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Towards Zero Waste
Public Sector Waste and Resource Efficiency Plan:

Sustainability Appraisal

September 2015

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PARSONS BRINCKERHOFF

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TOWARDS ZERO WASTE, PUBLIC SECTOR PLAN: SUSTAINABILITY APPRAISAL

Welsh Government

Towards Zero Waste, Public Sector Plan: Sustainability Appraisal

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NON TECHNICAL SUMMARY

Background

In April 2009, the Welsh Government launched its Overarching Waste Strategy Document for Wales, 'Towards Zero Waste' (TZW). This document sets out a long term framework for waste management and resource efficiency until 2050. The Welsh Government has developed a series of sector plans to support and implement TZW.

In line with Welsh Government's legal duty with regard to sustainability, the Sector Plans are each subject to separate Sustainability Appraisal (SA)/Strategic Environmental Assessment (SEA), Health Impact Assessment (HIA) and Habitats Regulations Assessment (HRA), which will subsequently emerge, to accompany the overarching Strategy.

Parsons Brinckerhoff (PB) has been commissioned to support Welsh Government by undertaking the SA/SEA, HIA and HRA processes for the Public Sector Waste and Resource Efficiency Plan.

Purpose of this Report

This report presents the SA/SEA stages following the scoping report stage undertaken in autumn 2010. It describes the process whereby actions arising from the Public Sector Waste and Resource Efficiency Plan are screened for inclusion in the assessment and then appraised against a number of sustainability criteria. The report also presents a consideration of two 'alternatives' to the proposed Public Sector Waste and Resource Efficiency Plan.

This report is being issued for public consultation alongside the draft Public Sector Waste and Resource Efficiency Plan. We welcome all your comments on the content of this Report.

The Public Sector Waste and Resource Efficiency Plan

The Public Sector Waste and Resource Efficiency Plan covers procurement activities and the waste generated by the activities of primarily the Welsh Government and Welsh Government funded bodies providing services in relation to health care, education, local government, environment, justice administration and emergency response. It also extends to the UK Government and UK Government sponsored bodies in Wales having offices and providing service in Wales. When finalised following consultation, the Public Sector Waste and Resource Efficiency Plan will form part of the suite of documents that together comprise the statutory waste management plan for Wales as required by UK and EU legislation.

The approach followed in the Public Sector Waste and Resource Efficiency Plan is to consider two possible 'pathways' for improving resource efficiency within the public sector in Wales. The first is to look at the public sectors' role as a major client and how it can influence change throughout a supply chain. The second looks at changes that public sector organisations can make to their internal management of waste, and how it can start to mirror industrial and commercial processes in viewing waste as a resource.

The Sustainability Appraisal Process

The SA approach will follow an integrated assessment methodology 'SA/SEA' to comply with the requirements of the SEA Directive as transposed into Welsh law by "*The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004*".

Following the work previously undertaken for TZW , the scoping report for the Sector Plans and its consultation responses, this report is based on a revised version of the baseline information, relevant plans, policies, programmes and sustainability issues and opportunities.

The Sector Plan SA Approach

The SA approach adopted comprises the following steps:

Review of baseline information, Policies, Plans and Programmes (PPPs)
The identification of baseline environmental, social and economic conditions described in the first Sector Plan (Municipal Sector Plan) SA/SEA was used. This has been updated with information that became available since the publication. The baseline review included other policies, plans and programmes.

Identification of sustainability issues objectives
The identification of key sustainability issues and opportunities is based on the review of existing baseline information and other relevant policies, plans and programmes. The issues were used to produce a framework comprising nine headline sustainability appraisal objectives and supported by a number of sub-objectives. These objectives have been used in the SA of the Plan.

Deciding the scope of the SA
A Scoping Report for all TZW Sector Plans was produced for consultation in September 2010. This included the outcome of the baseline review and identification of sustainability issues and objectives.

Screening of Sector Plan Actions to identify actions for inclusion in the SA
Screening is the process to identify which actions proposed in each Sector Plan can be taken forward to the SA.

Assessment of Actions
This stage considers the social, environmental and economic effects of each action being considered in the Public Sector Waste and Resource Efficiency Plan.

Description of Cumulative Effects
Potential for secondary, cumulative and/or synergistic effects were also considered and described as part of the assessment of the actions.

Consideration of Reasonable Alternatives
The SEA Directive requires taking into account "reasonable alternatives" outlining the reasons for the selection of alternatives and describing how the assessment was undertaken.

Health Impact Assessment (HIA) and Habitats Regulations Assessment (HRA)

An HRA and HIA were carried out in parallel with to the SA/SEA process.

Sustainability Appraisal

The SA objectives were developed from sustainability issues and opportunities identified in the review of baseline conditions. The objectives and sub-objectives use for this assessment are set out below.

SA Framework Objectives and Sub-objectives for TZW Sector Plans

Objective	Sub-objectives
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; and • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste management.
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and capitalise upon opportunities arising from this	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering; • To support existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-tipping; • To provide cost-effective and reliable sustainable waste management.
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens; • To protect the character and visual identity of landscapes and townscapes, including cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.
Soil To protect and enhance	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and

Objective	Sub-objectives
soil resources	flood attenuation; • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the quality of Welsh soils.
Water To protect and promote the sustainable use of water resources	• To promote sustainable flood risk management; and • To protect and enhance water quality and quantity in inland, coastal and maritime environments.
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• To promote proximity of facilities to local settlements and sustainable transport modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation of materials to and from facilities; • To minimise adverse impacts to noise levels within communities; • To minimise odours arising from waste processing and its impact upon local communities.
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement strategy/objectives; • To promote the efficient use of onsite renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.
Health To protect and enhance the health and well-being of communities	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste; • To provide opportunities for those with health issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries.
Civic engagement To increase civic engagement in sustainable waste practice	• To raise awareness and understanding of sustainable waste strategy, objectives and management; • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and the poor; • To increase accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement; • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.

Actions identified for the Public Sector Waste and Resource Efficiency Plan are based on changing behaviours and focusing effort on the top half of the hierarchy – waste prevention, reuse and preparation for reuse. This is followed by recycling and other

recover and disposal actions. The Public Sector Waste and Resource Efficiency Plan looked at how public sector can apply actions in 'Sustainable Public Procurement' activities and 'Sustainable Waste Management' activities.

Assessment of Actions

A summary of the actions and results of the assessment is set out below.

Waste Prevention:

- Encourage manufacturers and retailers to eco-design, produce and sell products that are easily repairable and upgradeable.
- Packaging waste reduction.
- Implementation of sustainable waste management practices, though waste prevention and reuse throughout the Welsh Government Estate.
- Using public sector contracts to encourage waste prevention through the Green Public Procurement Process.
- Avoid food waste production.

The actions are considered to have a strong positive effect in relation to waste management objectives as they actively encourage waste minimisation through the supply chain. Waste minimisation is also likely to have economic benefits for the public sector reducing costs for products, food and transportation.

Waste prevention actions have indirect positive effects on objectives relating to landscape/biodiversity/cultural heritage, soil, water, air quality/noise/odour and health. This is due to reducing impacts arising from land-take, use of natural resources and requirement for waste processing and disposal. There are also positive effects on civic engagement due to generation of employment/ occupational opportunities through new social enterprises based around reuse and reselling.

Recycling:

- Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams
- Collaborative behavioural change.
- Work with other public bodies to encourage recycling 'on the go' and implement reuse and recycle initiatives for the public sector.

The actions are considered to have a strong positive effect in relation to waste management as they aim to extend awareness of recycling activities, which may be undertaken at home (e.g. separation of waste for recycling, composting of food waste) to public sector workplace and sites used by the public. Actions will encourage greater provision of waste facilities on site, including recycling facilities for food, paper and card, plastic and metal drinks cans. Actions will also support local industries to use resulting recyclate waste streams. As recycling of waste is encouraged, there may be a requirement to manage less residual waste which in turn may result in a reduction in the number of jobs within the sector, should staff affected not be redeployed in the increased opportunities in the recycling sector.

There are also mixed positive and negative indirect effects on landscape, biodiversity and cultural heritage, soil, air quality, noise and odour, and climate change. A reduction in landfill reduces land-take for disposal, use of natural resources and transportation and therefore has positive impacts on these objectives. However,

increased requirement for transportation and recycling facilities could also have negative impacts on these objectives, depending on their location and design.

The provision of recycling facilities throughout public sector premises would enable greater community engagement in recycling as there would be access for all staff and public using these facilities.

Waste Recovery and Disposal:

- Support High efficiency energy recovery of residual wastes that are not technically, environmentally or economically practical to prevent, reuse, recycle or otherwise recover.

This action would have a positive effect on waste management by reducing the amount of residual waste going to landfill. Recovering energy from waste also benefits other objectives, particularly those of waste infrastructure and climate change, by facilitating the creation of new facilities, and reducing the need for raw materials to generate energy and heat. Residual waste has a value as a fuel, which is otherwise lost when sent to landfill.

Reducing the need to send residual waste to landfill, and therefore reducing the requirement for landfill facilities, will have a positive impact on landscape, biodiversity, and sensitive cultural heritage sites. With less landfill there is also a reduced risk of soil and water contamination. .

Description of Cumulative Effects

The Public Sector Waste and Resource Efficiency Plan is the final plan within the Towards Zero Waste Strategy. Therefore the cumulative effects considered combined effects of all the Waste Sector Plans which comprise the Strategy.

The cumulative effects on the waste management and waste infrastructure are significantly positive. There are also cumulative positive effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change due to optimising materials use (i.e. by conserving limited resources, such as aggregates, and avoiding the production of virgin materials, such as plastics), and in reducing reliance on landfill/residual treatment.

There is, however, some potential for local adverse cumulative effects depending on the physical developments which may lead from the actions. Requirements for more waste management infrastructure (e.g. to store re-used goods, process recycled or recover energy) could lead to adverse effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change and health. The potential cumulative effects of such developments, including effects arising from other projects, would need to be considered in more detail at local level through planning and permitting process.

Assessment of Alternatives

Two alternative scenarios have been discussed with Welsh Government and considered as reasonable alternatives. Option 1 comprises a ‘do minimum’ alternative and Option 3 comprises a ‘do maximum’ scenario with the highest financial and resource investment is potentially available. Option 2 (the preferred option) is

considered best practise and is the assessment in this report of the draft Public Sector Waste and Resource Efficiency Plan.

Overall, Option 2 (best practice) has been assessed as having a more positive effect than Option 1 (do minimum alternative) and a slightly less positive effect than Option 3 (beyond best practice).

Habitats Regulations Assessment

The HRA was undertaken in parallel with the SA allowing feedback of the outputs from the assessment process at the earliest stage.

This report addresses the requirements for screening assessment undertaken as part of Stage 1 of the HRA process to establish whether or not the likely impacts of the Public Sector Waste and Resource Efficiency Plan is likely to have significant effects upon Natura 2000 sites.

Through the HRA screening it has not been possible to categorically demonstrate that the Public Sector Waste and Resource Efficiency Plan will not have any likely significant effects upon Natura 2000 sites, the Natura 2000 network or Ramsar sites. Given the uncertainty relating to the likelihood of significant effects, further detailed assessment through 'Appropriate Assessment' is considered necessary to satisfy the requirements of the Habitats Regulations. However given the strategic level of the plan and lack of detail on potential projects or proposals for its implementation there is insufficient detail at this time to enable a more in-depth analysis to the degree required for Appropriate Assessment. It will only be possible to undertake this level of assessment once specific projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

Health Impact Assessment (HIA)

The purpose of an HIA is to identify and assess both the beneficial and detrimental effects of the draft Public Sector Waste and Resource Efficiency Plan on human health. The HIA aims to enhance the benefits whilst minimising its potential detrimental effects of the plan.

The Public Sector Waste and Resource Efficiency Plan sets out proposed actions which seek to prepare both the Public Sector throughout Wales and the waste industry to address waste prevention, preparation for reuse, recycling as well as treatment and disposal.

All positive health impacts resulting from assessment of the Public Sector Waste and Resource Efficiency Plan were largely confined to those actions which involved measures of change rather than proposed research, campaigns or reviews of current practise or capacity.

All optional actions would have indeterminable outcomes and so were treated as having unknown impacts.

The plan provides an opportunity for a considerable positive health effect upon the economy, employment and the public approach to waste minimisation through promoting reuse and whole life procurement practices, rather than short-term use and disposal.

A strong association exists between long-term unemployment and poor health. Therefore where the Public Sector Waste and Resource Efficiency Plan generates new employment opportunities it also provides a positive heath impact on economy and employment. There may be some negative effects arising from job losses in the waste disposal sector.

Sustainable procurement principals as outlined in the Public Sector Waste and Resource Efficiency Plan would have a direct and positive health effect upon employment and economy. Sustainable procurement would allow for the reduced environmental impact and improved social cohesion of using locally sourced contract staff and suppliers.

A reduction in waste disposal through sustainable procurement measures would result in a reduction in emissions from waste processing and disposal providing direct positive health benefits to both social capital and the environment. However, there would still be some emissions associated with transportation of reused or recycled materials.

Several actions suggested developing practices which would influence the supply chain. Though positive in principal, a potentially negative impact could be the exclusion of small to medium size enterprises who might be less able to compete against larger organisations ability to adapt to requirements or accreditation measures. Provision should be made to assist smaller suppliers in meeting sustainable procurement benchmarks and accreditation.

Monitoring

Monitoring involves measuring indicators which establish a link between implementation of the Public Sector Waste and Resource Efficiency Plan and the likely effects being monitored. Indicators presented on the environmental baseline should be considered and reviewed to ensure that potential environmental, social and economic effects of the Public Sector Waste and Resource Efficiency Plan can be effectively measured and monitored after its adoption.

Most of the sustainability monitoring indicators proposed for each objective are described in the 'State of the Environment Report, July 2012'.

Potential sources of information include data and statistics held by Welsh Government (StatsWales), Natural Resource Wales (including reports from Environment Agency Wales and Countryside Council for Wales), Department for Environment, Food and Rural Affairs (Defra), the Nuclear Development Agency, the Department of Energy and Climate Change and Public Health Wales.

Conclusions

Provided that proposed mitigation and enhancement measures are incorporated in the draft Public Sector Waste and Resource Efficiency Plan, it is expected that the implementation of the Plan will have a strong positive effect on waste infrastructure and waste management SA objectives and a positive effect on all other objectives. Where unknown or mixed positive and negative effects have been identified, the significance of these should be monitored at project level.

Next Steps

Consultation

This report will be updated to incorporate the results of consultation of this report and changes during the development of the final Public Sector Waste and Resource Efficiency Plan.

We welcome all your comments on the content of this SA Report, in particular:

- Do you agree with the approach taken in this report and the conclusions reached? If not, please explain your reasons.
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward?
- Are there any other links between the draft Public Sector Waste and Resource Efficiency Plan actions and other Sector Plans actions?

Other steps

The consultation comments will be reviewed and the Public Sector Waste and Resource Efficiency Plan will be amended accordingly.

A Post-adoption Statement will be issued to summarise how the SA has influenced in the development of the Plan.

The consultation period will run until 05 December 2015. Should you wish to send any comments on the contents of this Sustainability Appraisal Report, or in response to the questions posed above please reply by letter, fax or e-mail to:

Waste Strategy Branch
Department for Natural Resources
Welsh Government
Cathays Park
CF10 3NQ

Email: wastestrategy@wales.gsi.gov.uk
Telephone: 0300 0603300 or 0845 010 3300

1 INTRODUCTION

1.1 Overview

1.1.1 In April 2009, the Welsh Government launched its Overarching Waste Strategy Document for Wales, 'Towards Zero Waste' (TZW). This document sets out a long term framework for waste management and resource efficiency until 2050. It describes the ways in which sustainable waste management can be delivered in Wales and builds on the previous waste strategy 'Wise about Waste', which was launched in 2002.

1.1.2 TZW sets out an ambitious target to achieve 70% recycling in the medium term and to achieve zero waste (100% recycling) by 2050. The Welsh Government has developed a series of sector plans to support TZW. The sector plans developed for each of the identified sectors explain how specific sectors should manage resources to achieve the stated outcomes.

1.1.3 Welsh Government has a legal duty with regard to sustainability. The preparation of TZW was informed by the Sustainability Appraisal (SA) incorporating Strategic Environmental Assessment (SEA) (referred to hereafter as SA/SEA), a Health Impact Assessment (HIA) and Habitats Regulations Assessment (HRA) to assist in identifying and assessment options for recycling and composting targets for various waste streams. TZW included a commitment to ensure that the subsequent Sector Plans are subject to the same process.

1.1.4 In line with this commitment, the Sector Plans are each subject to separate SA, HIA and HRA, which will subsequently accompany the overarching Strategy. The SA approach will follow an integrated assessment methodology 'SA/SEA' to comply with the requirements of the SEA Directive as transposed into Welsh law by "The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004".

1.1.5 Parsons Brinckerhoff has assessed the TZW Sector Plans produced to date, including the Public Sector Waste and Resource Efficiency Plan. This document presents the results of the SA/SEA, HIA and HRA process undertaken for the Public Sector Waste and Resource Efficiency Plan.

1.2 The SA Process

1.2.1 Welsh Government has committed to the consideration of the sustainability effects of the TZW Sector Plans and to consider ways in which they can be made more sustainable. Sustainability Appraisal is an appraisal of the economic, social and environmental sustainability of a plan. In line with the commitments set out by Welsh Government, the SA is being conducted in such a way as to be compliant with the requirements of the European Directive on the assessment of the effects of certain plans and programmes on the environment and the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (hereafter referred to as the SEA (Wales) Regulations).

