensuring that pre-used items are valued and used again. The social economy has developed a furniture recycling network to promote the reuse of furniture and other bulky items (especially electrical). This is likely to increase in the future. The social enterprise reuse sector in Wales is represented by Cylch, who are core funded by the Welsh Assembly Government to support their members and support capacity building. The Cylch Investment Programme provides targeted financial assistance for this purpose.
- **Other organisations and businesses producing waste:** Collected by Local Authorities. Local Authorities also collect wastes from businesses and public sector organisations, and it is important that these too play their part in preparing for the reuse of their wastes.
- **Government:** Government has a strong role at a national and international level to drive preparing for reuse. This includes setting targets, providing funding support and advice, commissioning research, supporting innovation and ensuring national awareness raising and behavioural change campaigns (for example the Waste Awareness Wales campaign).

3.3.4 Targets

The following preparation for reuse target is set in Towards Zero Waste.

Year	12-13	15-16	19-20	24-25
Minimum levels of preparing for reuse (excluding WEEE)	0.4%	0.6%	0.8%	1.0%

Baseline research will be undertaken to ascertain the quantities of waste in the waste stream that can be reused. The research will categorise reusable wastes by material and this will inform the work to develop the target for future years that will be consulted upon in Part 2 of the Municipal Sector Plan.

3.3.5 Actions

In order to influence householder behaviour on preparing for reuse, Local Authorities (with the support of Waste Awareness Wales and the Welsh Assembly Government) will need to focus their efforts in four main directions in respect of ensuring that targets are met:

- Influencing householder behaviour by making it more convenient to put unwanted items out for collection in a way that ensures that they can be prepared for reuse.
- Designing collection systems to ensure that far more waste items can be prepared for reuse (for example by better protecting items from damage during collection, storage and transportation).
- Increasing preparing for reuse significantly through the setting and meeting of targets, the provision of support, and awareness/communications campaigns to promote donations and the desirability of using pre-used items.
- Working with social enterprises and businesses to ensure that they receive the support they need to obtain and sell items for reuse in order to maximise social benefits as part of delivering sustainable development.

To help deliver the preparing for reuse target the following actions will be undertaken.

3.3.5.1 Actions for local government

a) Improve Local Authority bulky waste collection and handling service

All Local Authorities in Wales operate a collection of “bulky” wastes from households as they are required to do under the Environmental Protection Act 1990. This includes items such as furniture and white goods. The range of materials collected by Local Authorities varies across Wales. Local Authorities have powers to charge for the collection of bulky waste items, though practices and the levels of charge vary across Wales. The way that Local Authorities manage bulky waste also varies, with varying levels of reuse and recycling of these items. There are also variable practices in relation to bulky wastes received at civic amenity sites/household waste recycling centres. The Welsh Assembly Government wishes to see a far greater proportion of bulky wastes reused and recycled, rather than being landfilled.

The Assembly Government will encourage Local Authorities to prepare for reuse as much as possible of the bulky household waste that they collect.

The reuse of items discarded as waste provides a valuable opportunity for social enterprises that generates additional benefits to the community as well as delivering environmental outcomes. At the same time increasing reuse saves Local Authorities money through the avoided costs of disposal.

Where Local Authorities currently do not offer a bulky waste reuse service they should appraise options to introduce this service, either in addition to, or separate from, existing bulky waste collection services. They should configure services that deliver good environmental, economic and social outcomes, at an affordable cost, and as far as possible maximising social return on investment. Where Local Authorities decide to tender out the service, they are encouraged to use the flexibility allowed under the Public Contracts Regulations 2006 where public contract tenders can be ring fenced for “supported businesses”, “supported employment programmes” or “supported factories” where more than 50 per cent of the workers employed or supported are disabled persons who by reason of the nature or severity of their disability are unable to take up work in the open labour market.

Very few civic amenity sites/household waste recycling centres in Wales provide reception areas for items that could be prepared for reuse. Most sites focus on providing skips for recycling or disposal, with items that could have been prepared for reuse usually damaged beyond reuse or repair when they are placed in the skips. Local Authorities should provide at least one civic amenity site/household waste recycling centre that can receive and safely store bulky items for reuse.

b) Enhance waste awareness, communications and educational campaigns (including pilots)

Education and awareness raising play a large role in encouraging people to put out items for reuse. Local Authorities are at the “front line” in respect of interactions with householders, and it is proposed that there will be enhanced effort by Local Authorities in Wales on:

- Running awareness raising campaigns on the importance of householders putting out items for reuse, run primarily by Local Authorities with campaign literature produced centrally, and backed up by national campaigns where appropriate.
- Targeted preparing for reuse campaigns at a local and national level that are specific to materials with the greatest impact on Wales’ ecological footprint. Local Authorities will be encouraged and supported by Waste Awareness Wales.
- Empowering communities to develop solutions to reuse waste, raise awareness and facilitate behaviour change through support for community initiatives, and through engagement and support for local community groups and networks, and local community champions.
- Collaborating closely with social enterprises, where appropriate.
- The use of novel media, including social networking sites, to raise awareness and understanding of the benefits of preparing for reuse.

People need to be encouraged not only to ensure that unwanted items they possess are reused, but they also need to be encouraged to purchase or accept items provided for reuse by others. An awareness campaign is required to ensure that people value existing items more, in the same way that antiques and collectable items are valued. This will form part of the Waste Awareness Wales campaign on reuse. Local Authorities need to promote strongly all of the above routes for reuse, backed up by national campaigns where appropriate.

3.3.5.2 Actions for the Welsh Assembly Government

c) Support for infrastructure development for preparing for reuse

The following actions will be undertaken:

- Accredited reuse and repair network

We will explore the desirability and practicalities (including economic aspects) of building an infrastructure for an accredited reuse and repair network in Wales, including how this might be funded – and taking into account the concerns that some expressed during the consultation on this sector plan. The product streams that could be addressed include domestic furniture, waste electrical and electronic equipment (WEEE), textiles, sport and leisure equipment, miscellaneous commercial (one offs), children's equipment and toys, fitted products (baths, kitchen units etc), office furniture, books, paint, building materials, carpets, small household items, bikes etc.

It is possible that such a network might be able to be self funded. We will also explore how extended producer responsibility (including exercising the 'polluter-pays' principle) could potentially help fund the initiative.

The development of an accredited network with regional call centres to support it, will be considered in more detail by a preparation for reuse steering group, which will be set up to support this sector plan.

- Network of reuse shops

We will encourage the further development of a network of reuse shops selling repaired and refurbished items. The Welsh Assembly Government will not take a position on the merits of franchising or common branding.

d) Further develop the role of the Social Economy in preparing for reuse

The social economy sector has an important contribution to make in the development of materials' reuse in Wales. The Welsh Assembly Government has already provided capacity building support to the social economy sector in Wales worth £3 million from 2008-09 to 2010-11. The Welsh Assembly Government would like to see consortia of social enterprises being set up that will reuse a range of materials (e.g. bulky waste, WEEE, carpets, office furniture, oil, and wood). By promoting these activities it can help Wales meet its sustainable development

objectives, including factors that stretch beyond the activity itself, such as combating social exclusion and promoting the regeneration of our most deprived communities. The Welsh Assembly Government will work with the social economy sector to determine how such consortia can be set up, and the support that may be required.

Greater resource efficiency can provide vital opportunities to develop local communities, through job creation, training and up skilling.

Cylch (Wales Community Recycling Network) is an umbrella membership organisation representing social economy sector, non profit-distributing waste minimisation, re-use and recycling organisations operating in Wales. It is core funded by the Welsh Assembly Government. Cylch currently has 18 members who undertake furniture re-use. As well as preventing bulky items from entering the waste stream, these projects often provide social benefit to the communities in which they operate (e.g. providing starter packs to help individuals and families on low incomes who have limited access to basic household goods and free furniture to 16-18 year olds). They also provide valuable training opportunities for the socially excluded, including those with learning difficulties and other disadvantages, and for volunteers.

e) *Transposition of the revised Waste Framework Directive (2008/98/EC)*

The EU Waste Framework Directive lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste, and by reducing the overall impacts of, and improving the efficiency of, resource use. Revisions to the Waste Framework Directive (2008/98/EC) were adopted in December 2008 are transposed by The Waste (England and Wales) Regulations 2011.

In respect of aspects of the revised Directive that apply to the preparing for reuse of municipal waste collected by Local Authorities, the Directive includes requirements for member states to:

- Apply the waste hierarchy in waste management legislation and policy.
- Take measures, as appropriate, to promote the re-use of products and preparing for re-use activities, notably by encouraging the establishment and support of re-use and repair networks, the use of economic instruments, procurement criteria, quantitative objectives or other measures.
- By 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households shall be increased to a minimum of overall 50 per cent by weight.

Towards Zero Waste, this sector plan, and the other sector plans will all contribute to meeting the requirements of the revised Waste Framework Directive. The EU Waste Framework Directive requirements are transposed by The Waste (England and Wales) Regulations 2011.

3.3.5.3 The need for additional evidence

The Welsh Assembly Government will explore ways to build on its existing evidence base, drawing, as appropriate, on studies carried out elsewhere, and commissioning, as necessary, and with others as appropriate, new research. Areas where additional evidence in respect of preparation for reuse needs to be sourced or commissioned includes:

- Baseline Data – quantities and types of waste in the waste stream that can be reused.
- Developing social/economic and environmental indicators for reuse.
- The most effective behaviour change campaigns for waste prevention, reuse and preparing for reuse.
- A market study of the supply and demand of items for reuse, including the identification of any barriers to reuse, and how these could be overcome.
- More research for niche markets e.g.: mattresses and carpets, bikes etc.
- Research on the collections infrastructure required and opportunities for SD outcomes.
- Development of enabling mechanisms and indicators.

3.3.6 Indicators and review of progress

3.3.6.1 Monitoring and measuring

The following indicators are proposed (Table 6).

Table 6: Proposed indicators for preparing for reuse

What we will monitor	How we will monitor	Who will monitor it
Preparing for Reuse		
<i>Household waste prepared for reuse</i>	We will continue to measure the extent of the reuse of items collected as waste by Local Authorities through them reporting their waste statistics via WasteDataFlow.	Welsh Assembly Government
<i>Scope for further preparing for reuse</i>	We will carry out periodic compositional analysis studies that will include analysis of composition of waste for reuse.	Welsh Assembly Government
<i>Access to jobs and employability in preparing for reuse</i>	We will commission research on indicators to monitor and measure accessibility to jobs and employability.	Cylch

3.3.6.2 Review

It is accepted that preparation for reuse will become an increasing priority as we seek to drive a higher proportion of waste up the hierarchy. Consequently the

Welsh Assembly Government will carry out an ongoing review of how much municipal waste can be prepared for reuse, what guidance is required to assist with preparing a higher proportion of municipal waste for reuse and the preparation for reuse target.

The reuse action plan will be taken forward by forming a steering group. The Steering Group will be responsible for monitoring the progress and give an overall direction to the plan.

3.3.7 Summary of preparing for reuse actions

Table 7 provides a summary of the actions to deliver the household waste prevention target and achieve the objectives set in Section 3.3.2.

Table 7: Summary of proposed actions for preparing for reuse

Action	By Whom	By When	How and implications	Links to objectives in section 3.3.2
<p>a) Improve Local Authority bulky waste collection and handling service</p>	<p>Local Authorities and Welsh Assembly Government</p>	<p>Short to medium term: From 2010 to 2020</p>	<p>Local Authorities to improve their bulky waste collection and handling services to increase preparation for reuse, using the SWMG funds, and savings from disposal costs.</p> <p>Welsh Assembly Government to provide guidance on tendering the bulky waste collection service to improve the sustainable development outcomes – for those authorities that wish to tender. To include guidance on how to evaluate contracts in terms of social, environmental and economic benefits.</p> <p>Welsh Assembly Government to carry out a study into how bulky waste collection services can contribute to reuse e.g. Explore tendering/partnership/capacity to deliver, and likely costs/financial benefits, and social return on investment.</p> <p>Welsh Assembly Government to undertake more research to for niche markets e.g. mattresses and carpets, bikes etc.</p> <p>It is anticipated that increasing preparation for reuse will reduce Local Authorities costs as a result of reduced disposal, but this will be</p>	<ol style="list-style-type: none"> 1. The ‘preparing for reuse’ targets in Towards Zero Waste are met cost effectively. 2. As far as possible, items that are discarded as waste are ‘prepared for reuse’ and are able to continue to be a resource and reused by others. 3. Citizens are able to benefit socially (through greater social cohesion and community well-being) from ‘preparing for reuse’ activities – through job creation and training, and closer engagement with their communities. 4. The opportunity is afforded to all the citizens of Wales to contribute to preparing waste for reuse, irrespective of where they live, their health, mobility and personal circumstances. 5. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes). 6. All preparation for reuse services must be carried out without endangering human health, and without harming the environment. 7. Obligations for Wales under EU and UK waste legislation are met.

Action	By Whom	By When	How and implications	Links to objectives in section 3.3.2
			tested in the research.	
b) Enhance waste awareness, communications and educational campaigns (including pilots)	Local Authorities, supported by WAW	Short term by 2013	<p>As part of WAW programme of awareness raising and communications.</p> <p>National awareness campaign for reuse.</p> <p>Run an awareness campaign discouraging householders from putting reusable items in the residual waste bin.</p> <p>Promoting fixing/hiring of equipment – consider developing a national database for people to use to find places that can fix/hire.</p>	<p>1. The ‘preparing for reuse’ targets in Towards Zero Waste are met cost effectively.</p> <p>2. As far as possible, items that are discarded as waste are ‘prepared for reuse’ and are able to continue to be a resource and reused by others.</p> <p>3. Citizens are able to benefit socially (through greater social cohesion and community well-being) from ‘preparing for reuse’ activities – through job creation and training, and closer engagement with their communities.</p> <p>7. Obligations for Wales under EU and UK waste legislation are met.</p>
c) Support for infrastructure development for preparing for reuse	Welsh Assembly Government/Cylch	Short to medium term: From 2010 to 2020	<p>Welsh Assembly Government to explore the desirability and practicalities of building an infrastructure for an accredited reuse and repair network in Wales, including how this might be funded</p> <p>Welsh Assembly Government to explore the desirability and practicalities of the development of a network of reuse shops selling repaired and refurbished items.</p>	<p>1. The indicative ‘preparing for reuse’ targets in Towards Zero Waste are met cost effectively.</p> <p>2. As far as possible, items that are discarded as waste are ‘prepared for reuse’ and are able to continue to be a resource and reused by others.</p> <p>3. Citizens are able to benefit socially (through greater social cohesion and community well-being) from ‘preparing for reuse’ activities – through job creation and training, and closer engagement with their communities.</p> <p>5. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support</p>

Action	By Whom	By When	How and implications	Links to objectives in section 3.3.2
				<p>sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).</p> <p>6. All preparation for reuse services must be carried out without endangering human health, and without harming the environment.</p> <p>7. Obligations for Wales under EU and UK waste legislation are met.</p>
e) Further develop the role of the Social Economy in preparing for reuse	Welsh Assembly Government	Short to medium term: From 2010 to 2020	Welsh Assembly Government to encourage the formation of a consortium of social enterprise that will reuse a range of materials. Cylch to contacts its members and explore/develop the consortium approach.	<p>3. Citizens are able to benefit socially (through greater social cohesion and community well-being) from 'preparing for reuse' activities – through job creation and training, and closer engagement with their communities.</p> <p>6. All preparation for reuse services must be carried out without endangering human health, and without harming the environment.</p>
f) Transposition of the revised Waste Framework Directive (2008/98/EC)	Welsh Assembly Government	By early 2011.	The Waste (England and Wales) Regulations 2011.	<p>7. Obligations for Wales under EU and UK waste legislation are met.</p>

3.4 Collection of source separated waste for recycling, composting, and anaerobic digestion

What counts as recycling?

The revised **Waste Framework Directive** defines recycling in Article 3(17) as being:

- Any recovery operation by which waste materials are reprocessed into **products, materials or substances** whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Thus in order to be classified as recycled, a waste must cease to be waste, and instead be a product, material or substance. Under Article 6 of the revised Waste Framework Directive, certain specified wastes shall cease to be waste when they have undergone a recycling or other recovery operation and complies with specific criteria to be developed by the European Commission. So called “end-of-waste criteria” are currently being developed for 5 waste streams: ferrous, aluminium and copper scrap metal, paper and glass. A further criteria is proposed for biowaste.

Article 11 of the revised Waste Framework Directive sets targets to:

- By 2020, the preparing for reuse and recycling of **at least** paper, metal, plastic and glass from households shall be increased to a **minimum** of overall 50% by weight.

The European Commission is in the process of producing guidance on how the targets should be measured and reported.

For municipal waste, clarity on what can count towards the statutory recycling targets set in the Waste (Wales) Measure 2010 is being provided through the guidance developed to accompany the Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011.

3.4.1 The benefits and costs of recycling/composting/anaerobic digestion

The recycling in a closed loop way of quality materials from the municipal waste stream is of fundamental importance and is a key aspect of the sustainable development led approach of Towards Zero Waste. Meeting the 70 per cent recycling targets can make a 27 per cent reduction in the ecological footprint of waste (based on modelling zero annual growth in arisings). High recycling also yields greater global warming potential reductions than higher levels of energy from waste.

As set out in *Wise About Waste* (2002), it has always been the Welsh Assembly Government’s policy that Wales’ share of the UK’s EU Landfill Directive targets to reduce the landfilling of biodegradable municipal waste should be met through a significant increase in recycling and composting/AD rates without a major reliance on

energy from waste (EfW). The recycling/composting targets set for municipal waste in Towards Zero Waste are set at a level that should ensure that the Landfill Allowances Scheme targets for 2012-13 and 2019-20 are met by each authority through actions to meet the recycling/composting targets, with residual treatment only providing a safety net for the 2019-20 target (and as a way of reducing landfill to as close to zero as possible). The importance of separate food waste collection and AD/composting cannot be overstated in this context and modelling identifies the minimum level of separate food waste collection and treatment that is required to achieve the LAS targets.

In respect of projects receiving Welsh Assembly Government funding support, the “reference solution” for dealing with municipal waste is to meet the recycling/composting targets set in Towards Zero Waste, treat the separated food waste via AD and recover energy from the residual waste at an energy from waste (EfW) plant with the capability to secure, and as far as possible actually realise, 60 per cent thermal efficiency. The preference is for kerbside sort of recyclables, and the collection of food waste separately from green waste (thus avoiding the unnecessary expense of treating green waste to Animal By Products Regulations standards). The reference solution is considered to offer value for money, deliver sustainable development and climate change outcomes, and is deliverable in respect of confidence in the technologies. If Local Authorities wish to adopt exceptions to this reference solution in respect of the treatment of food and residual waste then such alternatives will have to be justified through the business case process as set out by the Welsh Assembly Government’s Waste Procurement Programme Office as delivering equivalent environmental and economic benefits, and as being equally deliverable (i.e. reliable) and must be tested against the reference solution.

3.4.2 Specific objectives

1. The waste recycling targets set in Towards Zero Waste are met.
2. Waste that cannot be ‘prepared for reuse’ is recycled, composted (for green waste) or anaerobically digested (in the case of food waste).
3. Waste collection systems enable high levels of high quality recycling to be achieved, so that the recyclate can feed as far as possible into reprocessing facilities in Wales (retaining the economic value of recyclate within Wales).
4. Waste transport systems are fuel efficient using, where practicable, renewable, low carbon fuels.
5. There is a focus on serving local recyclate markets that are ‘closed loop’ recycling systems.
6. There is consistency across Wales in the type of materials collected for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in waste composition, and are consistent across Wales in the collection of recyclable materials.

7. Citizens are motivated and enabled to recycle as much as possible, and are able to access information on why they should be recycling, how they should do it and what happens to their recycle.
8. Citizens are able to benefit socially (through greater social cohesion and community well being) from the municipal waste service – through job creation and training, and closer engagement with the household waste collection workforce with individuals and communities.
9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances.
10. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).
11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment.
12. The priority materials identified in the strategy will be prioritised for recycling.
13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.
14. Obligations for Wales under EU and UK waste legislation are met.

3.4.3 Roles and responsibilities

- **Householders:** People produce the waste that Local Authorities collect from households, and people are in the prime position to separate out materials for recycling and help provide high quality recycle straight from the household.
- **Local Authorities:** As the organisations responsible for the collection of municipal waste, and closest to the communities and individuals responsible for creating the waste, Local Authorities are at the front line of influencing the behaviours of householders. They have a key role in raising awareness, and in tailoring service provision to influence behaviours.
- **Social Economy:** The social economy sector is involved in a range of recycling activities, from collection through to reprocessing. It is providing collection services in areas such as north Powys and its reprocessing activities range from making products from glass bottles through to operating a 24,000 tonne per year plastics recycling facility in Caerphilly.
- **Retailers:** The vast majority of what is thrown away by householders has been purchased from a retailer (exceptions include garden waste, wasted food grown in the garden, and certain other personal related items). Therefore, retailers bear a significant responsibility for products to be

manufactured to be more durable, longer lasting, easily recycled and contain a higher proportion of recyclate instead of virgin raw material.

- **Other organisations and businesses producing waste collected by Local Authorities:** Local Authorities also collect wastes from businesses and public sector organisations, and it is important that these too are enabled to play their part in recycling of their wastes through access to Local Authority recycling services.
- **Government:** Government has a strong role at a national and international level to drive recycling and composting. This includes setting and applying levers (for example the Landfill Tax) and legislation, seeking voluntary agreements with key parties, providing funding support and advice, commissioning research, supporting innovation and ensuring national awareness raising and behavioural change campaigns (for example the Waste Awareness Wales campaign).

3.4.4 Targets

3.4.4.1 Targets set in Towards Zero Waste

The following targets for Local Authorities for the recycling and composting of the municipal waste that they collect have been set in Towards Zero Waste:

Target for:	Targets for each Target Year				
	09-10	12-13	15-16	19-20	24-25
Minimum levels of preparing for reuse and recycling/composting (or AD) (Note: these targets form part of the Waste (Wales) Measure 2010)	40%	52%	58%	64%	70%
Minimum proportion of preparing for reuse/recycling/ composting that must come from source separation (kerbside, bring and/or CA site) for municipal waste	80%	80%	80%	80%	80%

The above targets relate specifically to preparing for reuse, recycling and AD/composting. It is important to appreciate that the targets for recycling and AD/composting are minima. Clarity on what can count towards the statutory recycling targets set in the Waste (Wales) Measure 2010 is being provided through the guidance developed to accompany the Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011.

As specified by the Welsh Assembly Government in the Sustainable Waste Management Grant (SWMG) letter for 2010-11, Local Authorities using the SWMG to provide infrastructure for composting or AD either directly themselves or via a

third party contract are strongly advised to take steps to ensure that the following criteria are met in the future:

- AD infrastructure is managed in a way that the digestate produced complies with both PAS 110 and the AD Quality Protocol.
- Compost infrastructure (for food and/or green waste) is managed in a way that the compost produced complies with both PAS 100 and the Compost Quality Protocol.

Wise About Waste set recycling/composting targets for Local Authorities that were measured as Performance Indicators (PI). The PI for recycling excluded the counting of the recycling of beach cleansing waste, EfW plant residues, rubble and abandoned vehicles. The recycling of these waste streams is beneficial and from 2012-13 will be based on all municipal waste arisings and all municipal waste recycling, as long as the recycling meets the definition of recycling laid down in the revised Waste Framework Directive and in The Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011 . . Clarity on what can count towards the statutory recycling targets set in the Waste (Wales) Measure 2010 is being provided through the guidance developed to accompany the Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011.

The intention is to publish in future only one set of recycling figures, and that these will be the PIs for each Local Authority. This will remove the confusion in the past when two sets of municipal waste recycling figures have been published. It must be noted however, that for the purposes of the Landfill Allowances Scheme (Wales) and compliance with the EU Landfill Directive targets, some of the additional waste streams identified above may not be counted as municipal waste.

3.4.4.2 Proposed food waste target

The Future Directions papers and the consultation on the development of Towards Zero Waste proposed specific food waste targets for Local Authorities to meet. This was because food waste is one of the priority materials that needs to be targeted under Towards Zero Waste, and it is thus important that it is given the highest priority in respect of removing as much of it as possible from the residual municipal waste stream through a source separation approach. Local Authorities across Wales have used additional specific funding from the Welsh Assembly Government to introduce food waste collection services and all 22 Local Authorities now provide this service, with around 80% of households in Wales now receiving a separate food waste collection service (as of December 2010). In recognition of this achievement by Welsh Local Authorities and taking into account of the major continuing driver of the Landfill Allowances Scheme that compels Local Authorities to reduce and recycle food waste, it has been decided not to set a specific food waste target at this time. This will be kept under review, especially as there are deliberations at the EU level on whether a separate biowaste target should be set for Member States, based on the separate collection of a specific proportion of the biowaste (food and garden waste) that is present in collected waste. In 2009-10 the collective effort of Welsh Local Authorities resulted in around 47% of the total biowaste collected in municipal waste being recycled via composting and AD. In meeting the 70% recycling target set for 2024-25 it is likely that Local Authorities will need to separately collect and

recycle at least 80% of the biowaste that they collect in total from households and businesses.

3.4.4.3 Other possible material specific targets

Towards Zero Waste identifies other priority materials for action in respect of recycling in order to help deliver the required reduction in the ecological footprint of waste managed by Local Authorities. The following areas for action are prioritised:

- Diverting paper and card from landfill to recycling.
- Diverting metals from landfill to recycling.

There will be consultation on any future materials specific recycling targets, including for food waste. At this time it is not proposed to set materials specific targets; however, if a need becomes apparent then consultation will be undertaken with stakeholders which may lead to such targets being introduced.

3.4.5 Actions

In order to ensure that the recycling service provided by Local Authorities delivers the key sustainable development outcomes identified in Towards Zero Waste, and delivers the objectives identified in Section 3.4.2 above, Local Authorities and the Welsh Assembly Government will need to focus their efforts on the following:

- Increasing the availability to householders of services to recycle all of their recyclable wastes, including making it easier to understand what can be recycled, and the provision of consistent recycling services through the collection of a standardised set of materials in as few different ways as possible.
- Providing recycling services that maximise sustainable development outcomes at an affordable cost through the provision of services that maximise quality and the likelihood that the waste materials are recycled in a closed loop.
- Placing a greater focus on the quality of the recyclate separated out by householders, not just simply the quantity. This means reducing the level of contamination of the key materials with items that cannot be recycled,. This requires good communication to householders, and the best time to do this is at the time collection when contamination is noted by the collection staff. Generic campaigns on quality and reducing contamination are also important as a back up.
- Influencing householder behaviour by making it more convenient to recycle than to dispose of waste through further changes in service provision on residual waste collection (where these have not already been applied).
- Funding intensive and sustained waste awareness, communications and educational campaigns, to persuade householders to separate out recyclable and compostable waste, including the provision of information on the end destinations for the recyclate.

- Working with retailers to ensure that products and packaging are all easily recyclable.

To help deliver the recycling targets for municipal waste the following actions are proposed.

3.4.5.1 Actions for local government

Behaviour Change and Awareness Campaigns

From the evidence that has been obtained it is apparent that a significant amount of waste that is either reusable or recyclable is still being placed in the residual bin. WAW research shows that, for some householders, there is still some confusion about what can and cannot be recycled. Some of this is related to uncertainty about service provision but, for others, wider issues are responsible and need to be addressed through targeted engagement and communications.

The WAW campaign will work with local authorities to understand the barriers to reusing and recycling and develop campaigns and materials that help overcome these barriers. Recycling and reuse is heavily related to the infrastructure and service that is available locally. It is appropriate therefore that WAW campaign sets the framework at a national level, but that campaigns specific to local needs, circumstances and services are developed. The WAW campaign will help Local Authorities through the production of a toolkit detailing available resources and will work to build the expertise and effectiveness of local authorities in developing and delivering successful campaigns.

Key themes for recycling communications are:

- **Promoting donation:** Providing advice on how unwanted items can benefit local communities. Supplementary to this WAW and the WLGA Waste Improvement Programme will be supporting greater collaboration and partnerships between local authorities and social enterprise reuse organisations.
- **Maximising recycling services:** Explaining why recycling is important (setting the national framework); providing advice on what can and cannot be recycled; providing advice on how to recycle; and addressing barriers and attitudes to recycling
- **The recycling journey:** Demonstrating what happens to materials collected for recycling; and demonstrating the benefits of recycling

The WAW campaign is in the process of developing a specific workstream, engaging closely with WRAP, on building the capacity of Local Authorities to develop and deliver effective and efficient recycling communications. During 2011, a programme of training and other support will become available. Local Authorities will be engaged in the development of the programme and consulted on its proposals and key actions.

a) *Increasing recycling rates to meet targets*

In order to meet the new targets set in Towards Zero Waste the following actions will need to be taken by Local Authorities:

- The expansion of collection services to increase the type and quantity of materials collected for recycling – including introducing “recycling on the go” services (e.g. to ensure that litter is recycled).
- The expansion of collection services so that all households and communities have access to recycling services – and that they have reasonable level of choice in the way they can recycle (e.g. through kerbside sort collection service, bring sites or Household Waste Recycling Centres/Civic Amenity sites). Services need to be tailored for geographical and demographic circumstances (with the use of container types reflecting the nature of the housing).
- The examination and adoption of best practice on all aspects of collection and the application of it to their service.
- Obtain the better co-operation of all householders.
- Provide the householder with information to raise awareness of the benefits of recycling within their community, on what is required of them in terms of the material that needs to be put out for collection, and feedback on performance.
- Obtain a good understanding of the barriers and opportunities for increasing recycling through understanding better local communities and individuals.
- Explore opportunities to increase recycling and food waste collection services for businesses in their areas, offering services to target biodegradable wastes as well as dry recyclables will result in a positive impact on the Landfill Allowance Scheme.

In expanding recycle collection services it is essential that collection staff are provided with appropriate training, especially for those who formerly worked in the residual collection side of the service. There are a range of training providers in Wales that can provide the necessary training. The Welsh Assembly Government will work with the WLGA and the Energy and Utilities Sector Skills Council to ensure that there is adequate provision of training courses and providers.

b) *Improving consistency in recyclable materials collected*

The Welsh Assembly Government and Local Authorities receive numerous complaints and queries relating to the differences in the recycling services across Wales, usually in relation to the different materials that are collected by different authorities, and sometimes in relation to the different methods of collection. Neighbouring authorities will sometimes offer very different levels of service for recycling, food waste, garden waste and bulky waste collections. If a core set of materials were to be collected by all Local Authorities, it would allow easier communication of these services resulting in greater understanding and participation

by the public. It will also enable greater consistency and quantities in respect of recyclable materials supplied to reprocessors, especially those in Wales. This would support the aim of the Welsh Assembly Government to make Welsh based recycle collection and reprocessing enterprises more viable.

As the statutory recycling targets increase with time it is likely that all Local Authorities will eventually have to collect the same types and wider range of materials in order to meet the targets. A recommended list of materials that should be collected is provided in the “Collections Blueprint” that is being published at the same time as this plan.. The Welsh Assembly Government expects a convergence of service delivery over time such that all Local Authorities collect as many materials as possible in ways that make it more likely that they can present them to the Welsh and UK reprocessing market. To this end it also encourages closer collaborative working between neighbouring authorities.

c) *Collecting and delivering quality materials to end markets*

i) *The evidence base*

Evidence gathered by the Welsh Assembly Government to date indicates that the best way of delivering the sustainable development outcomes laid down in Towards Zero Waste is for recyclable materials to be sorted at the kerbside. This helps the achievement of high quality source separation of materials and closed loop recycling. Closed loop recycling happens when a material is recycled back into the same product, for example where by an aluminium can is used again as an aluminium can and glass from bottles is recycled back into new bottles. This replaces the need for virgin materials in that product (which require a lot of energy to extract from the environment and process) and therefore closed loop recycling generally provides the greatest environmental benefit.

The kerbside sort method requires householders to place their recyclables mixed together in a box or boxes which then allows easy sorting by collection staff at the kerbside into separate compartments on a single vehicle. The alternative approach is for householders to instead put all of their recyclables in a bag or wheelie bin, where they are then transported in a mixed form for subsequent sorting (mechanically and sometimes manually as well) in a materials recovery facility (MRF). This is known as ‘co-mingling’ although actually recyclable materials are also co-mingled when placed in a box under the kerbside sort method. Kerbside sort approaches are predicated on inspection and selection of materials before they are placed onto the recycling collection vehicle, whilst co-mingled approaches are predicated on inspection and selection during post collection sorting in a MRF. Kerbside sort makes it easier for feedback to be given to individual householders if they put out any material that cannot be recycled.

The Welsh Assembly Government has amassed a considerable evidence base that supports kerbside sort over co-mingled collections (see Appendix 2 for a list of the evidence reports used). The evidence and additional justifications to support kerbside sort includes, in summary:

- A wide evidence base of studies of systems used by Local Authorities across the UK suggests that kerbside sort is cheaper usually than co-mingled (when the cost of running the MRF and the levels of income for recyclate are factored in) – a conclusion reached by WRAP following its analysis of the costs of the different systems across the UK – the widest study of its kind.
- Evidence suggests that kerbside sort offers greater carbon reduction benefits than co-mingled since there is more likelihood of closed loop recycling, and a reduction in rejects that then have to be landfilled or subjected to energy recovery.
- Kerbside sort is likely to be more flexible and adaptable to future changes in household waste composition, and is less reliant on what are often expensive and less flexible MRF technologies.
- Kerbside sort engages the householder more since it makes waste more visible, and helps them consider better the consequences of their purchasing and consumption behaviour.
- Kerbside sort helps reduce contamination, and helps raise awareness of which materials are accepted for recycling since there is feedback from the collection staff when the wrong materials are placed in the box. (Contamination in co-mingled collection methods using a bag or a wheelie bin is a lot more difficult to spot).
- As a result of lower levels of contamination and better sorting, kerbside sort is more likely to yield a higher quality recyclate, that, as a result, is far more likely to be “closed loop” recycled. (For example, it is not possible to recycle glass back into glass bottles if the glass waste is contaminated with other materials – e.g. Pyrex, broken crockery, or stones; these are difficult to separate out from glass in a MRF. Instead the glass fraction from a MRF is usually recycled as a secondary aggregate, an operation that may actually increase the carbon footprint of glass waste rather than reduce it).
- When fortnightly residual collection is introduced, kerbside sort is a better method of reducing contamination in weekly recyclate collections (a co-mingled system using a bag or wheelie bin provides an easy way for some householders to “hide” residual waste that they want to put out each week but can’t).
- Kerbside sort is more likely to yield recyclate whose ultimate destination can be tracked and reported – especially as it reduces the likely use of secondary or tertiary MRFs, and/or the export of the material abroad in a mixed form, where its subsequent fate is difficult to track. Kerbside sort systems are thus less likely to suffer adverse media publicity in terms of allegations of recyclate being landfilled or sent abroad, or recycled “wrongly”.
- Kerbside sort reduces the need for further intermediary processing plants that not only have a cost implication but which themselves use energy, and thus reduce overall the carbon benefits of recycling.