1.2.2 Under the SEA (Wales) Regulations 2004, SEA is mandatory for plans and programmes that are prepared for waste management and which set the framework for future development consent for projects which are listed in Annexes I and II of the Environmental Impact Assessment (EIA) Directive (2011/92/EU). The Public Sector Waste and Resource Efficiency Plan forms part of Welsh Government's statutory waste plan under Article 28 of the revised Waste Framework Directive (Article 28 part 3(c) of Directive 2008/98/EC). As such, the Public Sector Waste and Resource

Efficiency Plan sets the framework for future waste management development consent. Consequently it is considered that there is a legal requirement to carry out SEA. In addition to this, Welsh Government has committed to consideration of the sustainability effects of the Public Sector Waste and Resource Efficiency Plan to consider ways in which it can be made more sustainable.

1.2.3 SA/SEA is an iterative process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine plans or programmes in view of the predicted environmental effects. The effects predicted at this stage will remain at a strategic level and will not provide as much detail or certainty as for project level Environmental Impact Assessments (EIA).

1.2.4 The approach taken for the SA is based on that set out in the Practical Guide[1]. This breaks the SEA process down into five key stages (A-E), summarised in Table 1.1 below for the Public Sector Waste and Resource Efficiency Plan.

[1] Office of the Deputy Prime Minister (ODPM) (September 2005), *A Practical Guide to Strategic Environmental Assessment Directive.* London: HMSO.

Table 1.1: The Public Sector Waste and Resource Efficiency Plan SA Process

SA/SEA Stage	The Public Sector Waste and Resource Efficiency Plan SA
Stage A: Setting the context and objectives, establishing the baseline and deciding the scope	A Scoping Report for all TZW Sector Plans was produced in September 2010. This Scoping report included the outcome of a review of Policies, Plans and Programmes (PPPs) and a summary of the baseline conditions. It set out the scope and intended approach for the remaining sectors plans and invited comment on this from the consultation bodies as set out in the SEA Regulations 2004. The report was issued for consultation to statutory consultees from 20 September 2010 to 25 October 2010. The sustainability issues and SA framework emerged from the TZW SA were reviewed and updated accordingly in this report in accordance with the outcomes of the additional PPPs and baseline conditions review and consultation responses.
Stage B: Developing and refining alternatives and assessing effects	As TZW already set up the strategic alternatives for managing waste in Wales, and for consistency with the approach undertaken in preceding Sector Plan SAs, the SA of the Public Sector Waste and Resource Efficiency Plan intends to consider and assess alternatives based on the proposed actions. The SA process followed was established by previous SA for TZW. Prior to undertaking an assessment of the actions, a screening exercise was undertaken to assess the need of taking each action forward for a SA. This SA report presents the findings of the screening and what actions are taken forward for a SA under this or other linked Sector Plans. This SA report also includes a sustainability assessment of actions and the assessment of the alternatives presented for each action. An HRA screening assessment and an HIA of the Public Sector Waste and Resource Efficiency Plan were undertaken in parallel with the elaboration of this report and their findings have been incorporated in this report.
Stage C: Preparing the Environmental Report	This report presents a full SA of the draft Public Sector Waste and Resource Efficiency Plan. The approach is consistent with previous Sector Plans, although some amendments have been made in response to feedback from consultation.
Stage D: Consulting on the draft plan or programme and the Environmental Report	This SA report will be made available for public consultation along with the draft Public Sector Waste and Resource Efficiency Plan, to seek the views of stakeholders (including the public) on the approach undertaken and the conclusions in this report. Views will also be sought on how to improve the sustainability of actions presented in the draft Public Sector Waste and Resource Efficiency Plan.
Stage E: Monitoring the significant effects of implementing the plan or programme on the environment	Monitoring will be undertaken following the adoption of the Public Sector Waste and Resource Efficiency Plan.

1.3 Purpose of this report

1.3.1 This SA Report presents the results of the SA/SEA process of gathering data and evidence, assessment of environmental effects, developing mitigation measures and making recommendations to refine the draft Public Sector Waste and Resource Efficiency Plan in view of the predicted environmental and socio-economic effects. It should be noted that the effects predicted at this stage remain at a strategic level and where uncertainty or detail is missing this will be identified in the assessment. The assessment is based on:

- Scoping Report for the TZW Sector Plans and its consultation responses;
- Previous the SA/SEA, HIA and HRA conducted for TZW Sector Plans;
- Draft Public Sector Waste and Resource Efficiency Plan – For Consultation (Welsh Government, September 2015).

1.4 Structure of this report

1.4.1 This report is structured as follows:

Table 1.2: Structure of this SA Report

Section	Title	Description
Non Technical Summary		Presents a Non-Technical Summary of the Report contents and findings.
Section 1	Introduction	Sets out the background, purpose, and structure of the SA Report.
Section 2	The Public Sector Waste and Resource Efficiency Plan	Sets out the background and contents to the Public Sector Waste and Resource Efficiency Plan.
Section 3	SA / SEA Methodology	Provides a summary of the SA/SEA process. Sets out the screening methodology, steps undertaken under the SA/SEA process for the Public Sector Waste and Resource Efficiency Plan SA.
Section 4	Context, Baseline & Limitations	Presents a summary of baseline data collected with sources and limitations.
Section 5	Key Sustainability Issues and the SA framework	Sets out a list of the sustainability objectives and key sustainability issues.
Section 6	Sustainability Appraisal Results	Presents the findings of the SA of the plan actions. Provides the identification of strategic alternatives, by highlighting the sustainability implications of each, and by putting forward recommendations for improvement.
Section 7	Health Impact Assessment	Presents a summary of findings of the Public Sector Waste and Resource Efficiency Plan HIA and how they have been incorporated into this report.
Section 8	Habitats Regulations Assessment	Presents a summary of findings of the Public Sector Waste and Resource Efficiency Plan HRA and how they have been incorporated into this report.
Section 9	Implementation &	Sets out monitoring measures of potential

	Monitoring	predicted effects of the Public Sector Waste and Resource Efficiency Plan implementation.
Section 10	Next Steps	Presents the methodology and work to be undertaken during the next phase of the SA/SEA.
Section 11	References	
Glossary		
Appendices		

1.5 Legislative Background

1.5.1 In line with the commitments made by Welsh Government in TZW, the remaining seven Sector Plans will be subject to SA incorporating the requirements of SEA as set out through the Directive 2001/42/EC and its transposing legislation.

1.5.2 Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (known as the SEA Directive) is implemented in Wales through the Environmental Assessment of Plans and Programmes Regulations (Welsh Statutory Instrument 2004 No. 1656, referred to hereafter as the 'SEA Regulations'). The SEA Regulations apply to any plan or programme which relates either solely to the whole or any part of Wales. The SEA described in this Scoping Report will therefore be undertaken under these Regulations.

1.5.3 The Directive's overall objective is to 'provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment'.

1.5.4 In accordance with the Directive, the SA/SEA is being undertaken to assess the effects of the emerging proposals for Sector Plans.

SA/SEA Guidance

1.5.5 The Government's 'Practical Guide to the SEA Directive' (Office of the Deputy Prime Minister (ODPM) et. al. 2005) provides advice on how to meet the requirements of the SEA Directive and implementing regulations in practice. The preparation of this Scoping Report has followed this guidance which is referred to as the 'Practical Guide (ODPM et. al. 2005)' throughout.

Health Impact Assessment

1.5.6 HIA is a process designed to identify and evaluate the potential health effects of a proposed programme and to facilitate opportunities to improve health and well-being.

1.5.7 HIA involves strict quantitative data collection and assessment processes, where the viability of a scheme or its compliance is assessed against a strict set of performance standards. HIAs are directed and governed by community led Steering Groups to provide opportunity for wider public engagement.

1.5.8 The HIA evidence base, including the policy analysis, has largely been derived from both Sustainability Appraisals for the Draft Wales Waste Strategy and the Municipal Sector Plan.

1.5.9 This allowed sufficient time and resource to maximise the benefits which result from the distinctive elements of an HIA over other statutory assessments, notably;

- the examination of the effects upon wider aspects of health and wellbeing,
- interviews with consultees and key informants,
- opportunity for a broader base for evidence gathering, and
- recommendations arising from the HIA.

1.5.10 The HIA process followed and its key findings are described in Section 7 of this report.

Habitats Regulations Assessment

1.5.11 Under Article 6 (3) of the EU Habitats Directive (Directive 92/43/EEC) as transposed in the UK by The Conservation of Habitats and Species Regulations 2010 (Part 6), an 'Appropriate Assessment' needs to be undertaken in respect of any plan or project which:

- either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the Natura 2000 Network; or
- is not directly connected with the management of the site for nature conservation e.g. a site conservation plan.

1.5.12 This includes Special Areas of Conservation (SAC) designated under the Habitats Directive for their habitats and/or species of European importance and Special Protection Areas (SPA) designated under the Birds Directive (Directive 2009/147/EC) for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands. It is a matter of law that candidate SACs (cSACs) are considered in this process. In addition, it is Government policy that sites designated under the 1971 Ramsar Convention (Ramsar Sites) are considered.

1.5.13 A HRA Screening exercise has been undertaken to determine whether the Sector Plans could have a significant effect on sites within the Natura 2000 Network and Ramsar sites. Further information on this is presented in Section 8 below.

1.6 Compliance with the SEA Directive

1.6.1 The SEA Directive, as transposed by the SEA (Wales) Regulations requires the preparation of an Environmental Report which covers the criteria set out under Regulation 12 and Schedule 2 of the Regulations. Section 9.3 of this SA report (Quality Assurance) and Table 9.2 summarises how these requirements have been incorporated within this SA.

1.6.2 Consultation is a key element of both plan development and the supporting assessments. Extensive public and stakeholder consultation has been undertaken at key stages throughout the development of the TZW document and its Sector Plans to date. This is outlined below.

1.7 Previous Consultation

Towards Zero Waste

1.7.2 TZW – the Overarching Waste Strategy Document was published in June 2010 following Public Consultation. It was accompanied by a Sustainability Appraisal Post-Adoption Statement and a consultation summary which set out the responses received during the consultation and Welsh Government's identified actions in response to the comments[2].

1.7.3 The Post-Adoption Statement of the TZW SA (June 2010) recommended the following for consideration in the SAs of the Sector Plans:

- The incorporation of more specific indicators that can be developed at the Sector Plan level but also perhaps more usefully, at the regional and local level.
- Welsh Government will consider on a 'sustainability' basis and not solely taking into account environmental issues CCW[3] request for 'consideration for funding for programmes and developments derived from the Waste Strategy (to) be made conditional on relevant satisfactorily addressed environmental assessments being undertaken'.

Public Sector Waste and Resource Efficiency Plan Consultation

1.7.4 The Public Sector Waste and Resource Efficiency Plan forms part of a suite of documents that have been published with the aim of achieving the objectives of TZW across a range of different sectors. The table below outlines the programme of consultation for the different sector plans including the Public Sector Waste and Resource Efficiency Plan.

Table 1.3: Sector Plan Consultations

Sector Plan	Consultation Start	Consultation End	Publication of Final Plan
Public Sector **(this plan)**	September 2015	05 December	March 2016
Industrial & Commercial (I&C)	May 2013	June 2013	October 2013
Waste Prevention Programme (WPP)	May 2013	June 2013	December 2013
Construction & Demolition (C&D)	November 2011	January 2012	November 2012
Collections, Infrastructure & Markets (CIM)	March 2011	May 2011	May 2012
Food, Manufacture, Service & Retail (FMSR)	March 2011	June 2011	Spring 2014
Municipal	June 2010	September 2010	March 2011

[2] www.wales.gov.uk/waste www.cymru.gov.uk/gwastraff
[3] CCW and EA are now part of Natural Resources Wales (NRW)

Sustainability Appraisal Scoping Consultation (September 2010)

1.7.5 The SA Scoping report for all the other TZW Sector Plans was produced in September 2010 and was sent to statutory organisations for consultation. The consultation period ran from 20th September 2010 to 25th October 2010.

1.7.6 The scoping consultation sought views from statutory organisations including Countryside Council for Wales (CCW), Environment Agency Wales, Cadw, National Public Health Service, and the Welsh Health Impact Assessment Support Unit. Natural England, neighbouring Environment Agency Regions and English Heritage have also been consulted to ensure that any potential boundary issues are identified.

1.7.7 A summary of the scoping consultation responses and how they have been taken into account is provided in Appendix A.

1.7.8 The key objectives and issues addressed in the Public Sector Waste and Resource Efficiency Plan are largely consistent with that of the other TZW Sector Plans, most notably, the I&C, FMSR and WPP Sector Plans. In addition, the methodology used to complete the SA was consistent with that used in the other TZW Sector Plans. Any changes to plans, policies and programmes that have occurred since 2010 have been incorporated into the baseline information used in the assessment.

1.8 Consultation on this Report

1.8.1 This Report is being issued for public consultation alongside with the draft Public Sector Waste and Resource Efficiency Plan. We welcome all your comments on the content of this SA Report, in particular:

- Do you agree with the approach taken in this report and the conclusions reached? If not, please explain your reasons.
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward?
- Are there any other links between the draft Public Sector Waste and Resource Efficiency Plan actions and other Sector Plans actions?

1.8.2 The consultation period for this Sustainability Appraisal Report, is open until 05 December 2015.

1.8.3 Please send any comments on the contents of this Report, or in response to the questions posed above by letter, fax or e-mail to:

Waste Strategy Branch
Department for Natural Resources
Welsh Assembly Government
Cathays Park
CF10 3NQ

Email: wastestrategy@wales.gsi.gov.uk
Tel: 02920 821787

2 THE PUBLIC SECTOR WASTE AND RESOURCE EFFICIENCY PLAN

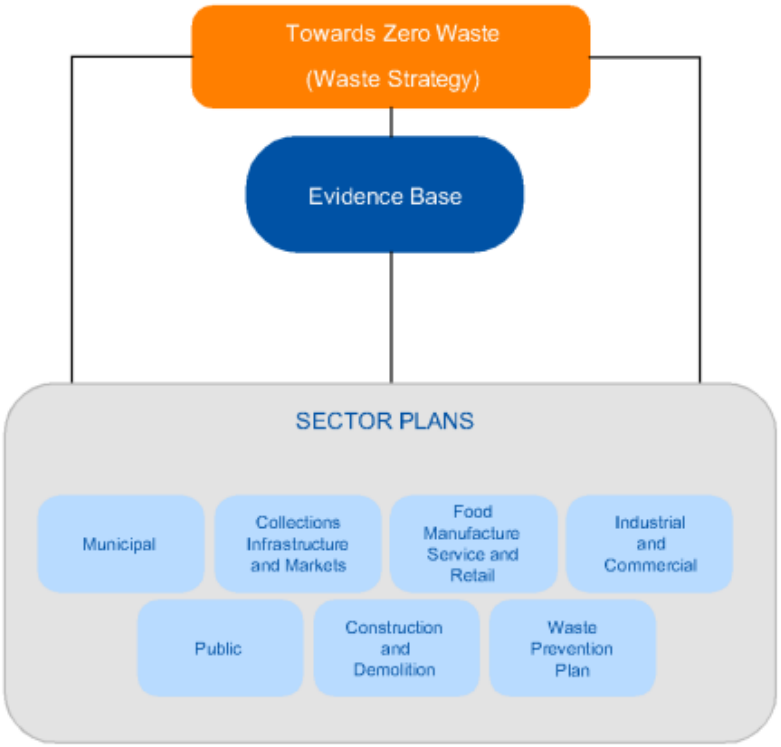
2.1 Context

2.1.1 Towards Zero Waste (TZW) (2010) augments the agenda set out in the former document 'Wise about Waste' (2002), integrating ambitious targets for waste reduction, recycling and ultimately elimination of landfill.

2.1.2 Mechanisms for delivery of TZW will be contained in the Sector Plans. The relationship between the TZW overarching strategy, evidence base and the Sector Plans is demonstrated graphically in Figure 2.1 below.

2.1.3 The remainder of this section draws on information and content within the draft Public Sector Waste and Resource Efficiency Plan.

Figure 2.1 – Welsh Government's Waste Management Strategy Hierarchy



2.2 Aim & Scope of the Public Sector Waste and Resource Efficiency Plan

2.2.1 The sector plan covers wastes generated by the activities of publicly funded bodies providing services in relation to health care, education, local government, environment, justice administration and emergency response. Welsh Government Sponsored Bodies (WGSBs) and UK-wide government bodies having offices in Wales are also covered by the sector plan, including:

- Welsh Government

- National Museum
- Arts Council
- Sports Council Wales
- National Library
- HEFCW
- Velindre NHS Trust/Public Health Wales
- National Park Authorities
- Natural Resource Wales
- Fire & Rescue Authorities
- Local Authorities
- Local Health Board
- Community Councils
- Public Service Boards

2.2.2 This Sector Plan addresses waste materials that arise at the premises of public sector bodies due to the presence of employees, contractors or citizens using the facilities available at the premises. The types of waste covered by this Sector Plan include:

- All general office waste produced by employees of public sector organisations, irrespective of whether the waste is collected and managed by private contractors or local authorities.
- All large office items including furniture and information and communications technology.
- All waste electrical and electronic waste (WEEE)
- All food waste produced on the premises of public sector organisations or as a result of events or meetings held externally funded by public sector organisations.
- All wastes generated by citizens using the premises and services provided by public sector organisations.
- All healthcare and personal hygiene waste produced, for example, in hospitals and health clinics.
- Grounds maintenance wastes
- All wastes created by contractors, employees or third parties in the delivery of services to citizens on behalf of public sector organisations including construction & demolition waste generated through construction activities, office refurbishment activities, highway maintenance etc.