- Kerbside sort systems are just as popular with residents as co-mingled collections (there are plenty of examples across the UK of high satisfaction scores for kerbside sort systems).
- Kerbside sort and co-mingled systems can both yield high recycling rates in terms of materials captured, but it is likely that more of the material collected via kerbside sort is actually recycled into a new product.
- A universal kerbside sort system would reduce the requirement for MRF capacity although existing MRFs could be used to separate a far more limited range of materials to a higher quality (for example separating out plastic bottles from metal cans, if collected together). Some sorting capacity for different plastic polymers will also still be needed.
- In terms of health and safety, there is no firm evidence that indicates whether one system is more 'safe' than the other, with each having different types of potential injury and severity of injury (for example severe injuries, including death, have occurred through the operation of refuse compaction vehicles and material recovery facilities, deaths due to reversing have occurred through accidents with all types of collection vehicles, and manual handling incidents have occurred with the use of boxes, bags and wheeled bins). The Assembly Government has considered the evidence referred to in the Centre for Health and Environment Research and Expertise (CHERE) report (2006), which includes the following conclusions: "This study failed to identify any significant risks within kerbside recycling operations using boxes and bags that could not be effectively managed and controlled. The risks identified included twists and strains which were most obvious with certain rear-loading vehicles where operatives found it necessary to adopt un-safe postures in order to load the vehicle. Side-loading or purpose built rear loading vehicles appeared to present significantly less risks. Road traffic risks could be effectively managed by using side loading vehicles and waiting on the collection side of the road.

To add to the already extensive evidence base, the Welsh Assembly Government commissioned additional research via WRAP and Eunomia Consulting to undertake a detailed analysis of the kerbside recycling and other waste services of six Welsh Local Authorities. Eunomia used these results to model alternative scenarios for kerbside sort, twin stream co-mingled and single stream co-mingled services if used across Wales. This modelling (based on the most comprehensive datasets and analysis of comparative services yet undertaken), concludes that financially, economically and environmentally that kerbside sort is the best approach to achieve sustainable development outcomes.

In the light of the evidence currently available, the Welsh Assembly Government believes that the optimum configuration of collection services to deliver the best sustainable outcomes cost effectively is kerbside sort.

Based on this evidence, the Welsh Assembly Government has set out its preferred option for the local authority recycle collection service in its 'collection blueprint' which is published at the same time as this sector plan.

ii) *Joint Welsh Local Authority and Welsh Assembly Government Collaborative Change programme*

The Welsh Assembly Government recognises that there are widely different types of recycle collection service configurations across Wales, and that changes cannot come overnight, and they have to be planned over a manageable level of time. The Assembly Government also wishes to seek change in a consensual way and has proposed to local authorities a collaborative change programme within which the Welsh Assembly Government will work together with local government through a long-term programme of change, supported by the financial and technical resources required. The two key drivers will be the need for a more cost effective recycle collection service across Wales, and the need to meet the other sustainable development outcomes laid down in Towards Zero Waste.

The basis of the change programme will be a long-term business plan setting out how a local authority or a group of authorities working together would meet the targets in a cost effective way which also meets sustainable development outcomes. In terms of the options for service delivery that will be appraised, this will include the collection blueprint (which includes kerbside sort). It is likely that plans will need to cover at least a ten year period to show how the higher rate of 64% recycling would be met in 2020 if not the full fifteen years to meet 70% recycling in 2025. This would ensure that targets and service change could be aligned over the whole period. This compares with a fifteen to twenty-five year planning period for the infrastructure programme (for AD and residual waste treatment).

In preparing their business plans, local authorities will need to take account of the legacy of their current collection and treatment practices and design change to move towards more sustainable waste collection and treatment practices over time taking account of where they are starting from.

Details of a programme are currently being discussed with local authorities but under the programme the Welsh Assembly Government proposes to provide central support to help local authorities develop such a business plan. Support could take the form of templates representing best practice already being rolled out by local authorities in Wales or elsewhere, technical guidance, capacity and skills building and central funding support for these purposes.

Local authorities would initially set out proposals similar to the PIDs (Project Initiation Documents) produced for the infrastructure projects. Subsequently they will produce Business Plans to meet the higher targets similar to the OBCs (Outline Business Cases) produced for the infrastructure projects.

In 2010-11 the Welsh Assembly Government allocated £73 million to support local authority waste collection services. This included £23m for food waste collections. This together with the Revenue Support Grant represented some 80% of the estimated total cost of these services.

The Welsh Assembly Government has set out in this Municipal Sector Plan and its 'Collections Blueprint' its preferred options to maximise sustainability in waste management. This includes preferences for best practice regarding collection

services which will deliver on all aspects of sustainability: better economic outcomes, better environmental outcomes and better social outcomes. Of great significance is that the best practices put forward following modelling and evidence collected to date by the Welsh Assembly Government offer considerable potential financial savings to local authorities over time.

If these financial savings in service provision are potentially to be had they cannot be ignored. A number of Local Authorities therefore need to consider radical changes in how they collect and treat waste in order to realise potential savings. It is the purpose of the proposed collaborative change programme for the Welsh Assembly Government to work with and help local authorities achieve this outcome while meeting recycling targets.

In addition to considering how the available funding will be allocated to SWMG in the immediate three years ahead, the Welsh Assembly Government is proposing to give Local Authorities an indicative ten-year funding projection up to 2020/21 to facilitate long term planning against the business plans proposed under the change programme. It is anticipated that this could be published along with detailed proposals for the change programme.

On the assumption that the business planning process develops well and targets are met by each Local Authority, it should be possible for a future Welsh Assembly Government to consider un-hypothecating SWMG and transferring the funds to the Revenue Support Grant on an individual Local Authority basis.

Collaborative governance arrangements will be established to oversee the work and ensure that we share best practice and embrace new and innovative methods of working.

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d) Achieving greater transparency in how much, and where, materials are recycled

It is important that, wherever practicable, materials collected for recycling from municipal waste in Wales are subsequently prepared and processed for use in Welsh manufacturing industry. Where this is not practicable (including in respect of the price that can be obtained for the recyclate), distances that recyclables are transported need to be kept to the minimum possible. Where it makes sound economic sense, and where there is no major environmental impact, some recyclate may be traded abroad. It is recognised that it would be preferable environmentally for goods manufactured abroad to have a high recycled content using recyclate from Wales, rather than the Welsh recyclate being landfilled in Wales. In every instance, it is important that there is transparency on the final destination.

The requirement to report more accurately in WasteDataFlow the final destination of recyclate is a condition of the receipt of the SWMG.

It is also important to be able to gauge properly the contribution that recycling makes towards the desired ecological footprint and carbon footprint reduction outcomes. Further, it is important that the wider Welsh public knows what happens to the materials that they place out for recycling. A transparent approach to these matters will need to consider how much material collected and sent for recycling is lost to disposal or energy recovery because it is unsuitable and this will need to be reported more accurately for the whole chain from collection through to reprocessing. The export of highly contaminated recyclate abroad is banned under the Transfrontier Shipment Regulations, and Local Authorities must take steps to satisfy themselves that no waste that they have collected is sent abroad in contravention of this legislation.

The Welsh Assembly Government is also considering with local government and WAW how the results of improved monitoring of the collection, sorting, transportation and reprocessing of recyclables might be best reported to promote public awareness.

The Environment Agency is working with Local Authorities to ensure the better reporting of rejects throughout the sorting and reprocessing chain to ensure that figures reported for the recycling of wastes into a new product are entered accurately onto WasteDataFlow. Audit checks will be carried out as a matter of routine. There

are penalties under Regulation 14 (4) of the Landfill Allowances Scheme (Wales) Regulations for the misreporting of data, with fines of up to £400 per tonne. Under The Recycling, Preparation for Re-use and Composting Targets (Monitoring and Penalties) (Wales) Regulations 2011, misreporting of data will result in a £1000 fine for each occurrence.

The accurate reporting of rejects and losses is fundamental to the monitoring of statutory recycling targets and Local Authorities are expected to take reasonable steps to ensure that data reported through WasteDataFlow is accurate and includes materials lost due to rejection at primary and subsequent sorting facilities and at re-processors prior to re-processing itself. Losses of materials during re-processing itself (e.g. fibres or clay particles lost during paper production) are **not** to be included as losses through WasteDataFlow.

e) Improve Household Waste Recycling Centres

In Wales there is a network of circa 90 Local Authority Household Waste Recycling Centres (HWRCs; some are known as “Civic Amenity” (CA) sites). Of all materials collected for recycling in 2007-08, 37.4 per cent came from HWRCs and CA sites, and 8.5 per cent from ‘bring sites’ (these have containers for recycling and are often located in council car parks and in supermarket car parks). This equates to 12 per cent and 3 per cent respectively, of all household waste arisings. HWRCs provide a notable contribution to the recycling of household waste.

HWRCs and CA sites can offer a large boost in recycling rates for relatively low amounts of financial output. Relatively simple changes can significantly improve HWRC recycling rates and performance. For example, the centres can provide separate containers for a far greater range of recyclable materials (more than 40 different recyclable materials are collected in separate skips and containers in similar sites in Flanders). Also, greater support can be provided on site to ensure that people put recyclable materials in the correct skip, and not in the residual skip that usually goes off to landfill. With this in mind, we will be carrying out a project which will develop a self assessment tool to evaluate the quality of Local Authority HWRC site provision. The outcomes of this will enable Local Authorities to prioritise improvements at their sites.

The Welsh Assembly Government recommends that every Local Authority should have at least one HWRC that can take all identified recyclable municipal waste streams that householders are likely to produce, although it is recognised that this does not necessarily provide equity to all citizens within a Local Authority area, especially those with sparse populations involving considerable travelling distances to the single site. This means that there has to be at least one site, ideally more, for the separate deposit of, for example:- glass, metals, paper, cardboard, wood, green/garden, plastic, textiles, mineral oil, vegetable oil, glycerol, WEEE, fluorescent lightbulbs/tubes, paints/solvents/other hazardous household waste, aggregate, soils, bonded asbestos, and items that can be re-used. This list is not exhaustive.

The Welsh Assembly Government will explore further with local government the potential introduction of a star rating system for HWRCs. This would enable householders to understand better the level of service provided at each HWRC, in the same way that a star system operates for accommodation providers.

f) Enhance bring site provision

Even with the introduction of kerbside recycling services covering the majority of areas throughout Wales, bring sites still play an important part in the recycling services offered to residents, especially in order to provide equity of service provision. Some limited areas of Wales are still yet to receive a kerbside service and therefore it is important that bring sites offer a range of material recycling opportunities.

A star rating system for bring sites will also be considered, encouraging higher service standards with a wider spectrum of materials provided.

The Welsh Assembly Government would like to see a higher proportion of materials being closed loop recycled. Bring sites offer an opportunity for the segregation of glass into separate colours for recycling. This enables the glass to be closed loop recycled, generally providing the greatest environmental benefit for that material¹⁵.

g) Enhance provision of a recycling service for businesses

There are a number of key drivers that will require more waste from businesses to be recycled, and it is important that adequate services are provided to businesses across Wales. Key drivers include:

- Towards Zero Waste sets a 70 per cent recycling target for 2024-25 for all wastes, including those produced by businesses.
- A material recovery target is set for construction and demolition waste in the revised EU Waste Framework Directive.
- As a result of the impending change in the definition of what counts as municipal waste in the UK, most commercial waste (ie. that produced from mainly from shops and offices) will now also come under the EU Landfill Directive targets that limit the landfilling of biodegradable municipal waste.
- The £8 per tonne per annum rise in Landfill Tax (to a level of £80 on 1 April 2014).
- The potential implementation of landfill bans or restrictions (currently subject to a joint Defra/Welsh Assembly Government consultation) – the Welsh Assembly Government is seeking powers to introduce landfill bans or restrictions under the Proposed Waste (Wales) Measure 2010.

The Welsh Assembly Government is yet to determine how to ensure that businesses producing commercial waste take further steps to reduce the landfilling of

¹⁵ There are sometimes exceptions – for example recycled glass used to make glass fibre insulation, which has strong environmental benefits in respect of reducing greenhouse gas emissions.

biodegradable waste to a level that ensures that Wales meets its share of revised UK targets for 2012-13 and 2019-20. Landfill bans or restrictions on key biodegradable materials, for example food waste, could be a potential instrument, although such bans are unlikely to be introduced until 2015 at the earliest.

Local Authorities already have a duty under Section 45 of the Environmental Protection Act (EPA) 1990 to collect wastes from certain businesses on request¹⁶, and they have been set targets for the reduction in the landfilling of biodegradable wastes that they collect, and for recycling that include the business waste element. Furthermore, Local Authority recycling targets were deliberately set for municipal waste in order to encourage Local Authorities to recycle also the wastes that they collect from business.

Article 11(1)b of the revised EU Waste Framework Directive has set a requirement on Member States to promote high quality recycling and to this end they must set up “separate collections” of waste where technically, environmentally and economically practicable, and do so for at least paper, metal, plastic and glass by 2015. This applies to waste from businesses as well as from households and public bodies. The draft Regulations to transpose the Directive in England and Wales proposed that a new requirement would be placed on local authorities and private waste companies that collect waste from commercial and industrial premises to offer “separate collections” of paper, metal, plastic and glass by 1 January 2015. The terms on which the collection would be offered and its pricing would be left for commercial decision. The final Waste (England and Wales) Regulations 2011 Regulations are due to be laid in February 2011.

Under EPA 1990, Local Authorities are obliged to make a reasonable charge to recover their costs of collecting and managing the wastes they collect from businesses. A free market exists for the collection of wastes from businesses, as there are many private sector operators providing such a collection service. Businesses are free to choose the service that best suits them at a cost they can afford.

Whilst the Welsh Assembly Government encourages Local Authorities to provide a recycling service for businesses, it is not minded to intervene in the free market where it is working properly. It is possible that the market may not operate in some parts of Wales, especially in the more remote rural areas, and it is likely that Local Authorities can provide a very cost effective recycling service for businesses in these areas, including for the separate collection of food waste. They are encouraged to do so.

Local Authorities could also offer their HWRCs/CA sites for businesses to recycle their wastes, providing appropriate cost recovery charges are applied for this service in accordance with the provisions of the Environmental Protection Act 1990 and permitting requirements, and to ensure adherence to the polluter-pays principle. As

¹⁶ Local Authorities have to collect ‘commercial’ waste if requested to do so; the wastes that comprise commercial waste are described in the Controlled Waste Regulations 1992.

the waste normally going to these sites is classified as household waste, and there are targets set for reducing household waste each year, Local Authorities would need to ensure that any business waste going to these sites for recycling is accounted for, and reported separately, as non-household waste (this could be achieved through the use of weighbridges).

Collecting additional recyclate and food waste from businesses will not jeopardise a Local Authority's compliance with the Landfill Allowances Scheme targets, providing the extra waste material collected for recycling, composting or anaerobic digestion combined has a biodegradable content not less than 61 per cent (at opposite extremes, if only glass is collected for recycling from businesses then this impacts negatively on compliance with the Landfill Allowances Scheme, but if only food waste or cardboard is collected from businesses for anaerobic digestion or recycling then this impacts very positively on compliance with the Landfill Allowances Scheme, no matter how much extra food or cardboard waste is collected).

The issue of the collection of recyclate and food waste from businesses will be considered in the Collection, Infrastructure and Markets Sector Plan.

Local Authorities should promote more strongly the recycling and food waste collection services they can offer to businesses.

h) Enhancing recycling service value for money performance

In circumstances of pressure on public finances and businesses, Local Authorities will need to consider what further steps they can take to improve services whilst reducing costs. Steps have already been taken to determine more accurately the current costs of service provision to facilitate benchmarking, and to achieve efficiency savings. These are described as follows:

i) Waste Finance Modelling lead by the Welsh Local Government Association (WLGA) and Welsh Assembly Government

The WLGA has been working for more than three years to facilitate the reporting of finance figures for all waste services in each Local Authority in Wales. This process aims to ensure that all Local Authorities consistently report their waste collection, treatment and disposal costs. This will enable further comparison and benchmarking on value for money and enable authorities to share best practice and identify efficiency savings. This system has been developed to work in tandem with the WasteDataFlow system.