2.2.3 Wastes not covered in this Sector Plan include:

- Wastes from households and businesses collected through local authority operated collection schemes or wastes at Civic Amenity sites / Household Waste Recycling Centres. These are covered in the Municipal Sector Plan.

2.3 Content

2.3.1 The Public Sector Waste and Resource Efficiency Plan sets out a number of actions to take forward in the following key areas:

i) Waste prevention

- Ensure the adoption of a long term approach to sustainability within the public sector.
- Reduce both the ecological and carbon footprint of waste in the sector, primarily through effective sustainable procurement practices, including the reuse of products and extension / optimisation of the life of products.

ii) Preparation for reuse

- Improve, promote and develop preparation of items for reuse and redistribution, to protect natural resources and limit the production of legacy waste potential from the public sector.

iii) Recycling

- Make the most of our valuable resources by improving the source separation and management of priority materials within the public sector, (in accordance with the 2015 Waste Framework Directive requirement).
- Achieve 90 per cent recycling of priority materials and 70 per cent overall recycling rate by 2025 and increase opportunities for 'recycling on the go' for public visitors to public sector offices, facilities and events.

iv) Other recovery and disposal

- Recover the energy and value of resources that cannot be recycled.
- Eliminate waste disposed of to landfill through action on waste prevention, reuse and recycling.

2.4 Targets

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

2.4.2 This is an intermediate step on the way to the 2050 target of achieving zero waste and 'living within our environmental limits'[4]. This is needed because reducing the impact of waste in Wales to 'One Planet' levels will require big changes in the way that products and services are designed, and the actions that consumers and businesses take.

2.4.3 Waste arisings need to be reduced significantly across all sectors in order to achieve the One Planet goal for 2050. Welsh Government will move from a product orientated

4 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).

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.

2.4.4 The waste targets for each of the commercial sector which is applicable to the Public Sector Waste and Resource Efficiency Plan (as outlined in Towards Zero Waste) are outlined below;

- *R*eduction of 1.2% every year to 2050 based on 2006/7 baseline. This equates to 20,129 tonnes per annum of commercial waste.

2.5 Approach

2.5.1 The waste hierarchy gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then other recovery (e.g. of energy), and last of all disposal (e.g. landfill).

2.5.2 As the demand for materials grows worldwide, raising input costs, it makes sense for businesses to adopt the waste hierarchy.

2.5.3 Article 4 of the revised EU Waste Framework Directive (Directive 2008/98/EC) sets out five steps for dealing with waste, ranked according to environmental impact – the 'waste hierarchy'.

2.5.4 Businesses and public bodies now have a duty to apply the waste hierarchy when making decisions about their waste. Guidance[5] has been produced to assist them in applying the hierarchy. This guidance is for any Welsh business or public body which generates, handles or treats waste. It sets out:

- what the waste hierarchy is;
- how it works for a range of common materials and products;
- what businesses and public bodies need to do; and
- key questions and ideas for dealing with waste in line with the hierarchy.

3 APPRAISAL METHODOLOGY

3.1.1 In line with the commitments made by Welsh Government in TZW, the Public Sector Waste and Resource Efficiency Plan is subject to SA to assess the effects of the emerging plan and incorporate the requirements of the SEA Directive.

3.1.2 This report covers the SA/SEA steps following the consultation on the TZW Sector Plans Scoping Report.

[5] Guidance on applying the waste hierarchy can be found at: http://gov.wales/topics/environmentcountryside/epq/waste_recycling/publication/hierarchyguide/?lang=en

3.2 Development of the SA Framework

3.2.1 SA framework objectives were developed to help structure the assessment of the potential environmental and sustainability effects of the TZW Sector Plans. The development process of the SA objectives is described below.

Baseline information

3.2.2 The identification of baseline environmental, social and economic conditions is part of the SA/SEA process, which enables the identification of key sustainability issues of the draft Sector Plans to be appraised.

3.2.3 For consistency, baseline conditions described in the first Sector Plan (Municipal Sector Plan) SA/SEA were used. This has been updated with information that became available since the publication. Responses received as a result of the consultation on the TZW Sector Plans have also been incorporated.

3.2.4 The headline findings of the baseline review are presented in Section 4 of this report.

Identification of sustainability issues and opportunities

3.2.5 The identification of key sustainability issues and opportunities was undertaken through a review of existing baseline information and other relevant policies, plans and programmes.

3.2.6 The key sustainability issues and opportunities that emerged from are identified in Chapter 6 of TZW SA.

3.2.7 Although some baseline data has been updated as part of the SA for each Sector Plan, there have been no changes to the key sustainability issues.

Sustainability objectives

3.2.8 The Public Sector Waste and Resource Efficiency Plan is being developed to implement the objectives of TZW. In order to ensure consistency the same basic framework has been used to appraise the Sector Plans. This framework comprises nine headline sustainability appraisal objectives derived from the key sustainability issues, and supported by a number of sub-objectives.

3.2.9 The SA framework sub-objectives were presented on the TZW Sector Plans Scoping report have been amended to reflect the consultation responses to the Sector Plan Scoping Report received in October 2010 and subsequent review of PPP. Further detail is presented in Section 4 below.

3.3 Sustainability Appraisal Approach

3.3.1 The overall approach comprises a process following several steps, each looking at different elements of the plan being developed. The steps are listed below and are outlined in more detail in the following sections of the report:

- Compatibility test of the Sector Plan Objectives against the SA Objectives;
- Screening of Actions to identify actions for inclusion in the SA;
- Assessment of Actions;

- Description of Cumulative Effects;
- Consideration of Reasonable Alternatives.

3.4 Compatibility test of the Sector Plan Objectives against the SA Objectives

3.4.1 The aim of the compatibility assessment between the Sector Plan objectives and the SA objectives is to identify both potential synergies and inconsistencies between them.

3.4.2 A matrix was produced to assess whether each Sector Plan objective is broadly compatible or not compatible with SA objectives, or whether there was uncertainty over compatibility or no relationship between the objectives (Section 5). In some cases, the compatibility will depend on the detail provided on the Sector Plan.

3.4.3 Where objectives are not compatible, recommendations are provided to improve the fit with the SA. This can include recommendations for changes to the objectives. As SA is an iterative process, Objectives could be revised throughout the development of the Sector Plan if new information comes to light.

3.5 Screening of Actions to identify actions for inclusion in the SA

3.5.1 A screening of actions is the process to identify which actions proposed in each Sector Plan can be taken forward to the SA. Screening is undertaken to streamline the appraisal process so that actions which are unlikely to give rise to significant effects are not assessed. The actions considered omitted for assessment are those which fall into one of the following four categories:

- Administrative/Procedural: the action is related to administrative / procedural measures, such as joint working between Welsh Government and the UK Government.
- Existing Measures: the action provides a signpost to other legislation, strategy, targets and guidance rather than seeking to implement specific measures;
- Research: the action sets out measures that may be considered in the future once further research/investigation has been undertaken;

3.5.2 The screening criteria and methodology is described in detail in Section 6.

3.6 Assessment of the Actions

3.6.1 This stage considers the social, environmental and economic effects of each action being considered. For each action, potential changes to the sustainability baseline are identified. The assessment is largely qualitative in nature. Where this was the case, the prediction of effects was based on professional judgement and with reference to relevant legislation and guidance. These changes are described in terms of magnitude, geographical and temporal scope, duration, likelihood, frequency, reversibility, whether they are positive or negative. Any uncertainties or limitations are documented.

3.7 Description of cumulative effects

3.7.1 Potential for secondary, cumulative and/or synergistic effects are also considered and described as part of the assessment of the actions.

3.7.2 Cumulative effects could potentially be generated by accumulation of effects on one single environmental, social or economic aspect generated by the implementation of different actions, and/or generated by each Sector Plan in conjunction with the implementation of other Sector Plans.

3.8 Consideration of Reasonable Alternatives

3.8.1 The SEA Directive requires taking into account "reasonable alternatives", outlining the reasons for selecting the alternatives dealt with, and describing how the assessment was undertaken.

3.8.2 Given the specific nature of the Sector Plans, the reasonable alternatives are developed in line with the approach set out by the Waste Framework Directive; i.e. Do Minimum/Business As Usual, Best Practice and Beyond Best Practice.

3.8.3 Each alternative is considered in terms of their ability to support the achievement of the SA Objectives, thereby enabling comparison of the alternative's performance.

3.9 Limitations and Assumptions

3.9.1 This report is the result of an iterative process carried out in parallel to the preparation of the draft Public Sector Waste and Resource Efficiency Plan and in consultation with the Welsh Government.

3.9.2 In some cases, there were limitations during the SA process due to the level of detail available at a strategic level. Where appropriate, assumptions have been made clear within the report.

4 CONTEXT, BASELINE AND LIMITATIONS

4.1 Review of Other Relevant Plans, Programmes

4.1.1 A review of the other relevant policies, plans and programmes (PPP) was undertaken. Appendix B contains a full list of PPP reviewed and considered to identify sustainability objectives.

4.2 Baseline Information

4.2.1 The identification of current baseline environmental, social and economic conditions is part of the SA/SEA process which enables the identification of key sustainability issues of the draft Sector Plans to be appraised.

4.2.2 Chapter 5 and Annex B of TZW SA/SEA contained the baseline conditions considered for the subsequent Sector Plans. These baseline conditions have been amended and updated in response to consultation on subsequent Sector Plans.

4.2.3 The TZW SA baseline review indicates that Wales faces deterioration in terms of issues including air quality, biodiversity and geodiversity, birds and sustainable water resource management. The headline findings of the baseline review are summarised by topic in Table 4.1 below.

4.2.4 The SEA Directive requires consideration of the current state of the following aspects of the environment: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and interrelationship between all of them. Following those requirements, Table 4.1 presents relevant baseline conditions for each topic and the relationships between them.

Table 4.1 - Baseline Information

Topic	Baseline Conditions	Related topics
Air Quality	Baseline Characteristics Levels of air quality vary across the country, with South East Wales enduring the highest levels of air pollution. A primary factor in this deteriorating situation are emissions from transport, in particular, road transport, the continuing increase in use of this leading to worsening air quality levels across the Country. The UK Air Quality Strategy objectives have not been met, which has led to the declaration of 33 Air Quality management Areas (AQMAs) in Wales[6]. The main cause of pollution is nitrogen dioxide from road traffic. There are 26,364 people living in AQMAs in Wales in 2012 (0.9 per cent of the total population of Wales)[7]. Future trends: The increase of road traffic is of concern it counteracts the effect of tighter emission control measures The number of serious air pollution incidents has been declining in England and Wales since 2001.	Climate Factors Health Ecological Impacts of Air Pollution Resource Efficiency Electricity from Renewable Sources
Biodiversity & Geodiversity	Baseline Characteristics Approximately 10% of Wales' land cover is designated for nature conservation with this level increasing. The country enjoys a wealth of Special Areas of Conservation (SACs -92), Special Protection Areas (SPAs - 20), Ramsar sites (10) and over 1,000 Sites of Special Scientific Interest (SSSIs) either partially or entirely within Wales. Wales also contains one European Geopark, 351 Geological Conservation Review Sites and one UNESCO biosphere reserve. The status of priority habitats and species indicates, however, that just under half of all such habitats and just under one fifth of all species are declining. SSSIs are also anticipated to witness an increase in those designated as declining. The primary factor behind the status of this decline and that of biodiversity generally, are new developments and the land take which this can involve. In 2005, 29% of the area covered by SSSIs was in favourable condition, 18% was in unfavourable but recovering condition, with a further 52% being in 'unfavourable and declining' condition. In 2006, 12% of Wales is designated as SSSI. (Welsh Government, 2010)[8] During the period 2000-2009: 54% of Natura 2000 species features were in favourable condition and 45% in unfavourable condition; 60% of Natura 2000 habitats features were in favourable condition, 23% in unfavourable condition and 16% recovering. (Welsh Government, 2010) In the period 2005-2008, the number of BAP priority species increased from 179 to 195 and the number of habitats decreased from 39 to 38. Of the priority species (with information available) the percentage of species classed as declining decreased from 18% in 2005 to 16% in 2008. Of the priority habitats with information available, the percentage of habitats classed as declining decreased from 59% in 2005 to 53% in 2008.[9]	Landscape Climate Factors Cultural Heritage and Historic Environment Ecological Impacts of Air Pollution Birds Soil River Quality Water and Flood Risk

[6] http://aqma.defra.gov.uk/aqma/tables.php

[7] https://statswales.wales.gov.uk/Catalogue/Environment-and-Countryside/State-of-the-Environment/Environmental-Hazards/NumberOfPeopleLivingInAirQualityManagementAreas-by-Year

[8] Welsh Government, 2010. State of the Environment Report (Last updated, December 2010)

[9] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/TrendsInBiodiversityActionPlan-by-PrioritySpeciesAndHabitats

Topic	Baseline Conditions	Related topics
	Future trends: No clear data was available for Natura 2000 sites, although the 2007 JNCC report suggests that the results of the assessments for 'future prospects' are encouraging[10]. The aggregate indexes for Broad Habitats published by JNCC[11] suggest that 9 of the 14 Broad habitats in the UK are on average showing a tendency to decline. Based on data published by JNCC in 2010, of 174 BAP Priority Species records held (including birds), 92 showed an average decline whilst 13 reflected an increase[12].	
Birds	Baseline Characteristics Wild bird populations are considered to be a good indicator of the broad state of wildlife and the countryside. The national picture indicates that there has been little substantive recovery in terms of those species suffering from long-term decline. Nationally, farmed habitats continue to see a decline in bird species[13]. A more upbeat picture exists, however, for breeding birds where levels have remained stable. (Welsh Government, 2010) Future trends Farmed habitats continue to see a decline in bird species and this is expected to continue. The overall population of breeding birds has been relatively stable over the short-term; this trend is expected to continue. (Welsh Government, 2010)	Landscape Climate Factors Biodiversity and Geodiversity Ecological Impacts of Air Pollution
Climate Factors	Baseline Characteristics The current primary sources of GHGs are energy industries, manufacturing industries and construction, and the transport sector. Estimated emissions of GHG in Wales fluctuate from year to year, but have decreased from 54.9 million tonnes (carbon equivalent) in 1990 to 45.8 in 2012.). Future trends: A decrease of 10 per cent in emissions of the basket of greenhouse gases from Wales in 2008 has been an estimated compared to base year emissions[14]. Predictions suggest that the sink for greenhouse gases will continue to decline, and estimates of methane and nitrous oxide emissions due to Land Use, Land-Use Change and Forestry (LULUCF) activities remain small Climate change prediction effects in Wales indicate that there will be an increase in the amount of winter rainfall by around +33% and an increase of average summer temperatures of 2.7-4.1C. Sea levels are forecast to rise. Wales has improved resilience to the impacts of climate change and this trend is expected to continue.	Ecological Footprint Air Quality Biodiversity and Geodiversity Resource Efficiency Water and Flood Risk Health Electricity from Renewable Sources

[10] Joint Nature Conservation Committee, 2007. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006.
[11] http://www.jncc.gov.uk/page-3753
[12] http://www.jncc.gov.uk/default.aspx?page=3320
[13] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/ShortTermAbundanceOfWidespreadBreedingBirds
[14] Welsh Assembly Government, 2010. State of the Environment Report (Last updated, December 2010)

Topic	Baseline Conditions	Related topics
Cultural Heritage and Historic Environment	Baseline Characteristics Wales has a rich and diverse cultural and historic heritage. Six world heritage sites, including the industrial landscape of Blaenafon, are internationally recognised for their outstanding universal value Nationally statutorily protected historic assets include just under 30,000 listed buildings and over 4,100 scheduled ancient monuments, representing the 1-2% of the overall building stock, and many representing the rich industrial and mining heritage of the country. Another key asset is that of historic parks and gardens, 386 of which are listed on the Cadw/CCW/ICOMOS UK register. 129 of these monuments are in state care[15], and six designated historic wrecks. There are also 526 Conservation Areas designated for their local importance and 58 landscapes of historic interest[16]. Overall there has been an increase in the number of SM which are 'stable' or 'improved' from 85% in 1996 to 90% in 2003. In 2010, the local authority with the highest number of historic assets statutorily classed in Wales was Powys, and the lowest in each category was Blaenau Gwent. The percentage of the sample of listed buildings in Wales that were classed as 'at risk' or 'vulnerable' has fallen slightly in 2008. Future trends: Overall there has been a rise in the number of SM which are 'stable' or 'improved', this trend is expected to continue. The percentage of SMs which have deteriorated has reduced and this trend is also expected to continue.	Landscape Biodiversity and Geodiversity Resource Efficiency Electricity from Renewable Sources
Landscape	Baseline Characteristics Torfaen and Monmouthshire (76 per cent) have the highest percentage of its population living within a 300m walk of any accessible natural greenspace, whilst Carmarthenshire (24 per cent) has the lowest. In 2008, 26 per cent of adults living in Wales frequently used the outdoors for informal recreation. In comparison, 59 per cent of adults living in Wales used the outdoors infrequently and 14 per cent rarely or never used the outdoors for informal recreation[17]. In 2012 96.9% of the population lived within a ten minute walk of a natural green or blue space in Wales.[18] Wales has a wealth of designated and non-designated landscapes, including three national parks covering 20% of Wales (Brecon Beacons, Snowdonia and Pembrokeshire Coast National Park) and five Areas of Outstanding Natural Beauty (AONB) (Wye Valley (spanning England and Wales), Anglesey, Clywdian Range, Gower and Llŷn). In addition, there is just under 500km of heritage coast, 3 National Trails, over 33,000km of public right of way paths and about 22%[19] of the Welsh countryside is accessible for public access on foot. There are also 58 landscapes[20] of outstanding/special historic interest in Wales on the Cadw/CCW/ICOMOS UK register. Future trends: The distinctive character of the Welsh landscape has been and remains under threat and is declining. The quality and diversity of the natural and historic character of our landscape and seascape is maintained and enhanced (Welsh Government, 2010).	Biodiversity and Geodiversity Cultural Heritage and Historic Environment River Quality Soil Waste Water and Flood Risk Population Mobility