To take this forward, the County Surveyors Society Waste Sub Group meeting, attended by all Local Authority Waste Management Heads of Service and officials from the Welsh Assembly Government will be the forum for discussion of which areas should be further investigated for best practice. This work will be closely and regularly monitored by the Ministerial Programme Board.

ii) Collation of other performance data

A full compendium of service delivery data will be collated from 2010-11 onwards. This will consist of materials collected, and service frequency for all of the waste services. This will provide a full data picture of service and common areas where Local Authorities or other service providers can collaborate and implement best practice to offer more efficient services.

iii) Actions to reduce costs

Measures taken to increase efficiency savings to date by the Welsh Assembly Government and local government include:

- Support for collaborative projects between Local Authorities to introduce food waste collections (funding by the Welsh Assembly Government was only provided for joint initiatives from Local Authorities to procure food waste collection bags, bins and vehicles).
- Support by the Welsh Assembly Government for Local Authorities to procure jointly in “hubs” contracts to treat food waste using anaerobic digestion.
- Support by the Welsh Assembly Government for Local Authorities to procure jointly in “consortia” contracts to treat residual municipal waste.

Local Authorities need to plan to achieve the targets set in Towards Zero Waste, the Waste (Wales) Measure 2010 and this sector plan, against the background of financial constraint. To do this they will need to consider a range of activities to promote efficiency. These might include:

- The merging of the waste functions of two or more Local Authorities – perhaps extending as far as setting up regional waste collection authorities.
- Joint procurement of goods and services, including collection services where currently contracted out – perhaps through a regional consortium approach.
- Waste and finance benchmarking to identify financial efficiencies.
- Service efficiency improvements.
- Systems based review.
- Empowering the workforce and reducing management overheads.

The Welsh Assembly Government will continue to work with the WLGA and its Waste Improvement Programme along with Local Authorities to identify how services can be optimised to provide cost effective services to householders and businesses in order to release financial resources for investment elsewhere. This collaborative approach will be taken forward through the Collaborative Change Programme already described, which is aimed at optimising efficiencies and as far as practicably

possible encouraging Local Authorities to adopt the collections blueprint prepared by the Welsh Assembly Government.

3.4.5.2 Actions for the Welsh Assembly Government

i) Waste (Wales) Measure 2010

The Waste (Wales) Measure 2010 was passed by the National Assembly for Wales in November 2010 and received Royal Approval in December 2010.

The Measure sets statutory targets for the percentage of Local Authority collected municipal waste material to be recycled, prepared for re-use and composted as well as making Local Authorities liable to pay penalties in the event that they fail to meet these targets.

Under the provisions of the Measure, the following were issued for consultation from 1 December 2010 until 26 January 2011:

- The draft Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011;
- The draft Recycling, Preparation for Re-use and Composting Targets (Monitoring and Penalties) (Wales) Regulations 2011 were consulted on.

At the same time the Welsh Assembly Government also consulted on:

- a Draft Protocol for the Imposition of Penalties under the Landfill Allowances Scheme (Wales) Regulations 2004 and the Recycling, Preparation for Re-use and Composting Targets (Monitoring and Penalties) (Wales) Regulations 2011 [the Draft Penalties Protocol]; and
- Draft Guidance in support of The Draft Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011 and The Draft Recycling, Preparation for Re-use and Composting Targets (Monitoring and Penalties) (Wales) Regulations 2011

j) The Sustainable Waste Management Grant (SWMG)

The Welsh Assembly Government funds approximately 85 per cent of the municipal waste service provided by Local Authorities. The Welsh Assembly Government is obliged by the statutory powers under which it operates to ensure that the funding it provides supports the delivery of Welsh Assembly Government policies. The Welsh Assembly Government has a statutory duty to promote sustainability under the Government of Wales Act. Local authorities also have a duty to have regard to sustainability in their improvement programmes.

Since 2001-02 the Welsh Assembly Government has provided nearly £400 million of additional funding to local government in the form of the SWMG to increase recycling rates. The Welsh Assembly Government has applied and will continue to apply conditions to the use of SWMG which may vary from time to time to reflect policy.

k) Supporting the development of recyclate, compost and AD digestate markets

Actions to support the development of recyclate and compost markets were identified in Wise About Waste (Part Two contained a compost market development plan), and the delivery of these actions has been supported by the Welsh Assembly Government ever since. The need for further support for the development of additional markets for recyclate, compost and AD digestate will be addressed under the Collection, Infrastructure and Markets Sector Plan.

The development of markets for compost and AD continues to be a priority for the Welsh Assembly Government. Although the Quality Protocols for Compost and AD digestate will provide end-users with confidence in the quality of these products, there still remain some barriers that need to be overcome and further work is required to develop and grow the market for these products.

The Welsh Assembly Government is providing support to WRAP Cymru via its organics programme to significantly increase diversion of biowastes, particularly food waste, into quality compost and AD digestate. The primary aim of which, is to increase the use of PAS 100 compost/PAS 110 digestate through new demand for the product. WRAP Cymru will also work with the key market sectors (agriculture, forestry horticulture, landscape, and regeneration) to disseminate WRAP R&D and best practice information to help address barriers within these markets and promote greater use of quality compost and digestate.

Significant behavioural change regarding the use of quality compost and digestate can be achieved if there is accurate, technical and financial information available to the potential end users of these products. WRAP Cymru have carried out R&D projects to address “gaps” or barriers to use in different markets.

In addition, the Welsh Assembly Government is working in partnership with Local Authorities and other stakeholders to deliver food waste treatment capacity across Wales to meet landfill diversion targets specified by the EU Landfill Directive (1999) and the Landfill Allowance Scheme Regulations (Wales) 2004. This programme (assisted by WRAP Cymru) will also provide food producers and purchasers with confidence that there are good potential markets for AD digestate and enable them to develop these markets.

l) Working with retailers to increase the recyclability and recycled content of products and packaging

The Welsh Assembly Government will be working with grocery retailers in Wales to develop and implement a dedicated Food Manufacturing, Services and Retail Sector Plan that is one of the key action plans for the delivery of Towards Zero Waste. This will focus on food and its associated packaging. Other retail products will be

addressed in the Industrial and Commercial Sector Plan. The aim is to obtain signed up commitment from the sectors involved. Eco design will ensure that products and packaging are designed so that when they reach their end of life they can be easily recycled in a manner appropriate to the aims of Towards Zero Waste. Within these sector plans, the retail sector will be encouraged to ensure that these principles are adopted in their supply chains.

The Welsh Assembly Government also funds other initiatives that retailers have signed up to such as the Courtauld Commitment that has been brokered by WRAP. Using 2009 data and working to a 2012 deadline, the Courtauld Commitment Phase 2 moves away from solely weight-based targets and aims to achieve more sustainable use of resources over the entire lifecycle of products, throughout the whole supply chain. The new commitment contains the following target that relates to an increase in the recyclability and recycled content of packaging to be achieved by the end of 2012:

- To reduce the weight, increase recycling rates and increase the recycled content of all grocery packaging, as appropriate. Through these measures the aim is to reduce the carbon impact of this grocery packaging by 10 per cent by then end of 2012 (this equates to a 16 per cent reduction if the predicted year-on-year growth in sales over this period is realised).

m) Consideration of extended producer responsibility

The Welsh Assembly Government will explore to see whether it would be practical or desirable to introduce extended producer responsibility legislation with the outcome of delivering more recycling and with producers potentially bearing a greater degree of responsibility for funding the collection by Local Authorities of wastes for recycling and AD.

n) Delivering the UK Packaging Strategy 2008

In June 2009, Defra, BIS and the Devolved Administrations published 'Making the Most of Packaging: A Strategy for a low-carbon economy'¹⁷.

The key aim of this strategy is to minimise the environmental impact of the packaging over its whole life cycle without compromising its ability to protect the product. The Strategy states that 'packaging recycling UK wide has risen massively over the past decade and analysis shows that more can be achieved over the next 10 years'.

¹⁷ <http://www.defra.gov.uk/environment/waste/producer/packaging/strategy.htm>.

There are 4 main actions within this strategy that relate to recycling:

- **Improving recycling rates for each of the main packaging materials:** The collection of aluminium, glass and plastic need to be increased from commercial and industrial sources. With regards to aluminium, this includes recycling at work, Local Authority foil and can collections and investment in on-the-go infrastructure. Wales (with England) consulted on the ban of this (and other) materials to landfill. Responses to this consultation are being collated and will be reflected in sector plans as appropriate. Glass collection rates will be increased through voluntary agreements and also there will be consultation on the reduction of waste glass used as aggregate due to the improved environmental (and possible economic) gains to be had from closed loop recycling. New producer responsibility targets may be set for household plastic bottles recycling and this may be widened to other types of plastic.
- **Improving the quality of recyclates:** This is essential for UK reprocessors and for UK access to export markets. The ambition within this strategy is that by 2019, going for the high quality market is the standard. Businesses and Local Authorities need to treat recycling as a source of potential revenue rather than avoiding landfill tax liabilities. This aligns with the Wales stance on kerbside sort collection methods. Quality of material to and from material recovery facilities (MRF) will also be crucial and operators have a role to play in ensuring this. The Environment Agencies are working with Local Authorities and the waste sector to ensure waste compliance with regards to waste exports.
- **Increasing recycling content:** Increasing recycled content of packaging in the supply chain could help the UK recycling system's resilience to market changes. We will work with retailers and manufacturers to secure this, through the Courtauld commitment.
- **More investment by packaging producers:** This is needed to increase recycling and improve quality of materials collected for recycling. This aligns with the recent consultation on the changes to the Producer Responsibility Regulations and revised targets(outlined below) and other measures to ensure that the current market-based system delivers additional funding effectively.

o) Producer Responsibility Obligations (Packaging Waste) Regulations

The EC Directive on Packaging and Packaging Waste aims to harmonise the management of packaging waste by minimising the impact of packaging and packaging waste on the environment and by avoiding obstacles to trade and distortion and restriction of competition within the Community. Minimum recovery (60 per cent) and recycling (55 per cent) targets are set for packaging waste to be met by 31 December 2008 as well as material – specific recycling targets (glass (60), metals (50), plastics (22.5) and wood (12.5 per cent)). After 2008, Member States must continue to meet these minimum targets but there is freedom to set higher targets.

In the UK, the Producer Responsibility Obligations (Packaging Waste) Regulations implement this Directive through a system of producer responsibility (an extension of the polluter-pays principle). The Directive is transposed into a series of UK targets for businesses handling packaging which reflect the UK packaging market and waste arisings; certain businesses are obligated depending on turnover (£2m) and quantity of obligated packaging handled per annum (50 tonnes).

The UK is currently meeting its obligations.

These targets ran until 2010 and targets have been set, from 2011 onwards. Consultation on revised targets was undertaken in 2010.

- New material specific recycling targets have been set up to 2012 - The targets will ensure that the UK continues to meet EU Directive targets and are similar to the targets for the last two years.
- Measures to improve the transparency of funding in the existing system and a number of technical changes to improve the operation of the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 are also being introduced
- In addition, the Government is introducing technical changes which are intended to clarify and update the Regulations. They include two deregulatory changes, one to remove the requirement for independent audit, the other which allows smaller businesses to use a more simple mechanism to calculate their legal obligation, which will save industry an estimated £285,000-£371,000 annually.

p) Transposition of the revised Waste Framework Directive (2008/98/EC)

The EU Waste Framework Directive lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste, and by reducing the overall impacts of, and improving the efficiency of, resource use. Revisions to the Waste Framework Directive (2008/98/EC) were adopted in December 2008 and are transposed by The Waste (England and Wales) Regulations 2011.

In respect of aspects of the revised Directive that apply to the recycling of municipal waste collected by Local Authorities, the Directive includes requirements for Member States to:

- Apply the waste hierarchy in waste management legislation and policy.
- Promote the high quality recycling of waste materials as part of the overall aim to make the EU a 'recycling society'.
- By 2015, ensure that separate collection is set up for at least the following: paper, metal, plastic and glass.
- By 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households shall be increased to a minimum of overall 50 per cent by weight.

This sector plan will form part of the Welsh Assembly Government’s compliance with a number of the requirements of the Directive.

3.4.5.3 The need for additional evidence

The Welsh Assembly Government will explore ways to build on its existing evidence base, drawing, as appropriate, on studies carried out elsewhere, and commissioning, as necessary, and with others as appropriate, new research. Areas where additional evidence in respect of the recyclate collection service needs to be sourced or commissioned include:

- Sustainable development evaluation of a sample of collection systems in Wales to compare kerbside sort and co-mingled services – to include a cradle to grave assessment of cost and ecological/carbon footprints.
- An evaluation of the costs (and /or financial savings), and practicalities for Local Authorities in Wales of the transition from a co-mingled collection service to a kerbside sort collection service.
- Audit trails on the destination of recyclate and how the recyclate is managed.
- Research recycling opportunities for niche materials.

3.4.6 Indicators and review of progress

3.4.6.1 Monitoring and measuring

The following indicators are proposed (Table 8):

Table 8: Proposed indicators for the recyclate collection service

What we will monitor	How we will monitor	Who will monitor it
Collection services		
Quantity of household and municipal waste recycled/composted (AD) targets	We will continue to measure the levels of recycling and composting (AD) of household and municipal waste through Local Authorities reporting their waste statistics via WasteDataFlow.	Welsh Assembly Government
Number of households receiving a kerbside waste collection in Wales for key materials	We will monitor the number of households receiving a kerbside recycling collection service in Wales, including for specific waste materials.	Welsh Assembly Government
Household satisfaction with collection services	<i>Towards Zero Waste (TZW) Indicator</i> We will measure community satisfaction of involvement in waste	Welsh Assembly Government

What we will monitor	How we will monitor	Who will monitor it
Collection services		
	services and activities, through the 'Living in Wales Survey'.	
Access to knowledge and understanding	<i>TZW Indicator</i> We will measure citizens' access to knowledge and understanding of resource efficiency and waste management through Waste Awareness Wales surveys.	Waste Awareness Wales (WAW)
Willingness to participate in recycling	We will periodically carry out attitude and behavioural surveys of the public to gauge the attitude to, and participation in, waste recycling activities.	WAW
Extent and effectiveness of recycling awareness campaigns	We will monitor the following: 1. Number, type and extent of recycling campaigns in each Local Authority. 2. Evaluation of the effectiveness of each type of campaign by environmental and social outcomes.	Local Authorities as co-ordinated by WAW/Data Unit
Access to jobs and employability	We will commission research on indicators to monitor and measure accessibility to jobs and employability in respect of recycling.	Welsh Assembly Government
Costs of service provision	We will measure the costs for each Local Authority of collecting waste and the costs of disposing of waste per person/per household/per tonne.	Welsh Assembly Government/WLGA
Recyclability of household waste	We will carry out periodic compositional analysis studies that will include analysis of composition of waste for recyclability.	WRAP – next compositional analysis undertaken
Destination and fate of recyclates	We have amended WasteDataFlow to better record the final destination of recyclate through the creation of Question 100 and will provide guidance to Local Authorities. We will examine the feasibility of amending WasteDataFlow to ensure that the type of recycling (closed or	Welsh Assembly Government/Environment Agency Wales/WLGA Waste Data Unit

What we will monitor	How we will monitor	Who will monitor it
Collection services		
	open loop) is identified, including whether it is practical for Local Authorities to gather this information.	
<i>Rejects from recycling/composting/AD</i>	We will amend WasteDataFlow to better record rejects from secondary and tertiary materials recycling facilities and reprocessors, and will provide guidance to Local Authorities. Audit and compliance checks will be increased.	Welsh Assembly Government/Environment Agency Wales/WLGA Waste Data Unit

3.4.6.2 Review

The Welsh Assembly Government will carry out an ongoing review of how much Local Authority collected municipal waste can be and is being recycled, and what guidance is required to assist with meeting the targets and the SD outcomes.

3.4.7 Summary of actions on collections for recycling, composting and anaerobic digestion

Table 9 provides a summary of the actions proposed to deliver the household waste prevention target and achieve the objectives set in Section 3.4.2:

Table 9: Summary of proposed actions to delivery the outcomes, targets and objectives for the recycling service

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
a) Increasing recycling rates to meet targets	Local Authorities	Short to medium term: From 2011 to 2025	Local Authorities to enhance recycling services to meet new targets. Local Authorities to use funding from Welsh Assembly Government provided SWMG, apply charging where already allowed to do so, increase income from recycle, and make efficiency savings in order to fund enhancement of services.	<p>1. The waste recycling targets set in Towards Zero Waste are met.</p> <p>2. Waste that cannot be 'prepared for reuse' is recycled, composted (for green waste) or anaerobically digested (in the case of food waste).</p> <p>8. Citizens are able to benefit socially (through greater social cohesion and community well being) from the municipal waste service – through job creation and training, and closer engagement with the household waste collection workforce with individuals and communities.</p> <p>9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances.</p> <p>10. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).</p> <p>11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment.</p> <p>12. The priority materials identified in the strategy will be prioritised for recycling.</p> <p>13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.</p> <p>14. Obligations for Wales under EU and UK waste legislation are met.</p>
b) Improving consistency in recyclable	Local Authorities	Short term: From 2011 to 2015	Local Authorities to strive to offer standard materials	6. There is consistency across Wales in the type of materials collected for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
materials collected			<p>on kerbside recycling collection.</p> <p>Local Authorities to use funding from Welsh Assembly Government provided SWMG, apply charging where already allowed to do so, increase income from recycle, and make efficiency savings in order to fund enhancement of services.</p>	<p>waste composition, and are consistent across Wales in the collection of recyclable materials.</p> <p>9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances.</p> <p>12. The priority materials identified in the strategy will be prioritised for recycling).</p>
c) Collecting and delivering quality materials to end markets	Local Authorities	Medium term: From 2011 to 2025	Local Authorities to participate in the Collaborative Change Programme.	<p>3. Waste collection systems enable high levels of high quality recycling to be achieved, so that the recycle can feed as far as possible into reprocessing facilities in Wales (retaining the economic value of recycle within Wales).</p> <p>5. There is a focus on serving local recycle markets that are 'closed loop' recycling systems.</p> <p>6. There is consistency across Wales in the type of materials collected for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in waste composition, and are consistent across Wales in the collection of recyclable materials.</p> <p>11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment.</p> <p>13. Recycling services are provided in a way that promotes sustainable</p>

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
				development and offers the opportunity for lower overall whole system costs.
d) Achieving greater transparency in how much, and where, materials are recycled	Local Authorities and Welsh Assembly Government	Short term: From October 2010 onwards	Local Authorities to improve the reporting of rejects and end destination of materials in WateDataFlow. Welsh Assembly Government/WLGA to prepare joint guidance for Local Authorities.	7. Citizens are motivated and enabled to recycle as much as possible, and are able to access information on why they should be recycling, how they should do it and what happens to their recyclate.
e) Improve Household Waste Recycling Centres	Local Authorities	Short term: From 2011 to 2015	Local Authorities to improve HWRCs. Additional funding for expansion of HWRCs to be provided by Welsh Assembly Government RCAF. Welsh Assembly Government to provide self assessment tool for Local Authorities to assess their HWRCs.	1. The waste recycling targets set in Towards Zero Waste are met. 2. Waste that cannot be 'prepared for reuse' is recycled, composted (for green waste) or anaerobically digested (in the case of food waste). 6. There is consistency across Wales in the type of materials collected for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in waste composition, and are consistent across Wales in the collection of recyclable materials. 9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances. 11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment.
f) Enhance bring site provision	Local Authorities	Short term: From 2011 to 2015	Local Authorities to increase the number of closed loop recycling bring	1. The waste recycling targets set in Towards Zero Waste are met. 2. Waste that cannot be 'prepared for reuse' is recycled, composted (for green waste) or anaerobically digested (in the case of food waste).

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
			<p>sites.</p> <p>Additional funding for expansion of high quality bring sites to be provided by Welsh Assembly Government RCAF.</p>	<p>6. There is consistency across Wales in the type of materials collected for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in waste composition, and are consistent across Wales in the collection of recyclable materials.</p> <p>9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances.</p> <p>11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment.</p>
g) Enhance provision of a recycling service for businesses	Local Authorities	Short to medium term: From 2011 to 2025	<p>Local Authorities to provide a recycling service for businesses where the market is not operating well, especially in the more remote rural areas, and for materials such as food waste.</p> <p>There will be no additional cost to Local Authorities as they can fully recover costs. The collection of a greater quantity of recyclate may reduce unit costs, especially for food</p>	<p>1. The waste recycling targets set in Towards Zero Waste and the Waste (Wales) Measure 2010 are met.</p> <p>2. Waste that cannot be 'prepared for reuse' is recycled, composted (for green waste) or anaerobically digested (in the case of food waste).</p> <p>13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.</p>

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
			<p>waste treatment.</p> <p>Collecting additional biodegradable waste from business for recycling or AD will not detrimentally affect compliance with LAS targets.</p>	
h) Enhancing recycling service value for money performance	Local Authorities	Short term: From 2011 to 2015	<p>Local Authorities to participate in the Collaborative Change Programme.</p> <p>Local Authorities to participate in financial benchmarking. Reports and further investigation via County Surveyor's Society (CSS).</p> <p>Local Authorities to undertake more joint procurement of plant and equipment.</p> <p>Local Authorities to explore shared services.</p>	<p>4. Waste transport systems are fuel efficient using, where practicable, renewable, low carbon fuels.</p> <p>9. The opportunity is afforded to all the citizens of Wales to contribute to waste prevention, reuse and recycling, irrespective of where they live, their health, mobility and personal circumstances.</p> <p>10. The waste collection workforce is equipped with the necessary skills, qualifications and training to help support sustainable management of municipal waste (including appropriate re-training where the nature of the job changes).</p> <p>13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.</p>

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
i) Waste (Wales) Measure 2010	Welsh Assembly Government	From 2010	<p>Measure now in force.</p> <p>Under the provisions of the Measure, the following were issued for consultation from 1 December 2010 until 26 January 2011:</p> <ul style="list-style-type: none"> • The draft Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011; • The draft Recycling, Preparation for Re-use and Composting Targets (Monitoring and Penalties) (Wales) Regulations 2011 were consulted on. 	<p>1. The waste recycling targets set in Towards Zero Waste are met.</p> <p>14. Obligations for Wales under EU and UK waste legislation are met.</p>

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
j) The Sustainable Waste Management Grant (SWMG)	Welsh Assembly Government	Short to medium term: From 1 April 2011 to 2020	The SWMG to be continued to be ring fenced for source separated recycling and composting/AD.	The waste recycling targets set in Towards Zero Waste are met.
k) Supporting the development of recyclate, compost and AD digestate markets	Welsh Assembly Government and WRAP	Short term: From 2011 to 2015	WRAP to continue their organics programme in Wales, with a priority for developing further markets for AD digestate. Welsh Assembly Government working with WRAP and Local Authority hubs to provide support to AD companies for markets for the digestate under the Municipal Food Waste Treatment Procurement Programme.	5. There is a focus on serving local recyclate markets that are 'closed loop' recycling systems. 8. Citizens are able to benefit socially (through greater social cohesion and community well being) from the municipal waste service – through job creation and training, and closer engagement with the household waste collection workforce with individuals and communities. 11. The collection of waste for recycling or disposal is carried out without endangering human health, and without harming the environment. 13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.
l) Working with retailers to increase the recyclability and recycled content of	WRAP	Short to medium term: From 2011 to 2025	WRAP to ensure delivery of Courtauld 2 and develop plans to	1. The waste recycling targets set in Towards Zero Waste and Waste (Wales) Measure 2010 are met. 6. There is consistency across Wales in the type of materials collected

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
products and packaging			extend this beyond 2012.	for recycling and AD by Local Authorities. Collection and sorting systems are flexible enough to cope with all likely future changes in waste composition, and are consistent across Wales in the collection of recyclable materials.
m) Consideration of extended producer responsibility	Welsh Assembly Government	Short term: From 2011 to 2015	Welsh Assembly Government to discuss with the retailers the potential for voluntary extended producer responsibility in Wales. To be developed as part of the Food Manufacture, Services and Retail Sector Plan and the Industrial and Commercial Sector Plan..	<p>1. The waste recycling targets set in Towards Zero Waste and Waste (Wales) Measure 2010 are met.</p> <p>3. Waste collection systems enable high levels of high quality recycling to be achieved, so that the recyclate can feed as far as possible into reprocessing facilities in Wales (retaining the economic value of recyclate within Wales).</p> <p>5. There is a focus on serving local recyclate markets that are 'closed loop' recycling systems.</p> <p>13. Recycling services are provided in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.</p>

Action	By Whom	By When	How and implications	Link to objectives listed in section 3.4.2.
n) Delivering the UK Packaging Strategy 2008	Welsh Assembly Government	Short term: From 2010 to 2015	Welsh Assembly Government to work with Defra and the other Devolved Administrations to ensure delivery of the Strategy. The Food Manufacturing, Services and Retail Sector Plan to consider if any additional specific actions need undertaking in Wales.	1. The waste recycling targets set in Towards Zero Waste are met.
o) Consultation on increasing the recycling targets under the Producer Responsibility (Packaging Waste) Regulations	Welsh Assembly Government	Short term: From 2010 to 2015	Joint UK consultation paper published, and responses to be analysed and considered.	1. The waste recycling targets set in Towards Zero Waste are met.
p) Transposition of the revised Waste Framework Directive (2008/98/EC)	Welsh Assembly Government and Defra	From early 2011	Welsh Assembly Government worked with Defra to transpose into England and Wales legislation the requirements of the Directive.	14. Obligations for Wales under EU and UK waste legislation are met.

3.5 Sustainable treatment and disposal

Energy recovery and incineration

Waste hierarchy

The revised **Waste Framework Directive** puts energy recovery above incineration, for municipal waste, and differentiates them as follows (in Annexes I and II) in the order of the waste hierarchy:

Recovery Operation: R1 - Use principally as a fuel or other means to generate energy

This includes incineration facilities dedicated to the processing of municipal solid waste only where their energy efficiency is equal to or above:

- 0,60 for installations in operation and permitted in accordance with applicable Community legislation before 1 January 2009.
- 0,65 for installations permitted after 31 December 2008.

using the following formula:

$$\text{Energy efficiency} = (E_p - (E_f + E_i)) / (0,97 \times (E_w + E_f)).$$

In which:

E_p means annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2,6 and heat produced for commercial use multiplied by 1,1 (GJ/year); E_f means annual energy input to the system from fuels contributing to the production of steam (GJ/year); E_w means annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/year); E_i means annual energy imported excluding E_w and E_f (GJ/year); 0,97 is a factor accounting for energy losses due to bottom ash and radiation.

This formula shall be applied in accordance with the reference document on Best Available Techniques for waste incineration.

Disposal operation: D10 – Incineration on land

This will include incineration facilities dedicated to the processing of municipal solid waste only where their energy efficiency is less than:

- 0,60 for installations in operation and permitted in accordance with applicable Community legislation before 1 January 2009.
- 0,65 for installations permitted after 31 December 2008.

using the above formula.

Issue of permits

Article 23(4) of the revised Waste Framework Directive sets the following requirement:

- “It shall be a condition of any permit covering incineration or co-incineration with energy recovery that the recovery of energy take place with a high level of energy efficiency.”

3.5.1 The benefits of a sustainable approach

Evidence gathered by the Welsh Assembly Government, including the sustainable waste management option appraisals carried out by the three Regional Waste Groups in their 1st revision of the Regional Waste Plans carried out in 2008, indicates that the treatment methods most likely to deliver best the sustainable development outcomes identified in One Wales, One Planet and in Towards Zero Waste are as follows:

- Food waste: Separate collection of food waste and treatment in anaerobic digestion (AD) plants to produce renewable energy and a valuable natural fertiliser.
- Residual waste: Use as a fuel of the residual municipal waste left after recycling in energy recovery plants with a high energy efficiency (preferably with a thermal efficiency of 60 per cent or greater, but at the least meeting the recovery threshold efficiency formula laid down in the revised Waste Framework Directive – see box above).

Both forms of treatment yield significant reductions in greenhouse gas emissions associated with waste management, as verified by life cycle assessment studies.

Both AD and energy from waste (EfW) plants are very tightly regulated by Environmental Permits issued by the Environment Agency. Emission controls for EfW plants have to meet EU Waste Incineration Directive limits that are currently far tighter than controls over other comparable industrial and power plants that do not use waste as a fuel. Health Impact Assessments (HIA) carried out for both the Regional Waste Plans and Towards Zero Waste conclude that modern well regulated waste treatment plants do not have a significant impact on health, and therefore should not be a cause for concern. The Health Protection Agency issued “The Impact on Health of Emissions to Air from Municipal Waste Incinerators” in September 2009 which presented the results of a review of research undertaken to examine the suggested links between emissions from municipal waste incinerators and effects on health. The research concluded that:

“While it is not possible to rule out adverse health effects from modern, well regulated municipal waste incinerators with complete certainty, any potential damage to the health of those living close-by is likely to be very small, if detectable. This view is based on detailed assessments of the effects of air pollutants on health and on the fact that modern and well managed municipal waste incinerators make only a very small contribution to local concentrations of air pollutants. The Committee on Carcinogenicity of Chemicals in Food, Consumer Products and the Environment has reviewed recent data and has concluded that there is no need to change its previous advice, namely that any potential risk of cancer due to residency near to municipal waste incinerators is exceedingly low and probably not measurable by the most modern techniques. Since any possible health effects are likely to be very small, if detectable, studies of public health around modern, well managed municipal waste incinerators are not recommended.”

The consultation on this sector plan was accompanied by an HIA that updates the HIA carried out for Towards Zero Waste.

3.5.2 Specific objectives

1. The targets (including caps) set in Towards Zero Waste are met.
2. The necessary sustainable treatment and disposal infrastructure is made available or accessible in order to help Local Authorities meet the targets set in Towards Zero Waste and proposed in this sector plan.
3. All recycle/compost/AD digestate generated in Wales is reprocessed and used in Wales as far as possible.
4. Residual treatment plants deliver carbon reduction outcomes (e.g. high energy efficiency EfW plants).
5. Achieving value for money for Welsh Assembly Government funding of municipal waste.
6. The management of waste must be carried out without endangering human health, and without harming the environment.
7. Waste management infrastructure in Wales contributes to improving the health and wellbeing of the population of Wales through innovation and high skilled jobs.
8. Local people are proud of the sustainable waste management facilities in their locality, understand why they are there and are empowered to use them.
9. Obligations for Wales under EU and UK waste legislation are met.

3.5.3 Targets

3.5.3.1 Energy from Waste caps

The following caps for limiting the amount of energy from waste (EfW) in respect of the municipal waste collected by Local Authorities have been set in Towards Zero Waste:

Target for:	Targets for each Target Year				
	09-10	12-13	15-16	19-20	24-25
Maximum level of energy from waste of municipal waste for individual Local Authorities	-	-	42%	36%	30%

It is important to note that these caps refer to individual Local Authorities only, and that they reflect the recycling targets also set in Towards Zero Waste. Thus, as the recycling target for individual Local Authorities is 58 per cent for 2015-16, this means

that automatically no more than 42 per cent of their municipal waste can be counted as being subjected to energy recovery.

It is the Assembly Government's intention that the recycling of processed incinerator bottom ash (IBA) that can be used as a secondary aggregate will be included as counting towards Local Authority recycling targets providing it is used in compliance with a relevant Quality Protocol agreed by the Environment Agency. Work is currently progressing to determine if it is possible to develop a Quality Protocol for IBA. Clarity on what can count towards the statutory recycling targets set in the Waste (Wales) Measure 2010 is being provided through the guidance developed to accompany the Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011. If the recycling of processed IBA is counted towards the recycling figure, then the cap on energy from waste would be net of any recycling of bottom ash.

If all or part of the IBA cannot be recycled, or cannot be counted as being recycled, then a greater part of the recycling targets would have to be delivered through front end separate collection of dry recyclables and garden/food waste.

3.5.3.2 Landfill Limitation Targets

The following targets for limiting the amount of landfill in respect of the municipal waste collected by Local Authorities have been set in Towards Zero Waste:

Target for:	Targets for each Target Year				
	09-10	12-13	15-16	19-20	24-25
Maximum level of landfill of municipal waste	-	-	-	10%	5%

The landfill restriction targets will apply to each individual Local Authority. It is important that **all** fractions of municipal waste landfilled are counted against these targets – for example, the following fractions must be included if landfilled:

- All primary, secondary, tertiary etc material recycling facility (MRF) rejects, reprocessor rejects.
- Rejects from exempt facilities (e.g. open window composting plants).
- Rejected loads.
- Hazardous incinerator fly ash.
- EfW bottom ash.
- And anything else landfilled.

This information must be reported accurately onto WasteDataFlow.

3.5.3.3 Landfill Allowances Scheme Targets to 2020

The approach the UK is taking to calculating the EU Landfill Directive targets to reduce the amount of biodegradable municipal waste sent to landfill is changing.

Over the last year Defra have been in discussions with the European Commission; there has been consultation with Welsh Assembly Government throughout this process. It is now recognised that the UK's existing approach is focused too narrowly on waste collected by Local Authorities. The new approach will include much more commercial waste than currently. This is consistent with the increased focus we want to place on commercial and industrial waste; and to bring greater convergence between the management of household and commercial waste so that the environmental impacts of waste are addressed regardless of its source. In the past recycling levels for commercial waste have been higher than household waste, but now thanks to Welsh Assembly Government targets and funding support, the levels of household waste recycling achieved by Local Authorities in Wales have increased substantially over the last seven years and are now on a par with those of commercial waste.