[15] http://www.castlewales.com/cadw_rsk.html
[16] http://www.cadw.wales.gov.uk/default.asp?id=108 and http://www.cadw.wales.gov.uk/upload/resourcepool/Caring%20for%20Historic%20Landscapes4584.pdf
[17] This is the first survey of participation in outdoor recreation among adults living in Wales (Welsh Government, 2010).
[18] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development
[19] http://www.ccw.gov.uk/about-ccw/newsroom/latest-news/discovering-waless-natural-he.aspx
[20] http://www.cadw.wales.gov.uk/default.asp?id=108 and http://www.cadw.wales.gov.uk/upload/resourcepool/Caring%20for%20Historic%20Landscapes4584.pdf

Topic	Baseline Conditions	Related topics
	Future changes to the farming subsidy regime have the potential to result in significant changes to the landscape.	Social Accessibility
Ecological Footprint	Baseline Characteristics The ecological footprint of Wales increased from 4.2 global hectares per person in 1999 to 4.4 in 2006 (it peaked at 4.8 in 2004). The ecological footprint of Wales was slightly lower than for the UK in 2006, but was more than double the average earthshare. The average 'earthshare'[21] was 1.8 global hectares per person and the ecological footprint of the world was 2.6 global hectares per person. Welsh local authorities in rural areas generally had a higher ecological footprint than authorities in urban or valley areas in 2006. Housing accounts for approximately 20% of Wales' ecological footprint[22]. Future trends: Welsh Government is committed to reduce the Ecological Footprint of Wales in One Wales One Planet and these actions should continue to decrease Wales' Ecological Footprint.	Air Quality Climate Factors Ecological Impacts of Air Pollution Resource Efficiency Water and Flood Risk Soil Housing
Ecological Impacts of Air Pollution	Baseline Characteristics A reduction in air pollution leads to increased life expectancy and ecological protection. The national picture indicates that Wales has very high levels of sensitive habitats exceeding critical loads for acid deposition, currently standing at 80.4% in 2006-2008. This is exceeded by the percentage of such habitats where eutrophying pollutants exceeded critical loads, at 86.5% in the same time period. These levels are significantly higher than the UK as a whole (53% for acidification and 58% for eutrophication) and underlines the challenge faced in ensuring that these levels are reduced. There was a clear improvement [23]in the percentage of sensitive habitats in Wales exceeding critical loads for acid deposition in 2006-08 there has been a decrease of 2 percentage points. The percentage of sensitive habitats in Wales where eutrophying pollutants exceeded critical loads for nutrient nitrogen has been fairly stable since 2001-03. Further improvements have since been seen in 2010-2012 where the percentage of sensitive habitats in Wales subject to excessive loads of acidification was 76.6%, and the percentage of sensitive habitats subject to eutrophication was 91.6%.[24] Future trends: The percentages of sensitive habitats exceeding critical loads for acid deposition and sensitive habitats where eutrophying pollutants exceeded critical loads are expected to decrease.	Air Quality Biodiversity and Geodiversity Birds Climate Factors Soil Water and Flood Risk Health

[21] The 'earthshare' is the average amount of global resources available per person. To calculate 'earthshare', the total available bioproductive land and sea area of the planet is divided equally among the current global population. If everyone lived within their 'earthshare', we would be ecologically sustainable at a global level (Source: SoE Stats Wales, 2010).

[22] The Sustainable Development Annual Report 2009-2010

[23] SoE (2010) Stats Wales: http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=10410

[24] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/SensitiveHabitatsExceedingCriticalLoadsForAcidificationAndEutrophication

Topic	Baseline Conditions	Related topics
Electricity from Renewable Sources	Baseline Characteristics Electricity in Wales generated from renewable sources increased[25] from 3.5% in 2005 to 4.3% in 2008. In 2012, renewable energy resources provided 6% of the electricity generated in the UK[26]. The percentage of electricity generated in Wales from renewable sources has nearly doubled since 2002, reaching 4.3 per cent in 2008[27]. This figure has nearly doubled again, to 8.7% in 2012[28] Future trends: The promotion of renewable energy has been growing in Wales over recent years, and this trend is expected to continue.	Resource Efficiency Ecological Footprint Air Quality Climate factors Housing
Resource Efficiency	Baseline Characteristics In 2007, waste production and management data was collected in a survey from 206 core organisations in the public sector across Wales[29]. The survey estimated that the public sector in Wales would both meet and exceed the 2010 target to reduce waste produced equivalent to at least 10 per cent of the 1998 arisings figure. The arisings figure for 1998-99 was 249,000 tonnes and 191,000 tonnes in 2007, i.e. a decrease of 24 per cent. The survey also estimated that based on an average composition of commercial waste it is estimated that a maximum of 49,800 tonnes of paper and cardboard, metal, food waste, plastic and wood could be diverted if effectively separated (assuming 100 per cent capture). This is 82 per cent of the general mixed municipal waste reportedly sent to landfill by the public sector per annum. Future trends: Although there is a stable / no clear trend in the proportion of waste reused and recycled, it is expected to increase.	Economy / Employment Soil Health Waste
Water Quality	Baseline Characteristics The Water Framework Directive (WFD) focuses on the ecological condition of water bodies and key biological species (including plant and fish life) and not just chemical quality as the General Quality Assessment (GQA) did. WFD classification results are now required to be used to establish the baseline for the water environment. The objective of the WFD is to achieve good status. Whilst the GQA shows that river water quality has improved over the last 20 years, under WFD, only 36% of surface water bodies in Wales currently achieve Good Ecological Status (2012 classification). Future trends: Due to the requirements of the WFD to all member states to aim to achieve Good Ecological Status by 2015, it is expected that river water quality (chemical and ecological) will improve.	Sustainable Water Management Waste Water and Flood Risk

[25] SoE (2010) Stats Wales: http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=10390
[26] Defra SD National Indicator 4 (2010): http://www.defra.gov.uk/sustainable/government/progress/national/4.htm
[27] The Sustainable Development Annual Report 2009-2010
[28] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/Electricity-generated-reneweable-resource
[29] Wales Public Sector Waste Production Survey, Welsh Assembly Government, November 2009

Topic	Baseline Conditions	Related topics
Soil	Baseline Characteristics It is estimated that Welsh soils contain 409 million tonnes of carbon[30]. Wales has a diverse range of soil groups, notably peat which comprises approximately 3-4% of national land coverage, predominantly acid blanket peat and including small areas of raised bog and fen peat scattered in lowland areas. The total amount of contaminated land in Wales is unknown; up to 2011, a total of 490 hectares of contaminated land in Wales has been converted into beneficial use[31]. Future trends: Although there is no clear trend on estimated net emissions of greenhouse gases from LULUCF in Wales, data from 2006-2008 indicate that they are likely to continue decreasing slightly[32].	Waste Resource Efficiency Air Quality Biodiversity and Geodiversity Cultural Heritage and Historic Environment Landscape
Sustainable Water Management	Baseline Characteristics The percentage of resource zones in Wales with target headroom deficits has varied since 2001-02, but improved to its lowest level of 12 per cent in 2008-09[33]. The percentage of water resource zones in Wales meeting target headroom requirements in 2012-13was 100% compared to 72% in 2001-2002[34]. Average per capita water consumption in Wales has reduced slightly. In Wales, people in measured households used an average of 118 litres per person per day in 2010-11, compared to 130 litres in 2001[35]. Overall, there has been a downward trend in water leakage in Wales, from 249 megalitres per day in 2001-02, to 196 megalitres per day in 2009-10[36]. Future trends: In the future, climate change will bring about more variable weather events, including droughts and floods, so water resource management will continue to be challenging.	Water and Flood Risk River Quality Climate Factors
Waste	Baseline Characteristics The picture across Wales as a whole indicates that the levels of waste generation from different sources have declined from across municipal, commercial and industrial sources. Levels of recycling have increased from across different sources reflecting the increasing priority being accorded to this. The volume of waste sent to landfill in 2009-2010 fell by 4% compared with 2008-09[37] and there has been a corresponding improvement in recycling performance with an estimated all-Wales average of 12.5%.	Soil Ecological Footprint Resource Efficiency

[30] Sustainable Development Annual Report (2009-2010)
[31] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5875
[32] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=23027
[33] The Sustainable Development Annual Report 2009-2010
[34] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/WaterResourceZonesMeetingTargetHeadroomRequirements
[35] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5810
[36] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5787
[37] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	In 2009-10, the percentage of municipal waste (excluding abandoned vehicles) reused, recycled or composted in Wales increased to slightly above 40 per cent for the first time[38]. Between 1998-99 and 2004-05, the total amount of municipal waste produced in Wales per year increased by almost 400 thousand tonnes. Since 2004-05, the total amount of municipal waste produced in Wales annually has been decreasing year on year[39]. 5.6 per cent of the UK's packaging waste recovery and recycling took place in Wales in 2010. The total amount of packaging waste recovered in Wales increased from 332 kilotonnes in 2009 to 407 kilotonnes in 2010. . Stocks of Intermediate Level Waste (ILW) and Low Level Radioactive Waste (LLW) are expected to rise significantly in Wales. No High Level Waste (HLW) is managed in Wales[40]. The number of fly-tipping incidents in 2009-2010 in highways, council land, back alleyway and agricultural land have decreased compared to the incidents recorded in 2008-2009. However, fly-tipping incidents have increased in 2009-2010 at the following types of land: footpaths, private/residential areas, commercial/industrial, watercourse/bank and railways[41]. Most common types of fly-tipped waste include household waste and construction and demolition waste, followed by other commercial waste and green waste[42]. Future trends: Recovery and Recycling rates achieved in the UK from 2006 to 2010 show an increasing trend[43] and this is expected to increase in Wales through the implementation of TZW and Recycling targets for Producer Responsibility Obligations (Packaging Waste) Regulations 2010. Waste generation across Wales have decreased and levels of recycling have increased. Recycling rates for C&I waste will continue to increase. Trends on commercial waste arisings are increasing and decreasing for industrial waste.	Education
Flood Risk	Baseline Characteristics The issue of flood risk management is one which also requires careful consideration to ensure that the nature of facilities and siting of such infrastructure does not adversely impact upon areas prone to flooding or in flood catchment zones. [44]. The impacts of climate changes means that flood risk is increasing from all sources, Rising sea levels and increasingly severe and frequent rainfall are expected to increase the likelihood of flooding. Natural Resources Wales is responsible for	Climate Factors River Quality Sustainable Water Management

[38] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5807
[39] The Sustainable Development Annual Report 2009-2010
[40] http://www.nda.gov.uk/ukinventory/summaries/wales.cfm
[41] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6808
[42] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6809
[43] Draft FMSR Sector Plan
[44] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5881&IF_Language=eng

Topic	Baseline Conditions	Related topics
	some 1,800 miles of flood defences and about 5,500 sluices, outfalls, floodgates and barriers in Wales. This does not include any structures to manage flooding from surface water and groundwater. It has been estimated that investment in flood defences will need to treble in the next 25 years in order to maintain the same level of flood defence[45]. Future trends: An increase of flooding (in both severity and frequency) is expected.	
Economy/ Economic Employment	Baseline Characteristics The national picture on employment levels indicates that Wales suffers from one of the lowest levels of employment in the UK with significant disparities existing between areas within the country. East Wales enjoys the highest rate of employment at 70.9%, especially in Powys (78.1%) and Monmouthshire (74.1); however Ceredigion registered the lowest employment rate (64.8%) in 2014. 98.2% of business in Wales has 0-50 employees. Employment rates for men of working age are higher than those for women; however women employment has increased from 61.4% in 2001 to 66.1% in 2014.[46] Future trends: Employment rates in Wales have declined as a result of the economic downturn. However the economy appears to be diversified and the percentage of working age in Wales has generally increased since 1984.	Benefit dependency and Workless Households Child poverty Pensioner poverty Economic Output Housing Health Population
Benefit dependency and Workless Households	Baseline Characteristics The percentage of working age people on key benefits decreased each year from 1995 to 2008. However, there has been an increase of 2 percentage points in 2009 to 17 per cent[47]. The total percentage of working age people claiming benefits declined from 2000 to 2008, but in 2009 saw a 1.5% increase due to the economic downturn. Since 2009 the trend has returned to a decline, with 13% of working age people claiming benefits in 2014.[48] The jobseekers allowance rate follows a similar trend, but between 2008 and 2009 incapacity benefit rates decreased, and lone parent rates stayed the same.. Future trends: The percentage of working age people on key benefits is expected to stabilise in line with the UK economic trends.	Economy/ Economic Employment Child poverty Pensioner poverty Population Health
Economic Output	Baseline Characteristics The GVA for Wales in 2013 increased £9.8 billion since 2005. GVA per head in Wales increased from £13,723 in 2005 to £14,842 in 2009. GVA in Wales was indexed as 74.3 when compared to the UK as a whole in 2009. In 2013 GVA per head in Wales increased to 16,893 and was indexed as 72.2 when compared to the UK as a whole.	Economy/ Economic Employment Population

[45] Environment Agency Wales, 2010, Future Flooding in Wales: Flood Defences

[46] https://statswales.wales.gov.uk/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Employment/Persons-Employed/employmentrate-by-welshlocalarea-year-gender

[47] The Sustainable Development Annual Report 2009-2010

[48] https://statswales.wales.gov.uk/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Key-Benefit-Claimants/benefitclaimants-by-clientgroup-welshnuts2areas-measure-quarter

Topic	Baseline Conditions	Related topics
	Between 1998 and 2012 GVA grew in real terms by 30% in Wales, and between 2009 and 2012 GVA grew in real terms by 3.8 % in Wales, however between 2011 and 2012 GVA in Wales fell 2.8%.[49] Future trends: The GVA and GVA per head in Wales are expected to be stable / increase slightly.	
Social Accessibility	Baseline Characteristics The percentage of households where the time taken to reach a local facility (GP surgery, Grocer, shopping centre or hospital) by foot or by public transport in 15 minutes or less has stayed the same or increased between 2005 and 2010.[50]. Future trends: Social accessibility throughout Wales has increased for all five key services and this trend is expected to continue.	Mobility Active community participation Health Education
Active community participation	Baseline Characteristics The changes between 2003 and 2009-10 in the percentage of people volunteering on a formal or informal basis at least once a month in the 12 months prior to being surveyed are not statistically significant [51]. The percentage of people involved in voluntary activities in Wales had increased from 2001 to 2009, and decreased slightly in 2010 and again in 2011. Levels of people volunteering in 2011 were the same as they were in 2008.[52] Future trends: There is a high level of active community participation (formal and informal volunteering) in Wales and it is expected to increase. In particular, children and young people from all backgrounds and abilities[53].	Social Accessibility Mobility Economy/ Economic Employment Education
Child poverty	Baseline Characteristics In Wales in the period 2010-2011 to 2012-13, the percentage of children living in relatively low-income households (excluding housing costs) was 22% in Wales, compared to 27% in 2005-06 to 2007-08. Figures for the whole of the UK are not significantly different.[54] Future trends: Child poverty figures are expected to continue to be relatively stable.	Benefit dependency and Workless Households Economy/ Economic Employment Health
Crime	Baseline Characteristics	Economy/ Economic Employment

[49] https://statswales.wales.gov.uk/Catalogue/Business-Economy-and-Labour-Market/Regional-Accounts/Gross-Value-Added-GDP/gva-by-measure-welsheconomicregion-year
[50] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/PercentageOfHouseholdsWhereTimeTakenToReachLocalFacilitiesOnFootOrByPublicTransportIs15MinutesOrLess-by-Year
[51] The Sustainable Development Annual Report 2009-2010
[52] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/PercentageOfPeopleVolunteeringOnAFormalOrInformalBasisAtLeastOnceAMonthInTheLast12Months-by-Year
[53] The Sustainable Development Annual Report 2009-2010
[54] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/Child-poverty

Topic	Baseline Conditions	Related topics
	The total number of police recorded serious acquisitive crimes in Wales has fallen by over a third to 41,000 in 2008-09. The number of all household crimes in Wales per 10,000 households increased between 2004-05 and 2006-07, before falling to its lowest level in 2013-14[55]. Future trends: Thefts to and from vehicles and British Crime Survey (BCS) vehicles related thefts are expected to decrease. Burglaries in dwellings are expected to continue increasing. BCS burglaries and robbery rates are expected to continue at the present rates	Health Benefit dependency and Workless Households
Education	Baseline Characteristics The percentage of all pupils at Key Stage 2 achieving the core subject indicator has increased from 61 per cent in 1999 to86.1% in 2014. The percentage of young people in Wales aged 19-21 with at least a NQF level 2 qualification has been relatively stable since 2001. However, there has been an increase of 8 percentage points to nearly 82 per cent in 2013[56].The percentage of pupils assessed in Welsh at the end of Key Stages 1, 2 and 3 have all increased since 2000[57]. Future trends: The proportion of people aged 19-21 with an NQF level 2 of education is expected to be stable. The proportion of working age adults with an NQF level 4 of education is expected to rise.	Economy/ Economic Employment Social Accessibility Active community participation
Health	Baseline Characteristics The infant mortality rate per 1,000 has decreased from 5.3 in 2007 to 3.6 in 2013[58]. There has been a sustained increase in life expectancy for both males and females since 1993-95[59]... Life expectancy, a key health indicator, does not vary significantly between Wales and England, and reflects the national and international trend of men having a lower life expectancy then females. Life expectancy has also not varied significantly over time, but has increased from 79.3 years for females and 74.2 years for males in 1996-98, to 82.2for females and 78.2 years for males in 2010-12.[60] The number of adults who reported key illnesses or health status has shown a stable trend from 2005 to 2009[61]. Future trends: Infant mortality is expected to continue to decrease. Life expectancy is expected to continue increase.	Air Quality Economy/ Economic Employment Crime Education Child poverty Pensioner poverty
Housing	Baseline Characteristics The Standard Assessment Procedure (SAP) for energy rating of dwellings is a calculation of a building's energy efficiency. SAP ratings are scored on a scale from 1 to 100 where 1 is the worst and 100 will indicate no heating/hot water cost[62].	Economy/ Economic Employment Social Accessibility