The new approach to municipal waste in the UK is based on the EU list of wastes or 'European Waste Catalogue' (EWC). It will include all biodegradable waste landfilled that is coded under Chapter 20 of the EWC – entitled "Municipal Waste (household waste and similar commercial, industrial and institutional wastes whether collected by Local Authorities or private contractors)". It will also include some waste coded under Chapter 19 which covers waste landfilled that has been through some form of treatment process and which originated as a Chapter 20 type waste (for example material that has been through a Mechanical Biological Treatment (MBT) plant that ends up in landfill).

In practice this will mean that the amount of waste counted as municipal waste will increase significantly. It will not mean that any additional waste is sent to landfill and is simply a change in the way the information is recorded. But changing the way municipal waste is counted will mean amending the baseline on which the landfill diversion targets were set, and thus the 2010/2013/2020 targets for the UK. Defra's provisional analysis is that the UK's position relative to meeting the landfill targets will be similar to the previous approach, and we are confident of meeting the first target year in 2010.

In making this change we want to ensure that Local Authorities are not disadvantaged. They will not be obligated to manage this additional waste, and we have no plans to change the coverage of the Landfill Allowance Scheme (LAS) in Wales or to change their existing allowances. They have made great strides in reducing the amount of waste they send to landfill and their efforts should be recognised. Further effort to reduce the landfilling of the biodegradable municipal waste that they collect needs to be made as planned.

The amount of biodegradable municipal waste that Local Authorities in Wales can landfill collectively and individually has been notified to Local Authorities by the Minister (the All Wales figure for each year is shown in Table 10):

Table 10: The allocation to Welsh Local Authorities of total landfill allowances for biodegradable municipal waste for 2010-11 to 2019-20

	Year									
	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20
Landfill allowances available for Welsh Local Authorities (tonnes)	630,000	550,000	470,000	450,000	430,000	410,000	390,000	370,000	350,000	330,000

3.5.3.4 Residual household waste – indicative levels

Residual household waste targets were proposed in the consultation draft of Towards Zero Waste. The level of 150kg per person was proposed for 2024-25 on the basis of this representing 30 per cent of total household waste, with the assumption of zero growth in household waste from the current average level of around 500kg per person (for 2008-09). If household waste levels continue to decrease, and the -1.2 per cent per annum reduction target is met, then the total amount of household waste per person in 2024-25 would be around 410kg. A residual target of 150kg would then represent 37 per cent of household waste, at a time when the municipal waste recycling target would be 70 per cent. Setting a residual target for 2024-25 is thus not appropriate, as it is at odds with both the reduction target, and the recycling target, both of which should take precedence over a residual target.

There are also significant problems in setting a single binding residual waste target that is the same for each Local Authority. This is because “household waste” as recorded on WasteDataFlow covers more than just waste from households, and the different categories of household waste vary significantly across Wales. Partially as a result of this, baseline total household waste figures vary significantly across Welsh Local Authorities. It could be claimed that Local Authorities with a lower baseline figure will find it easier to meet the 150kg target than those with a higher baseline figure.

However, it is recognised that an indicative residual level for each year would have value, as it helps Local Authorities plan for the procurement of residual treatment contracts, and it helps with communicating to householders the need to reduce residual household waste. Indicative, non binding, residual household waste levels are identified below on the basis of household waste decreasing at -1.2 per cent per annum, and the statutory recycling targets (as applied to municipal waste) being met for household waste. :

Indicative level for:	Year				
	09-10	12-13	15-16	19-20	24-25
Residual household waste (kg per person per year)	300	231	195	158	123

Indicative level for:	Year		
	29-30	34-35	39-40
Residual household waste (kg per person per year)	114	105	96

3.5.4 Actions

3.5.4.1 Actions for local government

a) *Improve future LAS planning and forecasting*

Local Authorities need to plan ahead to determine how they are going to meet future LAS targets. A spreadsheet model has been provided to them to identify the quantities of different biodegradable components of the municipal waste that they collect that they will need to divert through recycling, composting and anaerobic digestion in order to meet the 2012-13 and 2019-20 targets. It is a requirement of receipt of the Sustainable Waste Management Grant that they make an annual return on the spreadsheet.

b) *Secure sufficient food waste treatment*

Local Authorities should separately collect food waste in order to meet recycling and EU driven landfill diversion targets, and significant additional funding has been required for them to achieve this. The Welsh Assembly Government considers that Anaerobic Digestion (AD) technology has a greater potential to have a positive impact on climate change than other food waste treatment technologies. AD can help positively address climate change by reducing greenhouse gas emissions and generating renewable energy.

The Welsh Assembly Government has created a capital and revenue financial support package for Local Authorities who wish to adopt AD technology.

Currently, Local Authorities in Wales are in collaborative procurement hubs to jointly secure food waste facilities. There are seven Hubs in the procurement programme (comprising 18 local authorities).

In terms of Welsh Assembly Government financial support the following is being provided:

- i. A contribution of 20 per cent of the net present value of the initial capital costs of the facilities, payable upon full service commencement (from SCIF).

- ii. A contribution of 15 per cent of the net present value of the facility gate fee, payable per annum on an annuity basis from full service commencement.
- iii. £2m per annum SCIF procurement/programme development support, over 3 years.

The Welsh Assembly Government has set up a Waste Procurement Programme that has prepared a suite of guidance and template documentation for the benefit of participating Local Authorities to ensure that they benefit from established best practice and lessons learned elsewhere and achieve a consistency of approach across all procurements. This will reduce procurement costs for the Hubs and simplify the bidding process for contractors. The programme has also:

- i. Developed the project review and scrutiny processes.
- ii. Facilitated a range of training and awareness raising events e.g. competitive dialogue, negotiation skills training, planning and community engagement.
- iii. Established a Planning Taskforce, to ensure that planning and site risks are identified and mitigated.
- iv. Established a Community Engagement Steering Group that steers the ongoing Community Engagement project started by Waste Awareness Wales in 2007 (as part of the delivery of Wise About Waste).
- v. Provided Partnerships UK transactor support to support Local Authority procurement projects.
- vi. Worked with WRAP in respect of its ongoing work to develop markets for compost and AD digestate, including involving the Rural Affairs Department to ensure promotion of the benefits of AD digestate to farmers.

Meeting the 2012-13 policy targets and 2013 EU targets is not without significant risk. In order to meet these targets and deliver Wales' sustainability aims, it is critical that the new food waste treatment facilities are put in place. Based on current levels of performance, Wales needs to divert an additional 128,000 tonnes p.a. of Biodegradable Municipal Waste (BMW) from landfill by 2013.

c) Generation of high quality compost/AD digestate

Local Authorities using the Sustainable Waste Management Grant to provide infrastructure for composting or anaerobic digestion either directly themselves or via a third party contract are strongly advised to take steps to ensure that the following criteria are met in the:

- Anaerobic Digestion (AD) infrastructure should be managed in a way that the digestate produced complies with both PAS 110 and the Anaerobic Digestion Quality Protocol.

- Compost infrastructure (for food and/or green waste) should be managed in a way that the compost produced complies with both PAS 100 and the Compost Quality Protocol.

This matter will be clarified in guidance accompanying The Recycling, Preparation for Re-use and Composting Targets (Definitions) (Wales) Order 2011.

d) Securing sustainable residual waste treatment

The results of the sustainability appraisals of the Regional Waste Plans (which included a Strategic Environmental Assessment and a Health Impact Assessment) identify that the most sustainable waste management option for dealing with residual waste is a range of techniques all variously involving an element of energy from waste (EfW). Additional evidence gathered by the Welsh Assembly Government has reinforced this conclusion¹⁸, and identifies the added carbon reduction benefits of high energy efficiency for EfW plants. The Welsh Assembly Government therefore wishes to see EfW with a high energy efficiency as being the primary way to manage the residual municipal waste that should not exceed by 2024-25 30 per cent of the total municipal waste collected in any year by Welsh Local Authorities. The Welsh Assembly Government is “technology” neutral when it comes to the choice of energy from waste technology used.

EfW is a proven technology with many reference plants in the UK and across Europe. Many are located in the centre of major European cities. EfW facilities also have the potential to generate heat and power which can be sold to the market. Securing a heat off-take contract can allow an EfW facility to operate more efficiently.

The Welsh Assembly Government is satisfied that treatment of residual waste by high efficiency EfW facilities (where practical producing electricity and/or heat through associated Combined Heat & Power (“CHP”) or heat only systems), is the best option for Wales in terms of its sustainable development obligations and reducing the impact of waste management activities on climate change.

Residual waste treatment contracts procured by Local Authorities should take account of the reduction targets of -1.2 per cent for household waste and -1.4 per cent per annum commercial waste (both in respect of a 2007 baseline). However, it is up to individual local authorities to make their own judgment on likely future tonnages of residual waste arising in their area and the treatment capacity they need to procure. It is important for sound financial reasons that guaranteed minimum tonnages agreed in contracts take account of the likely reducing quantities of residual waste that will be generated as a result of actions put in place to meet the policies and targets laid out in Towards Zero Waste and in this sector plan. Nevertheless, bidders for the residual municipal waste treatment contracts are being encouraged to scale up to provide capacity for residual industrial and commercial waste (noting that this should not inhibit the achievement of the 70 per cent recycling targets, nor the waste reduction targets set in Towards Zero Waste for these two waste streams).

¹⁸ AEA Report - Modelling of Impacts for Selected Residual Waste Plant Options using WRATE, published September 2009.

The scale of treatment facilities should balance cost with considerations of proximity. Although intuitively there are likely to be economies of scale with larger facilities, the empirical data does not necessarily support this assumption because the cost per tonne gate fee for a plant depends upon a number of independent variables, with often the way that a project is financed being the largest determining factor in the final contractual gate fee. Local Authorities are advised to keep an open mind so that multi-facility smaller scale options are not ruled out, especially if through the testing of the market they offer the most sustainable solution at an affordable price. Local Authority hubs and consortia are advised to be “size neutral” and to not rule out a multi-site facility contract. Strict sustainable development criteria are in place to assess tenders, as guided by the Waste Procurement Programme Office.

Also, innovative technology should be considered favourably, where cost effective and the balance of risk is low.

In order to support Local Authorities in obtaining a solution for the treatment of their residual municipal waste and to reduce costs, the Welsh Assembly Government has encouraged them to work in consortia and has put in place an extensive programme of support.

Wales requires residual treatment facilities to be in place to meet the 2019-20 policy targets and 2020 EU targets. However, earlier delivery of residual waste infrastructure is essential as it is projected by the Environment Agency that landfill availability will run out prior to 2020 in a number of regions:

Notwithstanding the above, with landfill prices, including Landfill Tax, due to rise to £80 per tonne in the short term (by April 2014), and the annual increases in landfill operator prices driven by increased environmental, health and safety and operations costs, means that the total cost of disposing on waste to landfill will outstrip treatment prices by 2012-13 for food waste treatment and 2014-15 for residual waste. As such the economic argument for the necessity for appropriate infrastructure and its early delivery is also inescapable.

The residual waste treatment programme is a longer term programme of investment. It aims to meet landfill diversion targets for 2020 and views residual waste as a valuable resource to minimise the landfilling of municipal waste in Wales.

The following Residual Waste Treatment consortia are in place:

- i. Prosiect Gwyrdd (comprising 5 Local Authorities) in procurement at detailed solutions stage.
- ii. Tomorrow's Valley (comprising 2 Local Authorities) procurement currently on hold.
- iii. North Wales (comprising 5 Local Authorities) at outline solutions stage.
- iv. South West Wales (comprising 5 local authorities) currently developing their Outline Business Case.
- v. A further 2 consortia (comprising 4 Local Authorities) to follow.

In terms of support for the Residual Waste Treatment consortia, the Welsh Assembly Government is committed to providing:

- i. A contribution of 25 per cent of the net present value of the facility gate fee, payable per annum on an annuity basis from full service commencement.
- ii. £2m per annum RCAF procurement/programme development support.

It is a condition of such funding, that: 1) where the solution chosen is an EfW plant, the facility shall achieve, as a minimum, the R1 designation for recovery; and 2) the overall plant efficiency shall be as high as possible as can be demonstrated to be value for money and, where possible, the Facility(ies) should operate or be capable of operating in combined heat and power mode.

The adoption of any alternative technologies (i.e. non EfW solutions) by Local Authority consortia/hubs participating in the programmes will have to be shown to be better in social, economic and environmental terms to qualify to receive the additional Welsh Assembly Government funding.

e) Community engagement for new facilities

The Welsh Assembly Government views high efficiency energy from waste as a vital component of the waste management system within Wales.

While recent research by Waste Awareness Wales (WAW) indicates that 62% of people in Wales thought that using non-recyclable material to generate energy was a good idea (as opposed to 14% thinking it a bad idea), such acceptance largely exists on a national and abstract level. Strong opinion barriers sometimes remain at a local level, most notably the perceived health risks and wider community impacts associated with the operation of residual waste treatment technologies.

However, the available evidence base does not suggest a link between energy from waste and any significant impact on human or environmental health. Indeed, it suggests that risks are largely occupational in nature, where wider community health risk is managed at the project level through design and planning, together with environmental permitting and regulation.

Therefore, with risk being largely a matter of community perception, it is important that national and local government seek to reduce community anxiety and provide reassurance that waste facilities are safe. As such, there is a need for the provision of objective, independent and accessible public information. This must be supported by a clear explanation of how environmental permitting, monitoring and control will help ensure that emissions will not have a significant impact on environmental or human health.

The Community Engagement programme run by WAW aims to raise public awareness of 'the need' for new waste treatment technologies in Wales. The programme aims to promote the economic, environmental and social benefits of

developing a new waste treatment infrastructure in Wales and inform in respect of health and environmental impacts.

In order to ensure a balanced debate, the 'case' for technology change will be made at both the national and local level. WAW aims to bridge the gap between national policy and the communication campaigns led by local procurement projects. To achieve this, WAW will continue:

- produce a series of objective and educational public information resources to introduce key waste treatment technology options
- provide national strategic guidance on issues such as basic campaign principles, communication and consultation planning
- act as a 'critical friend' to review local communication campaign activities and promote 'best practice' in community engagement
- develop communication solutions and messages to help deliver a balanced debate on complex science, technology and health impact concerns
- identify and engage key stakeholders to advocate 'the need' for new waste treatment technologies
- produce a series of case studies to evidence 'live' facilities and provide a context for Wales' residual waste treatment strategy
- develop a formal schools education programme to introduce new waste treatment technologies and inspire both local and national school debate
- work with partner organisations to engage the media, communities and other key publics to promote the need for waste infrastructure change and the controls that will license, monitor and regulate new waste treatment facilities

In support of this work, the Welsh Assembly Government will ensure the input of key partners, especially those with an environmental permitting and human health responsibility.

3.5.4.2 Actions for the Welsh Assembly Government

f) Introduction of landfill bans/restrictions

Under the Waste (Wales) Measure 2010 the Welsh Assembly Government has new powers to introduce landfill bans or restrictions. The Welsh Assembly Government is investigating the benefits and practicalities of banning or restricting certain wastes from landfill in accordance with the objectives and policies identified in Towards Zero Waste..

g) Transposition of the revised Waste Framework Directive (2008/98/EC)

The EU Waste Framework Directive lays down measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste, and by reducing the overall impacts of, and improving the efficiency of, resource use. Revisions to the Waste Framework Directive (2008/98/EC) were adopted in December 2008 and are transposed by The Waste (England and Wales) Regulations 2011.

In respect of aspects of the revised Directive that apply to the treatment and disposal of municipal waste collected by Local Authorities, the Directive includes requirements for Member States to:

- Apply the waste hierarchy in waste management legislation and policy.
- Establish an integrated and adequate network of waste disposal installations and installations for the recovery of mixed household waste.
- Ensure that waste management is carried out without endangering human health and without harming the environment.

3.5.4.3 The need for additional evidence

The Welsh Assembly Government will explore ways to build on its existing evidence base, drawing, as appropriate, on studies carried out elsewhere, and commissioning, as necessary, and with others as appropriate, new research. Areas where additional evidence in respect of treatment and disposal of municipal waste needs to be sourced or commissioned includes:

- An assessment of the economic impact of implementing a high efficiency residual energy from waste programme (to build on the AEA Technology report *'Modelling of Impacts for Selected Residual Waste Plant Options using WRATE'*, published September 2009).

3.5.5 Indicators and review of progress

3.5.5.1 Monitoring and measuring

The following indicators are proposed (Table 11):

Table 11: Proposed indicators for sustainable treatment

What we will monitor	How we will monitor	Who will monitor it
Residual treatment		
<i>Efficiency of residual waste treatment</i>	We will ensure that we monitor the total amount of Local Authority collected municipal waste that is used to recover heat and power, including the level of thermal efficiency achieved.	Welsh Assembly Government
<i>Amount of residual household waste per person per year</i>	We will continue to measure the levels of residual household waste (kg per person per year) through Local Authorities reporting their waste statistics via WasteDataFlow.	Welsh Assembly Government

3.5.5.2 Review

The Welsh Assembly Government will carry out an ongoing review of how sustainable development outcomes of the treatment of food and residual municipal waste can be maximised.

3.5.6 Summary of actions on sustainable treatment and disposal

Table 12: Proposed actions for sustainable treatment and disposal

Action	By Whom	By When	How and implications	Link to objectives
a) Improve future LAS planning and forecasting	Welsh Assembly Government and Local Authorities	Short term 2011 – 2015	Local Authorities to plan ahead to determine how they are going to meet future LAS targets. A spreadsheet model has been provided to them to identify the quantities of different biodegradable components of the municipal waste that they collect that they will need to divert through recycling, composting and anaerobic digestion in order to meet the 2012-13 and 2019-20 targets. It is a requirement of receipt of the SWMG that they make an annual return on the spreadsheet.	<p>1. The targets (including caps) set in Towards Zero Waste are met.</p> <p>2. The necessary sustainable treatment and disposal infrastructure is made available or accessible in order to help Local Authorities meet the targets set in Towards Zero Waste and proposed in this sector plan.</p> <p>9. Obligations for Wales under EU and UK waste legislation are met.</p>
b) Secure sufficient food waste treatment	Local Authorities	Short to medium term – 2011 to 2025	<p>Developed through the Waste Procurement Programme facilitated procurement of AD infrastructure.</p> <p>Funding support from Welsh Assembly Government. This is ensuring investment that will yield medium and</p>	<p>1. The targets (including caps) set in Towards Zero Waste are met.</p> <p>2. The necessary sustainable treatment and disposal infrastructure is made available or accessible in order to help Local Authorities meet the targets set in Towards Zero Waste and proposed in this sector plan.</p> <p>5. Achieving value for money for Welsh Assembly Government funding of municipal waste.</p>

Action	By Whom	By When	How and implications	Link to objectives
			long-term savings through avoided cost of disposal.	<p>6. The management of waste must be carried out without endangering human health, and without harming the environment.</p> <p>7. Waste management infrastructure in Wales contributes to improving the health and wellbeing of the population of Wales through innovation and high skilled jobs.</p> <p>8. Local people are proud of the sustainable waste management facilities in their locality, understand why they are there and are empowered to use them.</p> <p>9. Obligations for Wales under EU and UK waste legislation are met.</p>
c) Generation of high quality compost/AD digestate	Local Authorities	From 2015 onwards.	Local Authorities to ensure that treatment contracts specify that plants are operated to deliver compost and AD digestate that meet the Quality Protocols and PAS 100 and 110.	<p>1. The targets (including caps) set in Towards Zero Waste are met.</p> <p>9. Obligations for Wales under EU and UK waste legislation are met.</p>
d) Securing sustainable residual waste treatment	Local Authorities	Short to long term, 2011 to 2025 and beyond	<p>Local Authority consortia to procure residual municipal waste treatment. Facilitated via Waste Procurement Programme, and funding support from Welsh Assembly Government.</p> <p>High thermal efficiency EfW capacity specified.</p>	<p>1. The targets (including caps) set in Towards Zero Waste are met.</p> <p>2. The necessary sustainable treatment and disposal infrastructure is made available or accessible in order to help Local Authorities meet the targets set in Towards Zero Waste and proposed in this sector plan.</p> <p>4. Residual treatment plants deliver carbon reduction outcomes (eg. high energy efficiency EfW plants).</p> <p>5. Achieving value for money for Welsh Assembly Government funding of municipal waste.</p> <p>6. The management of waste must be carried out without endangering human health, and without harming the environment.</p>

Action	By Whom	By When	How and implications	Link to objectives
				<p>7. Waste management infrastructure in Wales contributes to improving the health and wellbeing of the population of Wales through innovation and high skilled jobs.</p> <p>8. Local people are proud of the sustainable waste management facilities in their locality, understand why they are there and are empowered to use them.</p> <p>9. Obligations for Wales under EU and UK waste legislation are met.</p>
e) Community engagement for new facilities	Local Authorities with support from the Waste Awareness Wales campaign.	Short to medium term – 2011 to 2025	Local Authorities to fully engage with local communities to ensure that objective and accurate information is provided on the likely impact of new facilities, particularly for the food waste and residual waste treatment programmes.	8. Local people are proud of the sustainable waste management facilities in their locality, understand why they are there and are empowered to use them.
f) Introduction of Landfill bans/restrictions	Welsh Assembly Government	Earliest implementation likely to be 2015	Welsh Assembly Government to consider legislation to restrict landfill of certain materials. This will increase revenues from higher recycling of materials and save costs through avoided disposal.	<p>1. The targets (including caps) set in Towards Zero Waste are met.</p> <p>2. The necessary sustainable treatment and disposal infrastructure is made available or accessible in order to help Local Authorities meet the targets set in Towards Zero Waste and proposed in this sector plan.</p> <p>6. The management of waste must be carried out without endangering human health, and without harming the environment.</p> <p>7. Waste management infrastructure in Wales contributes to improving the health and wellbeing of the population of Wales through innovation and high skilled jobs.</p>

Action	By Whom	By When	How and implications	Link to objectives
				<p>8. Local people are proud of the sustainable waste management facilities in their locality, understand why they are there and are empowered to use them.</p> <p>9. Obligations for Wales under EU and UK waste legislation are met.</p>
g) Transposition of the revised Waste Framework Directive (2008/98/EC)	Welsh Assembly Government and Defra	By 12 December 2010	Welsh Assembly Government to work with Defra to transpose into England and Wales legislation the requirements of the Directive.	9. Obligations for Wales under EU and UK waste legislation are met.

4. Links to other Sector Plans

Sector Plan	Link
Collection, Infrastructure and Markets	This will be the key delivery plan to create an environment to support the collection services and infrastructure required to deliver the targets set in Towards Zero Waste and in the Municipal Sector Plan, and to ensure that the right kind of markets are in place in Wales for recyclates, compost and the digestate from anaerobic digestion of food waste. It will focus on identifying and expanding markets for close loop recycling in Wales, and will determine what more needs to be done to develop the right infrastructure and collection systems to ensure the delivery of high value recyclate to the markets in Wales.
Food Manufacturing, Services and Retail	<p>The Welsh Assembly Government will look to the food manufacturing, services and retail sector in Wales to play a major role in enabling waste prevention and high recycling of food waste and its associated packaging through the better eco-design of packaging, support for municipal waste recycling schemes and support for consumer awareness campaigns.</p> <p>It will also seek to increase the recycled content of packaging.</p>
Public Sector	This plan will aim to reduce waste and increase the amount of reuse and recycling carried out by the Public Sector in Wales. It will also seek, through sustainable procurement, the greater use of products with a high recycled content throughout the public sector. Public Sector waste forms part of the municipal waste collected by Local Authorities. Local Authorities themselves are part of the public sector, and they need to play their part in reducing their wastes and recycling more.
Construction and Demolition	Some construction and demolition waste finds its way into the municipal waste stream collected by Local Authorities. The recycling of rubble and wood taken to CA sites is already common place. Actions to ensure that more of this waste is reused and recycled will be included in this plan.
Other industrial and commercial	This will focus on business sectors not already covered in other sector plans, including the rest of the retail sector. It will identify actions to reduce waste and increase reuse and recycling. It will also address issues of eco-design of products to reduce the amount of waste in the municipal stream, and to help ensure it is more reusable and recyclable..

5. Summary

This section describes the overview of implementation – in the short, medium and long term, roles and responsibilities.

Timescale	Key Objectives and Supporting Actions
Short Term – now until 2015	<p>Local Authorities:</p> <p>To deliver the waste prevention, preparing for reuse, recycling, composting and landfill targets up to 2015 through:</p> <ul style="list-style-type: none"> • Behavioural change campaigns led by Local Authorities. • Changes in municipal waste collection service provision by Local Authorities – including expanding the type and quantities of recyclate collected, increasing reuse, and making it less convenient to not recycle. • Procuring food waste treatment services (anaerobic digestion plants) to be operational from 2012. • Participating in the Collaborative Change Programme to deliver efficiency savings and meet the sustainable development outcomes identified in Towards Zero Waste and in this plan. <p>Government:</p> <p>To help support the delivery of the waste prevention, preparing for reuse, recycling, composting and landfill targets up to 2015 through:</p> <ul style="list-style-type: none"> • Landfill Tax escalator. • Introduction of Regulations under the Waste (Wales) 2010 Measure to delivery policies and targets in line with the sector plan and TZW. • Provide support for the Collaborative Change Programme to achieve efficiency savings and improved sustainable development outcomes. • Provide support for procurement of food waste and residual waste treatment. • Provide support for markets in Wales for recyclate, compost and anaerobic digestion. • Working with retailers (including via WRAP) to secure waste reduction, increased recycling and greater recyclate content of products and packaging. • Funding the Waste Awareness Wales campaign to support Local Authority and National campaigns. <p>Others:</p>

Timescale	Key Objectives and Supporting Actions
	<ul style="list-style-type: none"> • Action by retailers to reduce the amount of waste generated by the products and packaging that they sell to consumers. • Social economy sector to continue to provide added social return on investment. • Waste industry to provide sustainable solutions that meet the outcomes and objectives laid down in Towards Zero Waste and this sector plan.
Medium term – 2015 until 2025	<p>Local Authorities:</p> <p>To deliver the waste prevention, preparing for reuse, recycling, composting and landfill targets up to 2025 through:</p> <ul style="list-style-type: none"> • Further enhancing behavioural change campaigns. • Further expanding the type and quantities of recyclate collected, increasing reuse. • Implementing changes to the collection service under the Collaborative Change Programme. • Procuring residual waste treatment services (high energy efficiency EfW) to be operational by 2019-20. <p>Government:</p> <p>To help support the delivery of the waste prevention, preparing for reuse, recycling, composting and landfill targets up to 2025 through:</p> <ul style="list-style-type: none"> • Introduction of new Measures and Regulations to further secure the delivery of the sector plan and TZW. • Support for the Collaborative Change Programme. • Support for procurement of residual waste treatment. • Support for the infrastructure for reuse. • Securing further action from retailers, including voluntary extended producer responsibility to achieve waste reduction, increased recycling and greater recyclate content of products and packaging. • Funding the Waste Awareness Wales campaign to support Local Authority and National campaigns. <p>Others:</p> <ul style="list-style-type: none"> • Extended producer responsibility action by retailers to reduce the amount of waste generated by the products and packaging that they sell to consumers, to increase the recyclability of products and packaging, and increase recycled content. • Social economy sector to continue to provide added social

Timescale	Key Objectives and Supporting Actions
	<p>return on investment.</p> <ul style="list-style-type: none"> Waste industry to provide sustainable solutions that meet the outcomes and objectives laid down in Towards Zero Waste and this sector plan.
<p>Long term – 2025 until 2050</p>	<p>Government:</p> <p>To help support the delivery by 2050 of the One Planet levels of waste and zero waste (100 per cent recycling) goals of Towards Zero Waste, Government will need to:</p> <ul style="list-style-type: none"> Apply extended producer responsibility instruments to manufacturers and retailers. Apply instruments to ensure that all products are eco-designed to achieve One Planet levels of consumption – with the use of raw materials and end of life waste also meeting One Planet goals.

6. Monitoring, Measurement and Evaluation

It is very important that the actions detailed in this Municipal Sector Plan are monitored, measured and evaluated accurately and in a timely way. It is also very important that the results of the actions are reported to the stakeholders involved in delivering them.

Many of the actions will be monitored using the WasteDataFlow national waste database. It is the Assembly Government's intention to work in collaboration with local authorities to make the use of WasteDataFlow easier and more efficient.

WasteDataFlow will provide the data required to monitor waste arisings, preparation for re-use, recycling and composting. Some of this data will be presented as Performance Indicators (PIs) produced by the Local Government Data Unit – Wales and validated by the Wales Audit Office (WAO).

The Welsh Local Government Association (WLGA) plays a valuable role in collating, analysing and reporting the financial performance of local authorities. It is intended that this role will continue.

It is intended that most of the actions in this Municipal Sector Plan will be reported on at least annually.

Appendix 1: Glossary

Anaerobic digestion - A biological process where biodegradable wastes, such as kitchen or food waste, is encouraged to break down in the absence of oxygen in an enclosed vessel. It produces carbon dioxide, methane (which can be used as a fuel to generate renewable energy) and solids/liquors known as digestate which can be used as fertiliser.

Bring site - Recycling point where the public can bring material for recycling, for example bottle and can banks. They are generally located at supermarket car parks, council car parks and similar locations.

Biowaste – This includes biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants.

Civic amenity site - Site provided by the Local Authority for the disposal and recycling of household waste including bulky items such as beds, cookers and garden waste as well as recyclables, free of charge.

Closed loop recycling - Recycling where recycled materials are being used continually for the same purpose, for example a glass bottle recycled into new glass product rather than downgraded, for example being used as an aggregate.

Commercial and industrial waste - Commercial waste is waste arising from any premises which are used wholly or mainly for trade, business, sport recreation or entertainment, excluding household and industrial waste. Industrial waste is waste from any factory and from any premises occupied by an industry (excluding mines and quarries).

Composting - An aerobic, biological process in which organic wastes, such as garden and kitchen waste, are converted into a stable granular material which can be applied to land to improve soil structure and enrich the nutrient content of the soil.

Construction and demolition waste - Consists of all waste originating from construction, renovation and demolition activities, such as rubble, bricks and tiles.

Eco design - A strategic design management process that is concerned with minimising the impact of the life cycle of products and services. Approaches include life cycle analysis, design for disassembly and reducing the negative impact of a product on the environment (for example by removing hazardous chemicals or materials without compromising the design).

Ecological footprint - The ecological footprint methodology calculates the land area needed to feed, provide resource, produce energy and absorb the pollution (and waste) generated by our supply chains.

Energy from waste - Technologies include anaerobic digestion, direct combustion (incineration with energy recovery), use of secondary recovered fuel (an output from mechanical and biological treatment processes), pyrolysis and gasification. Any

given technology is more beneficial if heat and electricity can be recovered. The Waste Framework Directive considers that where waste is used principally as a fuel or other means to generate electricity it is a recovery activity provided it complies with certain criteria, which includes exceeding an energy efficiency threshold.

Freecycle - Freecycle groups match people who have things they want to get rid of with people who can use them. The main goal is to keep usable items out of landfills.

Global hectares - One global hectare is equal to one hectare of biologically productive space with world average productivity. Global hectares are the unit of measurement for ecological footprinting.

Greenhouse gas emissions - Emissions that contribute to climate change via the 'greenhouse' effect when their atmospheric concentrations exceed certain levels. They include emissions of Carbon dioxide, Methane, Nitrous oxide, Hydrofluorocarbons, Perfluorocarbons and Sulphur Hexafluoride.

Hazardous waste - This is waste that may be harmful to human health or the environment. Examples of hazardous wastes include asbestos, some chemical wastes, some healthcare wastes, electrical equipment containing hazardous components such as cathode ray tubes or lead solder, fluorescent light tubes, lead-acid batteries and oily sludges.

Household waste - Includes waste from household collection rounds (waste within Schedule 1 of the Controlled Waste Regulations 1992), waste from services such as street sweeping, bulky waste collection, hazardous household waste collection, litter collections, household clinical waste collection and separate garden waste collection (waste within Schedule 2 of the Controlled Waste Regulations 1992), waste from civic amenity sites and wastes separately collected for recycling or composting through bring/drop off schemes, kerbside schemes and at civic amenity sites.

Household Waste Recycling Centre (HWRC) - Site provided by the Local Authority for the recycling of household waste including bulky items such as beds, cookers and garden waste as well as other recyclables, free of charge.

Intergovernmental Panel on Climate Change - Established to provide the decision-makers and others interested in climate change with an objective source of information about climate change.

Integrated Product Policy - All products cause environmental degradation in some way, whether from their manufacturing, use or disposal. Integrated product policy, currently under discussion in EU, seeks to minimise these by looking at all phases of a product's life-cycle and taking action where it is most effective.

Kitchen waste - This term refers to the organic component of household waste e.g. vegetable peelings, tea bags, banana skins. Often also referred to as "food waste".

Landfill sites - Any areas of land in which waste is deposited. Landfill sites are often located in disused mines or quarries. In areas where they are limited or no ready-made voids exist, the practice of landraising is sometimes carried out, where waste is deposited above ground and the landscape is contoured.

Legacy waste - Legacy wastes, which are often hazardous – for example asbestos, are materials that it is not currently feasible to recover or recycle and therefore cannot be returned into the chain of utility. The only option is disposal, and this is likely to continue to be the case in the future if that material continues to be used in the present way. In order for waste not to become legacy waste the original product needs to be redesigned so that it can be recovered and reused. In the meantime, new treatment methodologies need to be developed wherever possible to avoid these materials being sent for disposal.

Material Recovery Facility – MRF a specialized plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers

Municipal waste - For the purpose of this sector plan, municipal waste means 'municipal waste as collected by Local Authorities'. It includes household waste and any other wastes collected by a Waste Collection Authority (WCA), or its agents, such as municipal parks and gardens waste, beach cleansing waste, commercial or industrial waste and waste resulting from the clearance of fly-tipped materials. WCA - A Local Authority charged with the collection of waste from each household in its area on a regular basis. They can also collect, if requested, commercial and industrial wastes from the private sector.