[55] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/CSEW
[56] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/National-Qualification-Framework-Level-2
[57] The Sustainable Development Annual Report 2009-2010
[58] http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-317522
[59] The Sustainable Development Annual Report 2009-2010
[60] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/LifeExpectancy-by-Gender-Year
[61] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6312
[62] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	The average SAP rating for dwellings in Wales was 46.5 in 2004, and in 2008 this rose to 50.3 In 2004, only 16 per cent of dwellings in Wales were deemed to have good energy efficiency, with a SAP rating of 65 or higher. The number of unfit dwellings in Wales has decreased from 199,000 in 1986 to 52,100 in 2008. Future trends: The number of unfit dwellings is expected to decline.	Electricity from Renewable Sources
Mobility	Baseline Characteristics The average number of walking or cycling trips made per person per year increased between 2007 and 2010 while trips in private motor vehicles increased over the same time period. Trips made using public transport and taxis have seen a slight decrease[63]. In terms of travelling to work, in 2011, 80.7 per cent of people travelled to work by car, van, minibus or works van, 12 per cent travelled to work by walking or cycling and 8 per cent travelled to work using other modes of transport[64]. Future trends: There has been a slight increase in the use of public transport and this is expected to increase. The number of trips taken by foot or bicycle has dropped and the number of trips taken by car has increased; this trend is expected to continue.	Social Accessibility Economy/ Economic Employment
Pensioner poverty	Baseline Characteristics There has been a slight decrease in the percentage of pensioners in relative low-income households before housing costs with a drop from 24% (2005-06 to 2007-8) to 18% (2010-11 to 2012-13)[65]. In the period 2002-03 to 2004-05, the percentage of pensioners living in relatively low-income households (including housing costs) was 19% in Wales and decreased to 18% in 2006-09. In the period 2010-11 to 2012-13, the percentage of pensioners living in low-income households (including housing costs) was 14% in Wales. This was a decrease from 18% in the period from 2005-6 to 2007-08. Future trends: The number of pensioners living in low income households has decreased and this is expected to continue decreasing.	Benefit dependency and Workless Households Economy/ Economic Employment Health
Population	Baseline Characteristics The population in Wales (just under 3 million in 2009) has increased over the last 25 years by approximately 220,000 people as a result of people moving into Wales mainly from other areas of the UK.75% of the total population have been born in Wales and 20% in England. In addition, a considerable number of people visit Wales for holidays and business each year (fluctuating trends during 2000 to 2009). The south-east region has the highest population density in Wales, with Cardiff being the most densely populated Unitary Authority. Conversely the central region is the least densely populated. Migration patterns within Wales show that there is a net inflow of people to the Valleys region from south-east Wales, and a large outflow of people from the Valleys region to south-west Wales. Migration patterns between Wales and other UK regions reflect that most migrants leave Wales to go to the south-west of England, while most people migrating into Wales from England come from the north-west of England.	Economy/ Economic Employment Economic Output Benefit dependency and Workless Households Mobility Housing

[63] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/NumberOfTripsPerPersonPerYear-by-MainMode-Year
[64] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/MainModeOfTravelToWork
[65] https://statswales.wales.gov.uk/Catalogue/Sustainable-Development/Sustainable-Development-Indicators/Pensioner-poverty

Topic	Baseline Conditions	Related topics
	Future trends: The population of Wales is gradually increasing, mostly due to net in-migration from other parts of the UK. Life expectancy is increasing and the population is ageing.	Health Crime Social Accessibility

4.3 Limitations and Assumptions

4.3.1 The baseline information collected has focused on setting general baseline conditions and, where possible, more specific existing and future baseline trends. The baseline information has been reviewed using two main sources of information, the Wales the Environment Report (2012), and the Wales Sustainable Development Indicators (August, 2013). In some instances, the Sustainable Development indicators for Wales and associated statistics, do not provide enough data to establish current/future trends, this is due to newly adopted indicators, or lack of historical data.

4.3.2 The identification of baseline and key sustainability issues is generic, and the identification of location-specific issues, including cross border and transboundary issues, has not been undertaken.

5 KEY SUSTAINABILITY ISSUES AND THE SA FRAMEWORK

5.1 Key Sustainability Issues

5.1.1 The identification of key sustainability issues and opportunities is based on the review of existing baseline information and other relevant policies, plans and programmes. It informs the development of the SA/SEA framework against which the emerging plan options will be assessed.

5.1.2 Annex I of the SEA Directive requires the incorporation of information on the *"likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape and the inter-relationship between the issues referred to".*

5.1.3 To ensure consistency of approach, the SA/SEA of the Sector Plans will continue to reference the sustainability issues and opportunities identified for TZW. In line with that approach, the SA/SEA of the Sector Plans will look at key sustainability issues within the topics based on the Annex 1 of the SEA Directive and will consider issues in relation to economy, flood risk and geodiversity.

5.1.4 The issues and opportunities are presented in Table 5.1 under the following headings:

- Economy;
- Population, health and well being;
- Climatic factors;
- Material assets;
- Air quality;
- Biodiversity and geodiversity;
- Water and flood risk;
- Cultural Heritage;
- Landscape; and
- Soil

Table 5.1 – Key Sustainability Issues

SA Topics	Key Sustainability Issues
Economy	• Regarding specialist technologies, are there contractors or operators within Wales or the UK to supply this need? Will these be financially or economically viable/feasible? • Is there an appropriate labour force or will training and upskilling be required? • Can the strategy provide an impetus to the Environmental Technology Sector and can R&D departments and can stakeholders such as Universities be usefully engaged in this context? • To encourage the development of the Environmental Technology Sector and can R&D departments and can stakeholders such as Universities be usefully engaged in this context? • To encourage the investment in R&D and preferred alternative technologies by both public and private sector, and minimising the potential for investment in technologies which are not considered as offering a sustainable future for Wales' waste management. • To offer longer term security of contract to commercial operators and a return on their investment, thereby increasing the attractiveness of investment in Wales. • To bolster the social enterprise sector in line with wider strategic objectives, to maximise the contribution which this sector can make to sustainable waste management and associated socio-economic benefits of employment, training and engagement. • To offer new sources of employment and training, of particular benefit to areas with high socio-economic deprivation such as the Heads of the Valleys. • To use investment in new waste management infrastructure to act as a catalyst for regeneration in areas.
Population Health and Well Being	• How to engage with private, public and third sectors to maximise the benefits of partnership approach, assign clear responsibility and motivate engagement in this context from the public in particular, and generally enhance management in an integrated manner • How to create and sustain engagement in what will be a substantive cultural shift towards wide-scale domestic, commercial and industrial recycling; recognising the drivers which already exist in terms of commercial and industrial engagement in this context but also the substantive increase in recycling rates which is being envisaged, alongside that for Municipal Solid Waste. • How to balance drivers to encourage voluntary engagement and the potential scope for mandatory participation from households and potentially escalating regulatory requirements on commercial and industrial sources. • How to raise awareness and understanding of the importance of engaging in more sustainable waste management practice, this being pivotal to the efficacy of household recycling initiatives, particularly in the absence of regulation/mandatory participation. • How to rely on the need for, and promotion of individual and corporate sustainability for waste production and disposal

SA Topics	Key Sustainability Issues
	• How to locate and develop waste management facilities to design-out crime. • How to prevent instances of fly-typing • How to promote a substantive increase in terms of participating households and levels of waste recycling. • How to increase the scope of waste materials to be recycled and the means/mechanisms through which this will be facilitated • To engender interest and engagement with the public in terms of personal responsibility and household/collective engagement in more sustainable activities such as recycling. • To contribute towards enhance accessibility of services and facilities particularly amongst those with reduces mobility and lack of car ownership. • To promote sustainable transportation of waste in terms of modes and services • How to raise awareness and understanding of actual impacts, as opposed to perceived impacts surrounding management options and wider emerging technologies. • To address upfront issues surrounding public perception of alternative waste technologies and engage in an informed debate as to future direction, at the level in which stakeholders can meaningful influence strategic policy and objectives. • To address and allay public perceptions surrounding the deployment of certain waste technologies. • Addressing key elements of health and well-being – how to maximise employment and access to services and facilities (amongst others) and the beneficial impact of this has upon health and well-being. • From a commercial and industrial perspective – how to facilitate increased engagement in alternative waste disposal without exposing employees to hazardous activities or potential adverse impacts to health and well-being. • To facilitate the deployment of safe, responsible, sustainable waste management from all sources: domestic, commercial industrial, etc. • To tackle issues surrounding the perception of waste management practices and technologies and establish greater understanding of what this entails.
Climatic Factors	• How to maximise the contribution which sustainable waste management can make to Wales' targets for all Greenhouse Gas (GHG) emission reduction and the creation of a carbon constrained economy. • How to facilitate the level of engagement required in the absence of a full/adequate understanding and sometimes sceptical public over climate change. • Whether regulation is required to enforce domestic/household participation and to escalate commercial/industrial sector participation and the acceptance of this. • To promote an integrated approach to preventing, abating and adapting to climatic change on new, existing and decommissioned waste sites, not just within Wales but beyond. • To collectively reduce Wales' Carbon Footprint through strategic

SA Topics	Key Sustainability Issues
	intervention across public and private sector operations. • To channel procurement and spend in the pursuit of carbon constrained policies, plans and projects. • To significantly contribute to Wales' ambition to become a carbon constrained, sustainable, economy by changing the behaviour of individuals and companies in terms of their attitudes to waste management. • To substantively reduce the Ecological Footprint (and constituent Carbon Footprint) at local, regional and national levels through addressing the issue of resource use and consumption.
Material Assets	• How to devise a realistic, workable strategy of sustainable waste management which will enable cost-effective, reliable, service delivery whilst also meeting Wales' broader sustainability, carbon and Ecological Footprint objectives. • How to reduce and prevent waste generation in line with the broader policy of sustainable development and reduce Ecological Footprint, and with the ultimate goal of 'zero waste'; how to promote public procurement policies in line with this. • How to facilitate the development of appropriate alternative/new waste management infrastructure within the prescribed timeframe and within resource constraints, developing facilities that address the various priority waste materials and their sources. • How to address the varied and multiple sources of waste (including construction, demolition & excavation, agricultural and quarry waste) and the handling or processing of such waste alongside that of municipal waste. • How to address the needs of local authorities in meeting challenging targets given their different geographical and socio-economic contexts. • How to select the location and scale of facilities that are accessible to communities in terms of proximity but also in terms of being socially acceptable and economically feasible. • To create greater understanding of the challenge of progressing sustainability within the context of resource and waste management. • To create a cultural shift with respect to attitudes towards generating and disposing of waste, recognising that commercial and industrial sources are already heavily regulated. • To enable the public sector and others to adapt to and develop the infrastructure necessary to facilitate a shift in waste generation and management at both the macro and the micro level. • To engender a sense of empowerment amongst members of the public in the collective response to addressing and abating potential climatic change and reducing Wales' Ecological Footprint more generally. • To prioritise the use of brownfield sites for the siting of new facilities. • To promote and contribute to national, regional and local targets with respect to brownfield land use and more sustainable use or land resources generally.

SA Topics	Key Sustainability Issues
	• To encourage commercial operations in line with this policy and ensure investment occurs in line with broader sustainability criteria generally, for example, advocacy of green procurement and supply chain management. • How to create a strategic framework which can progress on the basis of existing and proven technologies but also facilitate the incorporation of new technologies, as and when these appear (noting the challenge of investment by private sector operators and security of contract). • How to balance the immediate costs of investment in new technologies and infrastructure in the short term against longer-term sustainability gains such as low carbon energy provision.
Air Quality	• How to minimise impact to air arising from alternative forms of waste processing and management, recognising that relatively new technologies are emerging. • How to ensure that emissions to air are monitored and mitigated against with respect to transportation of materials to and from waste processing recycling plants and facilities.
Biodiversity and Geodiversity	• How to protect and enhance the biodiversity, flora and fauna of sites, designates and non-designated in stature. • Ensuring areas of biodiversity are adequately protected when considering the location and deployment of new waste facilities and services (including transportation of materials to and from such locations). • To protect the integrity of designated (including Natura 2000) and non-designated sites of ecological and biodiversity value.
Water	• Seek to ensure that areas prone to flood risk in the siting of new facilities are avoided if at all possible, flood consequences assessment, where appropriate should be used, to inform the selection of sites. • How to ensure that new and emerging technologies being considered employ sustainable water consumption but also pose no threat to groundwater or surface water quality. • The potential exists, through recycling and eventually eliminating waste sent to landfill, to reduce the need for landfill sites and potential for water contamination arising from such activity. To reduce runoff and potential flood risk through sustainable strategic planning. • The potential exists to consider climate 'proofing' of existing sites in terms of flood hazard (marine and fluvial). • Seek to ensure that when siting new facilities the sustainability of both water supply and water quality are assessed.
Cultural Heritage	• How to protect and enhance the historic environment of Wales including designated historic assets while developing waste infrastructure. • To protect and enhance landscapes of cultural and historic importance in line with local, regional and national policy
Landscape	• How to protect and enhance the distinctive character and visual identity of communities, landscapes and townscapes across Wales whist developing waste infrastructure. • Ensuring designated landscape areas are adequately protected when considering the location and deployment of new waste

SA Topics	Key Sustainability Issues
	facilities and services (including transportation of materials to and from such locations). • To reduce the visual impact of landfill sites through the diversion of waste, escalating targets for waste reduction and eventual elimination of waste (zero waste) and to enhance the quality of recycling infrastructure generally.
Soil	• How to ensure that soil resources and vulnerable soilscapes are adequately protected in the deployment of new technologies and facilities and the refurbishment or redeployment of existing facilities; how to exploit the opportunities for soil resource protection which such technologies can bring. • How to protect against the potential for soil pollution arising from the varied technologies which will be deployed • How to address particular sources of waste such as agricultural or construction waste and the potential for soil pollution. • To promote and contribute to national, regional and local targets with respect to brownfield land use and more sustainable use of land and soil resources generally. • To address the range of environmental factors and maximise the sustainability of waste management choices to deliver sustainable soil policy. • The potential exists, through reducing and eventually eliminating waste sent to landfill, to reduce the need for landfill sites and potential for soil contamination and/or emissions arising from such activity.

5.2 The SA Framework and Sustainability Objectives

5.2.1 Whilst it is not a requirement of the SEA Directive and Regulations, it is accepted practice to establish a framework for undertaking SEA based on a set of objectives and assessment criteria. This framework is informed by the understanding of environmental issues and opportunities developed through the review of existing baseline information and the review of other relevant PPP.

5.2.2 This framework comprises nine headline sustainability appraisal objectives supported by a number of sub-objectives. These objectives have been subject to consultation and amended accordingly.

5.2.3 The SA framework objectives and sub-objectives are listed in Table 5.2.

Table 5.2: SA Framework Objectives and Sub-objectives for TZW Sector Plans

Objective	Sub-objectives
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; and • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste management.
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and capitalise upon opportunities arising from this	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering; • To support existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-tipping; • To provide cost-effective and reliable sustainable waste management.
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens; • To protect the character and visual identity of landscapes and townscapes, including cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.
Soil To protect and enhance soil resources	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and flood attenuation; • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the quality of Welsh soils.
Water To protect and promote the sustainable use of water resources	• To promote sustainable flood risk management; and • To protect and enhance water quality and quantity in inland, coastal and maritime environments.

Objective	Sub-objectives
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• To promote proximity of facilities to local settlements and sustainable transport modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation of materials to and from facilities; • To minimise adverse impacts to noise levels within communities; • To minimise odours arising from waste processing and its impact upon local communities.
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement strategy/objectives; • To promote the efficient use of onsite renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.
Health To protect and enhance the health and well-being of communities	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste; • To provide opportunities for those with health issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries.
Civic engagement To increase civic engagement in sustainable waste practice	• To raise awareness and understanding of sustainable waste strategy, objectives and management; • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and the poor; • To increase accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement; • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.

6 SUSTAINABILITY APPRAISAL RESULTS

6.1 Compatibility of SA Objectives and Draft Public Sector Waste and Resource Efficiency Plan Objectives

6.1.1 A compatibility test to examine the relationship between the approach to the Public Sector Waste and Resource Efficiency Plan and the SA/SEA Objectives was carried out. The aim of this exercise is to highlight any conflicts or compatibilities between the Sector plan and the SA/SEA objectives to ensure that the aims of the two are not fundamentally different.

6.1.2 Table 6.1 shows the results of the compatibility assessment. No conflicts were identified. More detail on positive or uncertain relationships can be found within the subsequent assessment, see Table 6.4 and Appendix C.