Open loop recycling - Where the end product of recycling is used to replace something else, e.g. glass is recycled into aggregate which replaces virgin aggregate.

Preparing for reuse - Means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be reused without any other pre-processing.

Producer responsibility - A 'producer responsibility' approach is intended to require producers who put goods or materials onto the market to be more responsible for these products or materials when they become waste. In some cases, producers will also be asked to reduce the level of hazardous substances in their products and to increase the use of recycled materials and design products for recyclability.

Recycling - Involves the reprocessing of wastes, either into the same product or a different one. Many non-hazardous industrial wastes such as paper, glass, cardboard, plastics and scrap metals can be recycled. Special wastes such as solvents can also be recycled by specialist companies, or by in-house equipment.

Reduction - Achieving as much waste reduction as a priority waste action. It can be accomplished within a manufacturing process involving the review of production processes to optimise utilisation of raw (and secondary) materials and recirculation processes. It can be cost effective, both in terms of lower disposal costs, reduced demand for raw materials and energy costs. It can be carried out by householders

through actions, such as home composting, reusing products and buying goods with reduced packaging.

Reprocessor - A person who carries out one or more activities of recovery or recycling.

Residual waste - Term used for waste that remains after recycling or composting material has been removed from the waste stream.

Resource efficiency – Managing raw materials, energy and water in order to minimise waste and thereby reduce cost.

Reuse - Using a product again for the same or different use.

Site waste management plan (SWMP) - A tool to help the construction and demolition sector to improve on their management of waste at their place of work. It is a plan that details the amount and type of waste produced on a construction site and how it will be reused, recycled and disposed of, by doing so, will help to improve resource efficiency within the industry. The requirement for a SWMP is mandatory in England since April 2008. The Assembly Government is currently developing Wales' Site Waste Management Plan Regulations. This work is expected to be completed in April 2010 and the consultation, draft regulations and impact assessment will be issued at the end of Summer 2010. Regulations are planned for 2011. Pre-consultation workshops have been undertaken with industry, trade bodies, Local Authorities and others on the legislation for Site Waste Management Plans which are currently being considered in the development of options for the consultation.

Sustainability appraisal - Single appraisal tool which provides for the systematic identification and evaluation of the economic, social and environmental impacts of a proposal.

Social economy - It includes voluntary organisations, community groups, self-help groups, community co-operatives and enterprises, religious organisations and other not for profit distribution organisations of benefit to the communities and the people of Wales. Also known as "Third Sector".

Social enterprise - A social enterprise is a business with primarily social objectives whose surpluses are principally reinvested for that purpose in the business or in the community, rather than being driven by the need to maximise profit for shareholders and owners.

Treatment - Physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.

Upcycling - Upcycling happens where high embedded energy raw materials are substituted by lower embedded energy secondary raw materials that can be subsequently be closed loop recycled.

Waste arisings - The amount of waste generated in a given locality over a given period of time.

Waste hierarchy - Sets out the order in which options for waste management should be considered based on environmental impact. It is a useful framework that has become a cornerstone of sustainable waste management.

Zero waste – ‘Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them. Implementing Zero Waste will eliminate all discharges to land, water or air that are a threat to planetary, human, animal or plant health.’ (Zero Waste International Alliance www.zwia.org).

Appendix 2: List of evidence used

The evidence that supports this Sector Plan is listed in accordance with the four key action areas:

Waste prevention

1. 'Household Waste Prevention, Evidence Review' (WR1204), DEFRA, October 2009.
2. Environment Strategy First Action Plan, 2006.
3. 'Environmental Life Cycle Assessment of Waste Management Options for Priority Waste Materials', Environment Agency, March 2009.
4. 'Meeting the UK Climate Change Challenge: The Contribution of Resource Efficiency', WRAP November 2009.
5. 'Scoping Study of Potential Health Effects of Fortnightly Waste Collection', Open University – July 2009.
6. 'Direct and Variable Charging for residual waste from householders', Fehily Timoney & Company, December 2008.
7. 'Health Impact Assessment of Alternate Week Waste Collection Phase I: Winter Interim', Enviros Consulting Ltd, Integrated Waste Management Centre, School of Industrial and Manufacturing Science, Cranfield University.

Preparing for re-use

General reports on the capacity for reuse

1. 'Review of Packaging Deposits System for the UK', October 2008, ERM.
2. 'Lets Prove It – Report', Cylch, 2008-09.

Social enterprise involvement

1. WR0506 "Benefits of Third Sector Involvement in Waste Management" - Summary Report (183k).
2. Final Report : WR0506 "Benefits of Third Sector Involvement in Waste Management" - Full Report (591k).
3. Executive Summary : WR0506 "Benefits of Third Sector Involvement in Waste Management" - Executive Summary (152k).

4. Final Report - Annex : WR0506 "Benefits of Third Sector Involvement in Waste Management" - Annex 2: Case Study and Economic Analysis Report (446k).
5. Final Report - Annex : WR0506 "Benefits of Third Sector Involvement in Waste Management" - Annex 1: Report on Impact Mapping Sessions.

Recycling collection service

1. 'Scoping New Municipal Waste Targets for Wales', Eunomia Research and Consulting, September 2007.
2. 'Life Cycle Analysis of Municipal Recycling Targets for Wales', Environment Agency, 2007.
3. Slide 5 of Bryson House Presentation, November 2008.
4. 'Choosing the right recycling collection system', Waste and Resources Action Programme (WRAP), June 2009.
5. 'Ecological Footprint impact of the Welsh Waste Strategy', ARUP, January 2009. 'Energy Audit of the Kerbside Recycling Services', The London Borough of Camden, ADAS UK Ltd.
6. Kerbside Recycling in Wales: Summary Report, Waste and Resources Action Programme (WRAP), March 2009.
7. Kerbside Recycling in Wales: Environmental Costs, Waste and Resources Action Programme (WRAP), March 2009.
8. Kerbside Recycling in Wales: Indicative Financial Costs, Waste and Resources Action Programme (WRAP), March 2009.
9. 'The impact of the carbon agenda on the waste management business', Grant Thornton, Oakdene Hollins, 2006.
10. 'Maximising Reuse and Recycling of UK Clothing and Textiles', A research report completed for the Department for Environment, Food and Rural Affairs by Oakdene Hollins Ltd, October 2009.
11. Review of Waste & Recycling Strategy, Monmouthshire County Council, June 2009.
12. A Review of the Collection of Waste Textiles from households in Wales – Parsons Brinckerhoff Ltd, June 2008.
13. 'An Assessment of Waste Data for the Waste Strategy Review' Environment Agency Wales, November 2008.

14. 'Assessment of the relative polluting effects of garden waste bonfires and the collection of garden wastes for centralised composting' RPS, July 2008.
15. 'Future Directions for Municipal Waste Management in Wales – Proposed targets and actions', Waste Strategy Branch, 17 April 2009.
16. 'Zero Waste Village Project Report', Monmouthshire Community Recycling, November 2009.
17. 'A Health and Safety Study of kerbside recycling schemes using boxes and bags', Centre for Health and Environment Research and Expertise (CHERE), 2006.
18. 'Kerbside Collections Options: Wales', WRAP, January 2011

Treatment

1. 'Modelling of Impacts for Selected Residual Waste Plant Options using WRATE', AEA Report, September 2009.
2. Compositional Analysis of Municipal Waste in Wales 2009-10, WRAP.
3. "The Impact on Health of Emissions to Air from Municipal Waste Incinerators", Health Protection Agency, September 2009.
4. Regional Waste Plans for North, South West and South East Wales, 2009 (including associated Sustainability Appraisals and Health Impact Assessments).

Overarching documents

1. 'Draft Wales Waste Strategy, Health Impact Assessment Final Report', RPS – 22 December 2008.
2. 'The Sustainability Appraisal of the Wales Waste Strategy: Sustainability Appraisal Report' (Main Report), ERM UK.

Appendix 3: Legislation Covering Municipal Waste Collected by Local Authorities

The Local Authority municipal waste collection and management function is governed directly and indirectly by a number of pieces of legislation. These include, but not exhaustively (taken from the Environment Agency's NetRegs site –

<http://www.netregs.gov.uk/netregs/legislation/current/63638.aspx> and <http://www.netregs.gov.uk/netregs/legislation/current/110558.aspx>):

- **Animal By-Products (Wales) Regulations 2006 SI 1293**
Regulates the collection, transportation, storage, handling, processing and disposal of animal by-products and requires records to be kept for at least two years.
- **Clean Neighbourhoods and Environment Act 2005**
Introduces additional noise, litter and waste controls including site waste management plans, and classifies artificial lighting and insects as statutory nuisances.
- **Control of Pollution (Amendment) Act 1989 c.14**
Requires carriers of controlled waste to register with the Environment Agency or SEPA and outlines the penalties (including seizure and disposal) for vehicles shown to have been used for illegal waste disposal.
- **Controlled Waste Regulations 1992 SI 588**
Defines household, industrial and commercial waste for waste management licensing purposes.
- **Controlled Waste (Amendment) Regulations 1993 SI 566**
Amends 1992/588 in relation to scrap metal.
- **Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 SI 1624**
Introduces a registration system for carriers of controlled waste.
- **Controlled Waste (Registration of Carriers and Seizure of Vehicles) (Amendment) Regulations 1998 SI 605**
Amends 1991/1624 by updating the procedure for applying for waste carriers registration.
- **EU Directive on End of Life Vehicles 2000/53**
Requires end-of-life vehicles and their components to be recycled or reused. Sets out design requirements for materials and components. Outlines measures for collection systems and treating and storing waste vehicles at authorised treatment facilities.
- **End of Life Vehicles Regulations 2003 SI 2635**

Requires vehicle producers to set up collection, treatment and disposal systems to make sure that components in vehicles can be recovered, reused and recycled at the end of their life.

- **End-of-Life Vehicles (Producer Responsibility) Regulations 2005 SI 263**
Requires vehicle producers to register and declare responsibility for vehicles they place on the market and apply for approval of their system of collecting vehicles.
- **Environment Act 1995**
Establishes the Environment Agency and SEPA as the regulatory bodies for contaminated land, control of pollution, conservation or enhancement of the environment and fisheries.
- **Environmental Protection Act 1990**
Defines within England, Scotland and Wales the legal framework for duty of care for waste, contaminated land and statutory nuisance.
- **Environmental Protection (Duty of Care) Regulations 1991 SI 2839**
Imposes a duty of care on any person who imports, produces, carries, keeps, treats or disposes of controlled waste to ensure there is no unauthorised or harmful depositing, treatment or disposal of the waste.
- **Environmental Protection (Duty of Care) (Wales) (Amendment) Regulations 2003 SI 1720**
Amends 1991/2839 to allow waste collection authorities in Wales to serve notices on people required to keep written descriptions of waste and transfer notices, and to require them to produce such documents to the authority within a specified time.
- **EU Regulation laying down Health Rules concerning Animal By-Products not intended for Human Consumption 1774/2002**
Sets out rules for collecting, transporting, storing, handling, processing, using and disposing of animal by-products to protect human and animal health. Also controls marketing and exporting animal by-products and products derived from them.
- **EU Regulation on Shipments of Waste 1013/2006**
Establishes procedures and control regimes for shipping waste depending on its origin, destination and route, and the type of waste and treatment that will be applied.
- **Hazardous Waste (England and Wales) Regulations 2005 SI 894**
Details requirements for controlling and tracking the movement of hazardous waste and bans mixing different types of hazardous waste.
- **Hazardous Waste Regulations (Wales) 2005 SI 1806**
Details requirements for controlling and tracking the movement of hazardous waste and bans mixing different types of hazardous waste.

- **Hazardous Waste (Wales) (Amendment) Regulations 2009 SI 2861**
Amends 2005/1806 by increasing the maximum limit of hazardous waste that can be produced in any year without registering with the regulator from 200kg to 500kg, and clarifies other aspects.
- **List of Wastes (Wales) Regulations 2005 SI 1820**
Provides the European Waste Catalogue list of codes used to classify wastes.
- **Packaging (Essential Requirements) Regulations 2003 SI 1941**
Sets out essential requirements for packaging which apply to packaging producers, sellers and distributors, including enforcement, offences and penalties.
- **Packaging (Essential Requirements) (Amendment) Regulations 2004 SI 1188**
Amends 2003/1491 to update the definition of packaging.
- **Packaging (Essential Requirements) (Amendment) Regulations 2006 SI 1492**
Amends 2003/1941 by substituting a new definition of 'packaging' and making indefinite the conditions for a derogation for glass packaging in relation to heavy metal concentration levels.
- **Packaging (Essential Requirements) (Amendment) Regulations 2009 SI 1504**
Amends 2003/1941 by removing 4 March 2009 expiry date for the derogation (permission to carry out an otherwise banned activity) on maximum heavy metal concentration levels for plastic crates or pallets.
- **Producer Responsibility Obligations (Packaging Waste) Regulations 2007 SI 871**
Requires producers to recover and recycle packaging waste to achieve EU targets.
- **Producer Responsibility Obligations (Packaging Waste)(Amendment) Regulations 2008 SI 413**
Amends 2007/871 to increase the recovery and recycling targets for 2008, 2009 and 2010 (the recycling target for paper/board and wood are unchanged).
- **Transfrontier Shipment of Waste Regulations 2007 SI 1711**
Sets out rules for shipping waste, including within the European Community and importing and exporting to and from countries outside the EC.
- **Transfrontier Shipment of Waste (Amendment) Regulations 2008 SI 9**

Amends 2007/1711 by introducing new penalties for failing to provide proper documentation when exporting waste for recovery.

- **Waste Batteries and Accumulators Regulations 2009 SI 890**
Establishes a legal framework and schemes for collecting, treating and recycling portable, industrial and vehicle batteries. Applies to all types of batteries except when used for military and space equipment.
- **Waste Electrical and Electronic Equipment Regulations 2006 SI 3289**
Aims to reduce the amount of WEEE sent to landfill. Requires producers of electrical and electronic equipment to register and cover the costs of collecting, treating, recovering and disposing of equipment when it reaches the end of its life.
- **Waste Electrical and Electronic Equipment (Amendment) Regulations 2007 SI 3454**
Amends 2006/3289 to encourage prioritising re-use of whole appliances in the WEEE system.
- **Waste Electrical and Electronic Equipment (Amendment) Regulations 2009 SI 2957**
Amends 2006/3289 by improving the Producer Compliance Scheme approval process and reducing the administrative burden on business by simplifying the data reporting requirements and the evidence system.
- **Waste Electrical and Electronic Equipment (Amendment)(No2) Regulations 2009 SI 3216**
Corrects a defect in 2009/2957 by requiring producers of electrical and electronic equipment for domestic use to report details quarterly, and annually for all other EEE.
- **Waste Management (England and Wales) Regulations 2006 SI 937**
Extends the regime for 'controlled waste' to cover mine, quarry and agricultural waste. Categorises waste as household, industrial or commercial. Bans householders from treating, keeping, disposing of controlled waste if it could pollute the environment.
- **Waste Management Licensing (Amendment) Regulations 1995 SI 288**
Amends 1992/55 and 1994/1056 by classifying (along with other legislation) scrap metal as controlled waste for duty of care under the Environmental Protection Act 1995.
- **Waste and Emission Trading Act 2003**
Makes provision about reducing the landfilling of biodegradable municipal waste.
- **Landfill Allowances Scheme (Wales) 2004)**
Sets up a scheme to ensure that Local Authorities do not exceed allowances set to progressively reduce the amount of biodegradable municipal waste landfilled.

- **Environmental Permitting (England and Wales) Regulations 2010 SI 675**
Provides a consolidated system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.
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- **Conservation of Habitats and Species Regulations 2010 SI 490**
Replaces 1994/2716. Implements the EU Habitats Directive in respect of conservation of natural habitats and wild flora and fauna. Also partially implement parts of Marine and Coastal Access Act 2009.
- **EU Regulation on ozone depleting substances 1005/2009**
Replaces and updates 2037/2000. Allows governments to impose new requirements on handling, use, import, export, recovery, recycling, reclaiming, destruction and trading of listed substances. Sets out plan to phase out production, trade and use of HCFCs.
- **Environmental Permitting (England and Wales)(Amendment) Regulations 2009 SI 1799**
Amends 2007/3538 to make changes to various aspects of environmental permitting to give effect to the 2006 EU Mining Waste Directive.
- **Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 SI 995**
Brings into force rules to force polluters to prevent and repair damage to water systems, land quality, species and their habitats and protected sites. The polluter does not need to be prosecuted first, so remedying the damage will be faster.
- **Waste Batteries and Accumulators Regulations 2009 SI 890**
Establishes a legal framework and schemes for collecting, treating and recycling portable, industrial and vehicle batteries. Applies to all types of batteries except when used for military and space equipment.
- **Waste (Wales) Measure 2010**
The Measure makes provision to reduce the amount of waste and litter in Wales whilst also providing a more effective system of waste management.

Information on the general technical requirements for the management of wastes are provided on the Environment Agency's web site¹⁹.

¹⁹ <http://www.environment-agency.gov.uk/business/topics/waste/>.