Table 6.1: Public Sector Waste and Resource Efficiency Plan Compatibility

	SA/SEA Objectives								
Public Sector Waste and Resource Efficiency Plan approach	**Waste Management**	**Waste Infrastructure**	**Landscape, biodiversity & cultural heritage**	**Soil**	**Water Resources**	**Air Quality**	**Climate Change**	**Health**	**Civic engagement**
Waste Prevention									
Ensure the adoption of a long term approach to sustainability within the public sector.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Preparation for Reuse									
Improve, promote and develop preparation of items for reuse and redistribution, to protect natural resources and limit the production of problematic waste potential from the public sector.	✓	✓	✓	✓	✓	✓	✓	✓	?
Make the most of our valuable resources by improving the source separation and management of priority materials within the public sector, (in accordance with the 2015 Waste Framework Directive requirement).	✓	✓	?	?	?	?	?	?	✓
Recycling									
Achieve 90 per cent recycling of priority materials and 70 per cent overall recycling rate by 2025 and increase opportunities for 'recycling on the go' for public visitors to public sector offices, facilities and events.	✓	✓	?	?	?	?	?	?	✓

Other recovery and disposal									
Recover the energy and value of resources that cannot be recycled.	✓	✓	?	?	?	?	?	?	?
Eliminate waste disposed of to landfill through action on waste prevention, reuse and recycling.	✓	✓	✓	✓	✓	✓	✓	✓	?

KEY:

✓	Compatible
×	Not compatible
?	Compatibility depends on detail
0	No relationship/neutral compatibility

6.2 Screening of Public Sector Waste and Resource Efficiency Plan Actions

6.2.1 The actions screening process aims to evaluate the need to appraise the sustainability of the Public Sector Waste and Resource Efficiency Plan actions. Not all actions are likely to give rise to significant effects, either through their characteristics, for example where they relate to research, or where they don't introduce new measures, such as use of existing policy or guidance. To ensure the SA is focussed on key issues the screening methodology applied follows the steps listed below.

Identification of the Public Sector actions

6.2.2 Actions identified for the Public Sector Waste and Resource Efficiency Plan are based on changing behaviours and focusing effort on the top half of the hierarchy – waste prevention, reuse and preparation for reuse. This is followed by recycling and other recover and disposal actions. For this sector plan, the detailed actions below are based on the Welsh Government's '4E's model', which identifies the influences which need to act together in order to catalyse change.

Setting up the screening reasons for SA action omission

6.2.3 For consistency, this screening assessment uses the reasons for omission of action used in previous Sector Plan screening. The actions considered omitted for assessment are those which can be described as one of the following:

- Administrative/Procedural: the action is related to administrative / procedural measures, such as joint working between Welsh Government and the UK Government.
- Existing Measures: the action provides a signpost to other legislation, strategy, targets and guidance rather than seeking to implement specific measures;
- Research: the action sets out measures that may be considered in the future once further research/investigation has been undertaken;

6.2.4 Where an action has been assessed as part of another sector or waste plan, it has been included to present a complete picture of relevant waste prevention measures.

6.2.5 This Section presents the results of the actions screening; the screening exercise classifies the Public Sector Waste and Resource Efficiency Plan actions into 2 different categories:

- Actions omitted for SA; and
- Actions taken forward for SA.

Screening exercise and recommendations

6.2.6 The screening results were presented in a table format (Table 6.2) including the results of screening steps described above, how each action has been taken forward.

Screening Results

6.2.7 Table 6.2 below presents the results of the Public Sector Waste and Resource Efficiency Plan Actions screening.

Table 6.2: Results of the Public Sector Waste and Resource Efficiency Plan Actions Screening

Action	Action Type	Screening Summary	Included in Public Sector Waste and Resource Efficiency Plan SA? Yes/ No
Overarching Policies			
Compliance with Wales Procurement Policy (WPP)	Existing measure	Refers to WPP, Procurement Route Planner and related tools and guidance.	No
Encourage public sector organisations to sign up to procurement frameworks.	Administrative/Procedural	Use of National Procurement Service which embeds the WPP and run in parallel to Value Wales and the Green Public Procurement Process.	No
Provision of assistance to help embed sustainable public procurement strategies.	Existing measure	Use of Value Wales competency framework and associated training modules. Also use Sustainability Risk Assessment (SRA), Supplier Qualification Information Database (SQuID), and Procurement Fitness Checks undertaken by Value Wales.	No
Engage with food/catering goods and service providers.	Existing measure	Use of Supplier Qualification Information database, sign up to WRAP's Hospitality and Food Sector agreement.	No
Environment Bill proposals on additional requirements for separate collection, discouraging sewer disposal of food waste and energy from waste / landfill bans for recyclable biodegradable waste	Existing measure	The consultation for the Environment Bill White Paper included options to increase the recycling and recovery of waste.	No
Public sector organisations to implement accredited EMS.	Administrative/ procedural; Existing measure	Use of existing EMS such as Green Dragon, BS8555, ISO14001 and EMAS, or use specialist schemes to improve environmental performance, including waste management.	No
Well-Being of Future Generations (Wales) Act	Existing measure	The Act puts in place seven well-being goals, all of which public bodies must work to achieve.	No
Waste Prevention			

Action	Action Type	Screening Summary	Included in Public Sector Waste and Resource Efficiency Plan SA? Yes/ No
Encourage manufacturers and retailers to eco-design, produce and sell products that are easily repairable and upgradeable		Development of an initiative to enhance eco-innovation in manufacturing businesses.	Yes
Using public sector contracts to encourage waste prevention through the Green Public Procurement process		Application of this tool to a range of products and services during procurement, such as leasing of products to encourage durability, lower use of materials and maintenance.	Yes
Packaging waste reduction		Guidance to public sector on reducing volumes of waste, especially cardboard packaging through delivery of items, take-back schemes and reusable packaging, specifying recyclability and recycled content.	Yes
Implementation of sustainable waste management practices, through waste prevention and reuse throughout the Welsh Government Estate		This action looks at guidance to the public sector on how to encourage reuse both internally and in relevant contracts. For example, through the use of the WPP programme of repair and re-use for electrical equipment, furniture and clothing and use of the WRAP Facilities Management Procurement Toolkit to specify requirements.	Yes
Avoid food waste production.		This action asks public sector organisations to carry out a review of the levels of food waste at their premises; identify the main reasons for wastage, and set an action plan which includes targets and monitoring.	Yes
Recycling			
Ensure that waste streams are kept separate and clean at source to allow them to be collected separately and recycled to a high quality.	Existing measure.	The action looks at separate collections as set out in the Waste Framework Directive and White Paper[66]. The revision of existing Guidance[67] would advise on how to meet the requirements of this duty and suggest innovative solutions, for example where space is an issue.	No
Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams		WG have provided core funding to WRAP Cymru to support the development of reprocessors, manufacturing companies and agricultural industries that can use collected waste streams.	Yes
Collaborative behavioural change		Provision of information and education on the benefits of recycling to raise awareness and transform behaviours.	Yes
Work with other public bodies to encourage recycling 'on the go' and implement reuse and recycle initiatives for the public sector		Use of campaigns led by WRAP and Waste Awareness Wales to increase use of 'on the go' recycling initiatives in premises open to the public.	Yes
Other Recovery & Disposal			
Support high efficiency energy recovery of residual wastes that are not technically, environmentally or		The action looks at developing and increasing use of energy from waste activities to manage residual waste.	Yes

[66] Towards the Sustainable Management of Wales' Natural Resources: Consultation on proposals for an Environment Bill (October 2013)

[67] Wales Public Sector Sustainable Waste Management Guidance Manual, July 2003

Action	Action Type	Screening Summary	Included in Public Sector Waste and Resource Efficiency Plan SA? Yes/ No
economically practical to prevent, reuse, recycle or otherwise recover.			

6.3 Summary of findings

6.3.1 The actions screening shows that 8 of the 17 Public Sector Waste and Resource Efficiency Plan actions are omitted for SA, The actions that were not screened out were taken forwarded for assessment. As presented in Table 6.2 above, the following nine actions were assessed in this SA:

Table 6.3 Actions Assessed in this SA

Action	Description of the Actions
Waste Prevention	
Encourage manufacturers and retailers to eco-design, produce and sell products that are easily repairable and upgradeable." (Sustainable Procurement)	The Welsh Government is proposing to develop an initiative to enhance eco-innovation in manufacturing businesses in Wales. Eco-innovation is defined in the Eco-innovation Observatory, Methodological Report 2012 as the 'introduction of new or improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and decreases the release of harmful substances across the whole life cycle'. The Welsh Government's Waste Prevention Programme considers options that reduce the use of natural material resources, including new business models that reduce the consumption of goods through leasing, producing more durable goods and enabling repair and reuse. The initiative would target sectors and businesses where there is greater potential for resource efficiency gains through eco-innovation. It will also offer staged interventions according to where businesses are on their 'innovation journey'. This proposed initiative would complement a stream of work coming out of Value Wales' 'Transforming Procurement through Home-Grown Talent' project. Stream 5 – "Identify innovative approaches to improve procurement" – will provide investment in encouraging innovative solutions to Procurement issues through working with academia and the private sector and piloting new approaches to improve procurement. It also aims to support Innovation Wales, the Welsh Government's innovation strategy, through promoting the use of outcome based specifications, pre-commercial procurement and the Small Business Research Initiative (SBRI) / Welsh Government Catalyst fund. This could include collaborative projects, projects involving the third sector and developing pools of category skills etc. There could also be opportunities to match manufacturers / suppliers taking part in the eco-innovation initiative, with public sector organisations wanting to explore innovative procurement solutions.
Using public sector contracts to encourage waste prevention through Green Public Procurement and other processes (Sustainable Procurement)	'Whole life costing' is an investment appraisal and management tool which assesses the total cost of an asset over its whole life. It takes account of the initial capital cost, as well as operational, maintenance, repair, upgrade and eventual disposal costs. To date, the tool has largely been applied to larger construction projects; however, it can be applied to a wide range of products and services. This approach to procurement links closely with the circular economy model which promotes the need to move away from the traditional "take, make, dispose" industrial process, and adopt "cradle to cradle", a holistic economic, industrial and social framework that seeks to create systems that are not only efficient but also essentially waste free. The public sector, as a major purchasing power in Wales, has a key part to play in this shift in focus – by working closely with its supply chains and rethinking specifications and contracts to look for innovative procurement solutions which don't result in loss of resources. One model which could easily be used more frequently by the public sector is service based procurement, rather than product or activity-based procurement. For example, long-term hire and leasing of products drives a longer term approach to product durability, with longer service life, lower maintenance load and lower use of materials and CO2. Although there is little evidence available as to the level of use of product leasing by the public sector, it is likely to currently be

Action	Description of the Actions
	restricted largely to electronic equipment such as Multi Functional Devices (MFDs) and photocopiers. Other products / services which would be highly suitable for leasing are ICT, vehicles, office furniture – WRAP have also explored options of procuring uniforms through a managed service rather than outright purchase. Effective product leasing can help: • reduce costs, including waste disposal costs; • provide a mechanism for effective management of costs; • protect against risks as older technology can be expensive to operate and maintain, and also may be less efficient. Leasing establishes a schedule for equipment renewal that can protect against obsolescence; • conserve capital and spread the cost over the useful life of an asset allowing capital to focus on key organisational services; • expand or renew infrastructure independent of budget cycles; and • eliminate end-of-useful-life concerns such as data security and environmental concerns.
Packaging waste reduction (Sustainable Procurement)	Paper and card waste is estimated to account for over 20,000 tonnes (35 per cent) of the general waste from the public sector in Wales that was disposed of to landfill in 2007/08. Almost 50 per cent by weight of this material is estimated to be recyclable cardboard boxes and packaging materials. Reducing the volumes of packaging produced can be achieved through innovative procurement practices such as minimising amount of packaging used on items delivered; encouraging packaging take-back schemes, and the use of re-usable transit packaging. Many suppliers will already have these options in place, but customers may not always be aware of them. Therefore, the Welsh Government will explore the need for additional guidance to be made available to public sector organisations regarding how to explore different options with their suppliers. In addition, the public sector should work in partnership with suppliers to reduce the amount of packaging waste generated by products, increase the recyclability of products and packaging, and increase the use of recycled content.
Implementation of sustainable waste management practices, through waste prevention and reuse throughout the Welsh Government Estate (Sustainable Procurement)	Reuse of office furniture and electrical items accounts for 0.1 per cent of industrial and commercial waste. In 2011, businesses and public sector organisations discarded products with a resale value of £14 million. For all items, the resale value is estimated to be in excess of £2,000 per tonne. By 2025, it is estimated that a 20 per cent increase in reuse of household and commercial and industrial items could occur based on current activities[68]. Capturing this would create jobs, volunteering opportunities, training places and work placements. Welsh Government's Waste Prevention Programme proposes a programme for repair and reuse in Wales. This will be focussed on the three priority products – electrical equipment, furniture and clothing. The WRAP Facilities Management Procurement Toolkit offers model contract wording that can be used by clients to specify the requirements of the service provider contract. For example prior to purchasing new furniture for the client, the service provider should identify and redeploy existing redundant furniture within the organisation (discarded by other departments), or recover used furniture and redistribute to charity / third sector organisations for reuse and redeployment in the UK. Raising the awareness and benefits of the opportunity to participate in reuse schemes both internally within departments and organisations, and at an intra organisation level can boost the availability of items for repair and reuse. The Welsh Government wants to see public sector organisations including reuse as an option in relevant contracts, at both ends of the supply chain and relevant departments will work together to provide guidance for the public sector on how to do this. In addition, where relevant, the framework contracts being developed by NPS will include reuse solutions.
Avoid food waste production (Sustainable Waste Management)	Research into the type of food waste, the reason for food wastage and the barriers to preventing food waste can help to identify the opportunities to avoid and reduce food waste. In March 2011, the Wales Audit Office published their report on Hospital Catering & Patient Nutrition[69] which found that, on average, one in six patient meals was wasted. One

[68] Options Appraisal for Increasing Reuse in Wales – part of the evidence base for Wales' Waste Prevention Programme (published December 2013)

[69] http://www.wao.gov.uk/assets/englishdocuments/HC_Report_ENG.pdf

Action	Description of the Actions
	recommendation made in the report was that "monitoring of food waste should include identification of the reasons for the wastage that is observed, and this information should be used to identify priorities for improvements in systems and processes that are causing the waste". The managing food waste in the NHS report[70], published in 2005, provided best practice guidance relating to the cost-effective management and reduction of food waste in healthcare facilities' catering services. Research into opportunities to avoid food waste in schools by WRAP identifies why food is wasted[71]. Both reports document a number of operational, situational and behavioural reasons and insights into why food might be prepared and not served, or prepared and not eaten. Solutions to reduce food waste are presented below; • Improved meal ordering systems. • Assistance in selecting, ordering, and eating meals (for example assistance to cut up food so that it can be eaten). • Observing "protected mealtimes" and reducing time pressures to allow time to finish meals. • Presenting food in an appealing manner, in an environment conducive to eating. • Offering flexibility in choice of food combination, type of food and portion size of dishes. • Adapting menu planning to balance choice and nutritional intake with familiarity of foods available. It is proposed that all public sector organisations offering food provision services (through both internal catering staff and external catering contractors) carry out a review of levels of food waste production at their premises; identify the main reasons for the wastage, and set out an action plan for improving systems and processes. The action plan should also set out food waste reduction targets and a monitoring programme. As with all waste prevention activities, behaviour change is the main challenge. Campaigns such as 'Love Food, Hate Waste' have proved to be successful for reduction of household food waste. It is therefore proposed that a similar campaign is developed for the public sector to ensure consistency of message. In addition, existing initiatives such as Scotland's "Finish your Food" education initiative for primary schools, Waste Aware Schools (Scotland) and England's Food for Life initiative could be reviewed for adaption in Wales.
Recycling	
Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams	WG have provided core funding to WRAP Cymru in order to support the development of reprocessors, manufacturing companies and agricultural industries that can use collected waste streams.
Collaborative behaviour change (Sustainable Waste Management)	Achieving an increase in recycling will require a positive contribution from all employees of public sector organisations and users of public services. The provision of information and education on the benefits of recycling can raise levels of general awareness and concern about the environment, but transforming behaviour change into action is much more likely when people are given access to adequate pro-environmental services and infrastructure. Behaviour change is about effective engagement of employees, users of public services and suppliers to encourage and support more sustainable behaviours through a mix of incentive and reward, infrastructure provision and capacity building (e.g. through information, education and training). Therefore, to maximise the potential for active engagement of employees, users of services and suppliers, a range of actions are needed to address both the provision of information and education, and infrastructure that takes account of all the factors affecting behaviour change. The Welsh Government will work with relevant delivery organisations to carry out a review of the most effective approaches to behaviour change and ultimately, set out a toolkit of resources,

[70] Managing Food Waste in the NHS - NHSE Hospitality, 2005

[71] *Food waste in schools* - WRAP, 2011

Action	Description of the Actions
	both generic and sub-sector specific, including promoting the availability of relevant training courses & qualifications.
Work with other public bodies to encourage recycling on the go and implement reuse and recycle initiatives for the public sector (Sustainable Waste Management)	The Welsh Government is keen to encourage and develop recycling on the go in Wales to reinforce and support positive recycling behaviour. It is proposed that WRAP and the Waste Awareness Wales campaign work with public sector organisations to ensure that recycling on the go initiatives are developed across all public sector premises open to the public to facilitate consistent recycling and support the proposed behaviour change actions and the actions defined in the Collections Infrastructure and Markets Sector plan and the Food Manufacturing Services and Retail sector plan.
Other recovery and disposal	
Support high efficiency energy recovery of residual wastes that are not technically, environmentally or economically practical to prevent, reuse, recycle or otherwise recover.	Whilst there remains waste items that cannot practicably be prevented, reused or recycled it is better to recover energy (at a high efficiency) from that waste rather than landfill it. The Welsh Government will work with planning authorities to explore the possibilities to encourage the development of facilities which offer the best options for the utilisation of maximum heat recovery through the planned revision of TAN21 (Planning and Waste) and supplementary guidance. Under its Residual Waste Treatment Procurement Programme the Welsh Government provides funding support to local authority consortia. It is a condition of such funding, that: 1) where the solution chosen is an energy from waste 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 should operate or be capable of operating in combined heat and power mode.

6.4 Assessment of Actions

6.4.1 The following table presents a summary of the SA of each of the category groups considered (waste prevention, recycling and other recovery and disposal). Further detail of the likely effects identified is given below. Measures have been identified to avoid or minimise possible negative effects to the objectives and enhance positive effects. Section 6.7 contains proposed mitigation and enhancement measures proposed for incorporation into the Public Sector Waste and Resource Efficiency Plan for each category of actions. Full details of the assessment are presented in Appendix C.

Table 6.4 Public Sector Waste and Resource Efficiency Plan Summary of the Actions Category Assessment

Action Name	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water Resources	Air Quality	Climate Change	Health	Civic engagement
Waste Prevention									
Promote eco-design. Green Public Procurement Packaging waste reduction Waste prevention and reuse Avoid food waste	✓✓	✓	✓	✓	✓	✓	✓	✓	✓
Recycling									
Supporting industry use of collected waste streams Collaborative behaviour change Recycling on the go	✓✓	✓/×	✓/×	✓/×	✓/×	✓/×	✓/×	✓	0
Waste Recovery and Disposal									
Energy recovery from waste	✓	✓✓	✓/×	✓/×	✓/×	✓/×	✓✓	✓	0

SCORING KEY

✓✓	Strong positive effect
✓	Positive effect
×	Negative effect
××	Strong negative effect
✓/×, ✓✓/××	Mixed positive and negative effect
?	Unknown effect
0	No relationship/neutral effect

1. Waste Prevention

6.4.2 Assessed actions for Waste Prevention comprise:

- Encourage manufacturers and retailers to eco-design, produce and sell products that are easily repairable and upgradeable.
- Packaging waste reduction.
- Implementation of sustainable waste management practices, through waste prevention and reuse throughout the Welsh Government Estate.
- Using public sector contracts to encourage waste prevention through the Green Public Procurement process.
- Avoid food waste production.

6.4.3 The actions are considered to have a strong positive effect in relation to waste management objectives as they actively encourage waste minimisation through the supply chain. The Public Sector is both a major purchaser of goods and services and produces 190,000 tonnes of waste per annum[72]. The Carbon Footprint (expressed in CO^2 equivalent emissions) dominates the Ecological Footprint and is estimated to total around 4.8 million tonnes (CO^2e)[73]. 72% of the carbon footprint of the public sector in Wales arises through the consumption of products and services. Therefore there is the potential for long term benefits through influencing waste prevention through the supply chain.

6.4.4 Waste minimisation is also likely to have economic benefits for the public sector reducing costs for products, food and transportation. In order to ensure that specifying waste minimisation through procurement does not isolate some companies or make it difficult for them to compete, other actions within the Public Sector Waste and Resource Efficiency Plan/ TZW Plans provide guidance and help to organisations in different sectors.

6.4.5 There are likely to be benefits to waste infrastructure. The actions encourage the development of green technologies and potentially improved job opportunities through procurement of services rather than products and increased opportunities in the re-use sector. There would be a reduced requirement for facilities and transportation for waste processing and disposal, reducing the requirement (and associated impacts) for waste infrastructure.

6.4.6 Waste prevention actions have indirect positive effects on objectives relating to landscape/biodiversity/cultural heritage, soil, water, air quality/noise/odour and health. This is due to reducing impacts arising from land-take, use of natural resources and requirement for waste processing and disposal.

6.4.7 There are also positive effects on civic engagement due to generation of employment/ occupational opportunities through new social enterprises based around reuse and reselling.

[72] Wales Public Sector Waste Production Survey, Welsh Assemble Government, November 2009
[73] Ecological Footprint impact of the Welsh Waste Strategy Study Report, Arup, January 2009

2. Recycling

6.4.8 Assessed actions for Waste Recycling comprise:

- Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams
- Collaborative behavioural change.
- Work with other public bodies to encourage recycling on the go and implement reuse and recycle initiatives for the public sector.

6.4.9 The actions are considered to have a strong positive effect in relation to waste management aim to extend awareness of recycling activities, which may be undertaken at home (e.g. separation of waste for recycling, composting of food waste) to public sector workplace and sites used by the public. In 2007 a waste survey of the public sector estimated that based on an average composition of commercial waste, a maximum of 49,800 tonnes of paper and cardboard, metal, food waste, plastic and wood could be diverted from landfill if effectively separated (assuming 100% capture). This is 82 per cent of the general mixed municipal waste reportedly sent to landfill by the public sector per annum. Recycling of all materials also means that waste is providing a resource either through providing a material to be used in products, or as a fuel (e.g. food waste in anaerobic digestion).

6.4.10 Actions will encourage greater provision of waste facilities on site, including recycling facilities for food, paper and card, plastic and metal drinks cans. Actions will also support local industries to use resulting recyclate waste streams. As recycling of waste is encouraged, there may be a requirement to manage less residual waste which in turn may result in a reduction in the number of jobs within the sector, should staff affected not be redeployed in increased opportunities in the recycling sector.

6.4.11 There are also mixed positive and negative indirect effects on landscape, biodiversity and cultural heritage, soil, air quality, noise and odour, and climate change. A reduction in landfill reduces land-take for disposal, use of natural resources and transportation and therefore has positive impacts on these objectives. However, increased requirement for transportation and recycling facilities could also have negative impacts on these objectives, depending on their location and design

6.4.12 The provision of recycling facilities throughout public sector premises would enable greater community engagement in recycling as there would be access for all staff and public using these facilities.

3. Waste Recovery and Disposal

6.4.13 The action assessed for waste recovery was:

- Support high efficiency energy recovery of residual wastes that are not technically, environmentally or economically practical to prevent, reuse, recycle or otherwise recover.

6.4.14 This action would have a positive effect on the waste management objective by reducing the amount of residual waste going to landfill. Recovering energy from waste also benefits other objectives, with a strong positive effect on waste infrastructure and climate change. This is by facilitating the creation of new energy from waste (EfW) facilities, and reducing the demand for raw materials to generate energy and heat

6.4.15 There are mixed positive and negative indirect effects on landscape, biodiversity and cultural heritage, soil, water, air quality, noise and odour. Educing residual waste sent

to landfill should cause a reduced need for landfill. A reduction in landfill reduces land-take for disposal, use of natural resources and transportation and therefore has positive impacts on these objectives. However, increased requirement for transportation and EfW facilities could also have negative impacts on these objectives, depending on their location and design.

6.4.16 .

Assumptions and Limitations

6.4.17 The Public Sector Waste and Resource Efficiency Plan does not provide a detailed plan for implementation of all of the actions. The actions instead rely on guidance, greater application of existing standards and practices, and increasing awareness. The extent of the impact, and positive and negative effects identified, would vary depending on the extent to which the actions are successful undertaken within the public sector. Therefore, the appraisal of effects is limited to qualitative assessment.

Conclusions

6.4.18 It is anticipated that the implementation of the Public Sector Waste and Resource Efficiency Plan will have an overall positive effect, particularly on waste management objectives, with some additional positive effects for other sustainability objectives. A number of potential negative indirect effects have also been identified. Measures to mitigate these effects are set out in Section 6.7 below. Opportunities for enhancement of the sustainability of the plan have also been identified in a number of instances. These are discussed in more detail in Section 6.7 below.

6.5 Description of Cumulative Effects

6.5.1 Cumulative effects are effects that result from incremental changes caused by the actions proposed in the Public Sector Waste and Resource Efficiency Plan together with other past, present or reasonably foreseeable actions. This includes:

- consideration of how the draft Public Sector Waste and Resource Efficiency Plan may act cumulatively with other plans, programmes or projects; and
- the combined effect of individual effects of the plan itself (e.g. noise, dust and visual) on a particular receptor.

Cumulative effect of the draft Public Sector Waste and Resource Efficiency Plan with other plans, programmes and projects

6.5.2 The Public Sector Waste and Resource Efficiency Plan is the final plan within the Towards Zero Waste Strategy. Therefore the cumulative effects assessment has reviewed the assessment of all the sector plans within this document. The results are shown in Table 6.5 below.

6.5.3 The cumulative effects on the waste management and waste infrastructure SA objectives are significantly positive when considered together with all the TZW sector plans. This is also likely to be the case for other waste plans in England and Wales, generally due to the commitments from national and local government to reduce the amount of waste being sent to landfill.

6.5.4 There are cumulative positive effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change SA objectives due to optimising materials use (i.e. by conserving limited resources, such as

aggregates, and avoiding the production of virgin materials, such as plastics), and in reducing reliance on landfill/residual treatment.

6.5.5 There is however some potential for local adverse cumulative effects depending on the physical developments which may lead from the actions. Requirements for more waste management infrastructure (e.g. to store re-used goods, process recycled or recover energy) could lead to adverse effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change and health. The potential cumulative effects of such developments, including effects arising from other projects, would need to be considered in more detail at local level through planning and permitting process.

6.5.6 The cumulative effects assessment also shows that few of the actions have combined effects on civic engagement. In order to achieve positive effects on this objective, consideration should be given on how to increase participation, accessibility and facilities available to communities, particularly disadvantaged groups.

Table 6.5 Cumulative Effects of all Towards Zero Waste Sector Plans

Sector Plan Actions	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water Resources	Air Quality	Climate Change	Health	Civic engagement
Waste Prevention									
PSW&REP Actions	✓✓	✓	✓	✓	✓	✓	✓	✓	✓
WPP Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓	✓
C&D Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓	0
FMSR Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓/×	✓
MSP Actions	✓✓	✓✓	✓	✓✓	✓	✓✓/ ×	✓✓	✓✓	✓✓
Preparation for Reuse									
I&C Actions	✓✓	✓✓/×	✓	✓	✓	✓	✓	✓	✓
WPP Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓	✓
C&D Actions	✓✓	✓	✓	✓	✓	✓	✓	✓	0
CIM Actions	✓✓	✓✓	✓/×	✓/×	✓/×	✓/×	✓	✓	✓
MSP Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓✓	✓✓
Recycling									
PSW&REP Actions	✓✓	✓/×	✓/×	✓/×	✓/×	✓/×	✓/×	✓	0
I&C Actions	✓✓	✓✓/×	✓/×	✓/×	✓/×	✓/×/	✓	✓	0
C&D Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓	0

Sector Plan Actions	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water Resources	Air Quality	Climate Change	Health	Civic engagement
CIM Actions	✓✓	✓✓	✓/×	✓/×	✓/×	✓/×	✓✓	✓/×	✓
FMSR Actions	✓✓	✓✓	✓	✓	✓	✓	✓	✓/×	✓
MSP Actions	✓✓	✓✓	✓/×	✓/×	✓/×	✓✓/×	✓/×	✓/×	✓✓/×
Waste Recovery and Disposal									
PSW&REP Actions	✓	✓✓	✓/×	✓/×	✓/×	✓/×	✓✓	✓	0
C&D Actions	✓✓	✓	✓	✓	✓	✓	✓	✓	0
CIM Actions (other recovery)	✓	✓	✓/×	✓✓	✓✓	✓/×	✓✓	✓/×	✓
CIM Actions (recovery and disposal	✓✓	✓✓	✓/×	✓/×	✓/×	✓/×	✓✓	✓	✓

SCORING KEY:

✓✓	Strong positive effect
✓	Positive effect
×	Negative effect
××	Strong negative effect
✓/×, ✓✓/××	Mixed positive and negative effect
?	Unknown effect
0	No relationship/neutral effect

SECTOR PLAN ACRONYMS:

C&D	Construction and Demolition
CIM	Collection, Infrastructure & Markets
FMSR	Food, Manufacturing, Service and Retail
I&C	Industrial and Commercial

MSP	Municipal Sector Plan
PSW&REP	Public Sector Waste and Resource Efficiency Plan
WPP	Waste Prevention Plan

Combined effect of individual effects of the draft Public Sector Waste and Resource Efficiency Plan

6.5.7 Significant positive cumulative effects are predicted for the waste management SA objective. Implementing these Public Sector Waste and Resource Efficiency Plan actions in combination will increase awareness and encourage good practice in terms of sustainable waste management. In addition, it will generate a number of benefits with respect to the minimisation of Wales' Ecological Footprint, for example by reducing GHG gas emissions associated with transportation and reprocessing of waste.

6.5.8 In overall terms, there are also likely to be positive cumulative effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour SA objectives as a result of the combined effects of the actions in optimising materials use (i.e. by conserving limited resources and avoiding the production of virgin materials) and by reducing reliance on landfill/residual treatment. This will generate indirect positive effects on all these objectives by leading to a reduction in the environmental effects associated with raw material extraction (i.e. loss of habitats, loss of primary resources, effects on water tables etc.), transport and reprocessing activities (i.e. emissions, road traffic accidents, energy use etc.) and land filling waste (i.e. leaching, soil contamination, emission, odours etc.). In addition, by encouraging waste prevention, the Public Sector Waste and Resource Efficiency Plan is likely to have a positive cumulative effects on the climate change SA objective due to the potential for the actions to reduce GHG emissions associated for example with transportation to landfill and reprocessing activities for raw materials and waste.

6.5.9 The cumulative effects of the Waste Prevention Plan on the health SA objective is likely to be positive since the promotion of waste prevention through the combination of actions will help to achieve higher levels of waste minimisation and a better management of waste within public sector organisations. In turn it will provide a safer and healthier working environment (for example by reducing air and noise pollution, odours and hazardous materials) and will have a positive health effect on social capital and community cohesion and environment through the anticipated increase in minimisation/reuse rates, reduction in movement of HGV transporting waste and by avoiding the production of problematic or hazardous waste on site and at end of life as it will prevent exposure of members of the public to hazards as a result of the nature of the material (i.e. chemicals containing substances that are carcinogenic, mutagenic or toxic to reproduction).

6.5.10 Finally, the Public Sector Waste and Resource Efficiency Plan could also have a cumulative positive effect on the civic engagement SA objective as through these actions, public sector organisations could influence the behaviours of their staff, visitors, customers and general public to help ensure that they are fully engaged in waste prevention / reuse and help them make the right purchasing decisions to avoid waste.

Assumptions and Limitations

6.5.11 The Waste Prevention Plan does not provide a detailed plan for the provision or location of new waste infrastructure and management facilities and therefore project level transboundary and spatial/local cumulative effects from specific proposals cannot be considered in this SA. These effects will have to be considered and assessed through the planning process and mechanisms such as EIA, and in line with

local development plans. Reference should also be made to the Areas of Search and other studies commissioned through the Regional Waste Plans 1st Review in 2007[74].

6.5.12 The Waste Prevention Plan contains actions linked to other TZW Sector Plans, namely the Industrial & Commercial Sector Plan, the Construction & Demolition Sector Plan and the Municipal Sector Plan. This will have a combined positive effect on the SA objectives. Potential effects of those actions have been or will be assessed in the SA reports for these Plans.

6.6 Consideration of Reasonable Alternatives

Description of Alternatives

6.6.2 The SA process needs to take into account 'reasonable alternatives' to the development of the plan that have been considered.

6.6.3 Two alternative scenarios have been discussed with Welsh Government and considered as reasonable alternatives, a 'do minimum' and a 'do maximum' scenario. The alternatives considered in this assessment are described below.

6.6.4 Do Minimum Alternative (Option 1) 'Business as Usual'. This alternative is considered the 'no plan' alternative. It involves the consideration of existing measures already put in place (i.e. existing guidance, strategies, etc) without new actions being proposed. Therefore, minimum intervention or no new actions are put forward under this option. This alternative has been assessed as Option 1 (Do minimum) and is defined as being relatively easy to implement as it does not require additional costs or major technology and or cultural shifts.

6.6.5 Preferred Option (Option 2) Best Practice – The proposed Public Sector Waste and Resource Efficiency Plan. This option is considered a medium level intervention and assumes the adoption of best practice measures currently available and behaviour to ensure that the TZW requirements are met within timeframe.

6.6.6 Do Maximum Alternative (Option 3) Beyond Best Practice – This option is considered a high level intervention and provides the maximum potential of the plan assuming that resource efficiency strategy with the highest financial and resource investment is potentially available. It will guarantee exceeding the TZW targets within a shorter timeframe.

6.6.7 A list of alternatives for each category of actions is provided in Table 6.6 below.

Table 6.6 Description of the alternatives to the Public Sector Waste and Resource Efficiency Plan

Category of actions	Actions	Option 1: Minimum intervention.	Option 2: Medium level intervention. TZW Actions.	Option 3: high level intervention.
Waste Prevention (including reuse)	Encourage manufacturers and retailers to eco-design, produce and sell products that	Eco-design continues, but no encouragement to use these products or choose products that are easily repairable or	The Welsh Government proposes to encourage use of eco-design products.	Welsh Government looks at mechanisms to specify eco-design products.

[74] WAG (2007) Regional Waste Plans (Strategic Framework)– First Review.

Category of actions	Actions	Option 1: Minimum intervention.	Option 2: Medium level intervention. TZW Actions.	Option 3: high level intervention.
	are easily repairable and upgradeable	upgradable.		
	Using public sector contracts to encourage waste prevention through the Green Public Procurement process	No encouragement or guidance on Green Public Procurement processes.	Promotion of Green Public Procurement through contracts.	Welsh Government looks at mechanisms to specify Green Public Procurement.
	Avoid food waste	Catering arrangements continue as they do currently. There may be some awareness raising through other programmes.	Research reasons for food waste and implement range of actions to avoid waste.	Welsh Government requires public sector to review food waste and sets mandatory targets for reduction.
Recycling	Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams.	Recycling businesses' use of waste streams continues as current practice but with no encouragement for other industries to make use of waste streams.	Provide support to a range of local industries so that waste streams are used in the most efficient way possible.	Welsh Government establishes a centrally coordinated approach to waste stream management across a range of industries.
	Collaborative behavioural change	Collaborative working arrangements continue as they do currently, without a coordinated TZW campaign.	Public sector organisations work with other sectors (including education and retail) to share best practice and encourage embedding of sustainable behaviours.	Welsh Government looks at mechanisms to specify collaborative working between sectors.
	Work with other public bodies to encourage recycling 'on the go' and implement reuse and recycle initiatives for the public sector.	Existing campaigns continue but with no focus on the public sector.	Existing campaigns work with public sector organisations to promote on the go recycling initiatives.	Welsh Government requires on the go recycling initiatives in all public spaces.
Recovery and Disposal	Support high efficiency energy recovery of residual wastes that are not technically,	Food waste disposal is the responsibility of individual organisations and premises.	Public Sector organisations review their disposal of waste and begin to look for opportunities for energy recovery.	Welsh Government requires energy recovery from all residual wastes.

Category of actions	Actions	Option 1: Minimum intervention.	Option 2: Medium level intervention. TZW Actions.	Option 3: high level intervention.
	environmentally or economically practical to prevent, reuse, recycle or otherwise recover.			

Assessment of Alternatives

6.6.8 The sustainability assessment of the alternatives of the actions screened in was undertaken for each category of actions following the approach followed for the previous Sector Plans. Each alternative/option was assessed against each objective according to the scoring criteria set out below.

↑	Option likely to have a more positive effect on the objective than that assessed for the draft Public Sector Waste and Resource Efficiency Plan
↓	Option likely to have a less positive effect on the objective than that assessed for the draft Public Sector Waste and Resource Efficiency Plan
↑↓	Option likely to have a mixed positive and negative effect on the objective than that assessed for the draft Public Sector Waste and Resource Efficiency Plan
?	Difference in effect on the objective likely to be dependent on detailed application of individual actions and projects

6.6.9 The assessment of the alternatives/options is provided in Table 6.7 below.

6.6.10 Overall, Option 2 (best practice) has been assessed as having a more positive effect than Option 1 (do minimum alternative) and a slightly less positive effect than Option 3 (beyond best practice).

6.6.11 The results of the options assessment against the waste infrastructure and waste management objectives indicate that:

- Option 1 has been assessed as having a less positive effect or a more uncertain effect than Option 2. This is because this scenario is reliant on public sector organisations adopting existing campaigns or individually promoting waste management actions. Although some organisations/ premises may be successful in doing so, they are less likely to achieve sustainability benefits without support of TZW actions through awareness raising, guidance, targets and knowledge sharing.

- Option 3 would be a slightly more beneficial option compared to Option 2 as would make many of the actions mandatory, ensuring TZW targets are met. However, Option 3 would be more expensive to implement and enforce, and this investment for the public sector would reduce benefits from other plans and programmes.

Table 6.7 – Assessment of the Draft Public Sector Waste and Resource Efficiency Plan

Objective	Do Minimum Alternative	Preferred Option	Do Maximum Alternative	Commentary
	Option 1: Business as Usual (TWZ)	Option 2: Best Practice (draft Waste Prevention Plan)	Option 3: Beyond Best Practice	
Waste Management	↓	✓✓	↑	Option 1 has been assessed as having a less positive effect than Option 2 in meeting the waste management objective for all categories of actions. Option 1 will maintain current levels of enforcement of the requirements of the Waste Framework Directive and the TWZ. Existing waste management arrangements will continue with no additional interventions or instruments such as guidance, market based incentives, partial funding, etc in order to raise awareness of sustainable waste reduction and encourage behavioural change among households and businesses within the I&C and C&D sectors. Option 3 will be a more beneficial option compared to Option 2 for all categories of actions. It assumes compliance with Public Sector Waste and Resource Efficiency Plan actions, increasing the capacity of Wales to manage waste and contributing further to reduce/minimise Wales' Ecological Footprint. However, Option 3 will be more costly than Option 2 due to regulation and enforcement.
Waste Infrastructure	↓	✓/×	↑	Option 1 has been assessed as having a less positive effect than Option 2 in meeting the waste infrastructure objective for all categories of actions. Option 1 relies on organisations and premises to undertake

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft Waste Prevention Plan)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
				waste management without benefit of campaigns, guidance, shared experiences or practical help. Option 3 will be a more beneficial option compared to Option 2 for all categories of actions since this scenario provides for enforcement of undertaking actions, mandatory targets and environmental standards. However, Option 3 will be more costly than Option 2.
Landscape, biodiversity and cultural heritage	?	✓/×	↑	The difference in effect on these Objectives for Option 1 and Option 2 is likely to be dependent on detailed application of individual actions and projects. The two options are likely to have positive effects on these objectives due to the potential for specific interventions and TZW targets requirements to optimise materials use and reduce reliance on landfill/residual treatment. Some negative effects may be generated as other waste infrastructure developments may be needed. The difference is that Option 1 may is less likely to achieve these benefits and meet TZW targets as it relies on organisations to be proactive without wider support. Option 3 has been assessed as having a more positive outcome in terms of these objectives as the proposed actions would give to the plan the maximum potential to optimise materials use and reduce reliance on landfill/residual treatment, producing therefore a greater beneficial effect for the environment.
Soil	?	✓/×	↑	
Water	?	✓✓/×	↑	
Air quality, noise and odour	?	✓/×	↑	

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft Waste Prevention Plan)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
Climate change	?	✓/×	↑	The difference in effect on these Objectives for Option 1 and Option 2 is likely to be dependent on detailed application of individual actions and projects. By encouraging waste prevention, reuse/recycling and landfill diversion, both options are likely to have, as a overall, positive effects due to the potential for the actions to reduce GHG emissions associated for example with transportation to landfill and reprocessing activities for raw materials and waste. This in turn will contribute to mitigate the effects of Climate Change. Although recycling waste may be less energy efficient than their primary materials, causing therefore an increase in GHG emissions. Option 1 is less likely to achieve these benefits and meet TZW targets as it relies on organisations to be proactive without wider support. Option 3 will be a more beneficial option compared to the other two as greater enforcement of actions would lead to more positive effects. However, it would be more costly.
Health	?	✓	↑	The difference in effect on these Objectives for Option 1 and Option 2 is likely to be dependent on detailed application of individual actions and projects. By promoting waste prevention and reuse, the options will help to achieve higher levels of waste minimisation and a better management of waste. This in turn will provide a safer and healthier working environment (for example by reducing air and noise pollution, odours and hazardous materials). Option 1 may is less likely to achieve these benefits and

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft Waste Prevention Plan)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
				meet TZW targets as it relies on organisations to be proactive without wider support. Option 3 will be a more beneficial option compared to the other two as greater enforcement of actions would lead to more positive effects. However, it would be more costly.
Civic engagement	?	✓	↑	The difference in effect on these Objectives for Option 1 and Option 2 is likely to be dependent on detailed application of individual actions and projects. Businesses could influence the behaviours of their staff, visitors, customers and general public to help ensure that they are fully engaged in waste prevention and reuse thereby helping them make the right purchasing decisions to avoid waste. Option 1 may is less likely to achieve these benefits and meet TZW targets as it relies on organisations to be proactive without wider support. Option 3 will be a more beneficial option compared to the other two as greater enforcement of actions would lead to more positive effects. However, it would be more costly.

6.7 Mitigation and Enhancement Measures

6.7.1 The purpose of the SEA process is to ensure a high degree of environmental protection. An important part of the process is to establish mitigation measures where a significant effect has been identified. The purpose of mitigation is to prevent, reduce or offset any identified negative effects of the Public Sector Waste and Resource Efficiency Plan. Enhancement measures have also been identified in a number of instances in order to maximise the benefits of positive effects.

6.7.2 The main effects identified and mitigation and enhancement measures proposed are as follows:

Effects on local employment

6.7.3 Several of the actions look at influencing the supply chain through procurement. Although this may have beneficial effects for waste management, it may mean that some organisations that don't have the resources or knowledge to improve their products or services in relation to waste, would have difficulty in competing for public sector contracts. In order to ensure that specifying waste minimisation through procurement does not isolate some companies or make it difficult for them to compete, other actions within the TZW Strategy provide guidance and help to organisations in different sectors. This would apply in particular to waste prevention and re-use actions in this Sector Plan as well as CIM, FMSR and I&C Sector Plans.

6.7.4 As public sector organisations improve their resource efficiency, reuse materials and prevent waste, there may be less recycling and residual waste which in turn may result in a reduction in the number of jobs within the sector, should staff affected not be redeployed. This could be a negative effect in relation to local employment opportunities. Potential mitigation measure could include training and upskilling in the use of new tools and staff to be redeployed.

6.7.5 Some employment opportunities could potentially be supported by the actions in the longer term, particularly within the waste and resource management industry across a range of skill levels in Wales. This may include an increased number of high skilled, high value green jobs.

Effects on environmental & community objectives

6.7.6 Although there are environmental benefits associated with reducing natural resource use and disposal of waste, there are also effects associated with increased need for waste infrastructure, particularly to support re-use, recycling and recover actions. For example, there may be indirect effects from increased provision of recycling facilities, such as land-take (biodiversity, cultural heritage, landscape, soils) or increased requirements for transportation (air quality, climate change).

6.7.7 Potential mitigation measures could include the promotion of sustainable and safe/healthy location of new collection and recycling facilities. These impacts would require further consideration and assessment at project level.

6.7.8 Collection services for recycling, re-use and recovery would also need to be considered to minimise any additional transportation requirements, for example collection locations and schedules. On-site solutions, such as re-use of office furniture and composting of food waste should also be considered.

7 HEALTH IMPACT ASSESSMENT

7.1 Purpose of a Health Impact Assessment

7.1.1 The purpose of an HIA is to identify and assess both the beneficial and detrimental effects of a proposed Scheme, enhance the benefits whilst minimising its potential detrimental effects from its recommendations.

7.1.2 The definition of a Health Impact Assessment was formally derived within the 'Gothenburg Consensus' ' as;

"*a combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.*"

7.1.3 A Health Impact Assessment:

- allows an opportunity for the application of different methods and approaches to gather health evidence.
- identifies how proposals could affect health and inequalities, where there could be a disproportionate effect on certain populations or areas.
- provides recommendations to inform the decision-making process by highlighting practical ways to enhance the positive impacts of a proposal, and to remove or minimise any health inequalities and negative impacts that might arise or exist.
- Needs to be overseen and held in scrutiny by a Steering Group comprised of either community representatives and/ or health professionals.

7.1.4 HIAs provide organisations with a framework to deliver their statutory obligations; they are a means of introducing health considerations into the planning process.

7.2 Procedure for Health Impact Assessment

7.2.1 The procedure for undertaking Health Impact Assessment includes, but is not limited to:

- Screening selected policies or project tasks for assessment.
- Establishing a Steering Group and agreeing its Terms of Reference.
- Carrying out the Health Impact Assessment.
- Negotiating the favoured option(s) for achieving optimal health impact.
- Monitoring and evaluating processes and outcomes of the HIA and providing feedback to influence continuing review of the project.

7.3 Aims and Objectives of the Public Sector Waste and Resource Efficiency Plan HIA

7.3.1 Core objectives of the HIA were derived from recommendations arising from the TZW HIA:

- To supplement and support a wider body of work including SA;

- define existing burdens of poor health, inequality and relative community sensitivity;
- define potential exposure scenarios and subsequent risk to community health (drawing from the Assembly and Environment Agency position papers); and
- identify and address perceived community risks.

7.3.2 The above were supplemented by more specific objectives including:

- Assess the potential health impacts, both positive and negative, of the draft Public Sector Waste and Resource Efficiency Plan;
- Generate recommendations which encourage positive health impacts and minimise negative ones;
- Assess the marginal, indirect, unverified and cumulative health inequalities associated with the draft Public Sector Waste and Resource Efficiency Plan;
- Maximise the health opportunities of the draft Public Sector Waste and Resource Efficiency Plan;
- Provide evidence-based recommendations geared to reduce and remove potential adverse impacts and enhance opportunities to improve health; and
- Scrutinise the consultation responses of the Municipal Sector plan and consolidate these together with the recommendations from the TZW strategy HIA.

7.4 Methodology

7.4.1 The HIA for the Public Sector Waste and Resource Efficiency Plan was undertaken following the methodology and process set out in the TZW strategy designed to identify and evaluate the potential health effects of a proposed programme and to facilitate opportunities to improve health and well-being.

7.4.2 The Public Sector Waste and Resource Efficiency Plan HIA was undertaken as a participatory rapid HIA in four stages:

- Scoping
- Assessment
- Recommendations
- Management planning

7.4.3 The HIA baseline data was extracted from an evidence base which included the policy analysis from both SAs for TZW and MSP1.

7.4.4 An HIA Steering Group identified from previous HIA consisted of the Welsh Health Impact Assessment Support Unit; Natural Resources Wales; the Welsh Assembly Government; and the University of Wales.

7.4.5 The HIA methodology had been previously endorsed by the HIA Steering Group during the TZW HIA, therefore no adaptation to the HIA approach was made. The approach taken within the Waste Sector HIA and its outputs were reviewed by the HIA steering group.

7.5 HIA Scope and Health Pathways

7.5.1 The scope of the HIA had been previously defined during the preparation of both the TZW HIA and the Strategic HIA upon the 3 Regional Waste Plans. During both the TZW HIA and 3 Regional Waste Plans HIA scoping exercises were conducted as a high level desk top study of existing health information, gap analysis and literature review.

Determinants of Health

7.5.2 The following specific 'Determinants of Health' were identified within the Wales 3 Regional Waste Plans Final Strategic HIA:

- Employment and Economy;
- Housing and accommodation;
- Transport and Connectivity;
- Crime and Safety;
- Access to Health and Social Care;
- Social Capital and Community Cohesion; and
- Environment.

7.5.3 The HIA undertaken upon the TZW Strategy identified that the following potential socio-economic health pathways were associated with Waste processes:

- initial cost and risk to employment and income during the transition to more responsible and sustainable waste-resource management practice;
- the waste and waste-resource sector employment; and
- potential community health outcomes.

7.5.4 Key health pathways selected by the TZW draft strategy included:

- the potential environmental effect from the proposed waste resource management options and associated activities upon health; and
- the potential effect of the proposed policies and actions upon socio–economic health pathways.

7.5.5 From the detailed review of the available health evidence base within the TZW draft strategy the following potential health pathways were identified:

Potential Health Pathways Associated with Waste
• Reduction in resource use and waste generation at the industrial and retail level • Reduction in transportation of waste in terms of both volume and management. • Reduction in environmental impacts of treatment and disposal of waste. • Benefits through improved household waste-resource management. • Reducing the level of waste sent to landfill.

Potential Health Pathways Associated with Waste
• Increase the reuse and recycling of resources diverting waste from disposal. • Reduction in waste management emissions to air, water and ground. • Need to consider household type and barriers that may limit composting, recycling or storing of recyclates or pose a risk to residents. • Initial offsetting of environmental benefit from selection of new materials that pose a greater environmental cost at the start of its lifecycle in order to increase the value and quality of recycling at the end of its life cycle.

7.5.7 The following socio-economic health pathways were identified:

Socio-Economic Health Pathways Associated with Waste
• Improvement in industrial and retail resource efficiency throughout Wales; • Reduction in the cost of transporting waste including the capital and maintenance cost of vehicles; • Reduction in the cost of treating and disposing of waste and the remediation of future waste treatment sites to Local Authorities; • Potential income and employment impact on the waste management sector as it is phased out; • Potential income and employment benefit to the waste-resource management sector as it is phased in; • Initial potential risk upon income and employment in order to comply with the Waste Strategy; • Potential risk to the cost of domestic exports; • Potential risk of increasing the importation of cheaper, non-compliant foreign products.

General population

7.5.9 The Wales 3 Regional Waste Plans Final Strategic HIA considered that the whole population was to be affected to a greater or lesser degree by the Wales Waste Plans. There were likely to be positive health benefits related to better, more sustainable and more integrated waste management and treatment.

Specific Population Groups

7.5.10 Particular specific sub-groups were identified as vulnerable, these included those living near any potential new waste facilities that are likely to be built, closed or extended in response to the Wales Waste Plans. The following vulnerable groups were identified as particularly sensitive to health impacts arising from a waste plan:

- Children and young people;
- Older people;

- People on low income;
- Economically inactive/ Unemployed;
- People with a chronic ill-health condition;
- Traveller communities;
- People living in areas known to exhibit poor economic and/or health indicators;
- People living in isolated areas/ People with poor access to services and amenities;
- Women who are pregnant and women/couples trying to become pregnant; and
- Employees of new waste facilities.

7.6 Health Impact Assessment

7.6.1 The purpose of the assessment step was to collate the available baseline data and to analyse the action plan from the perspective of its potential impacts upon the health determinants through the health pathways. To support this and ensure robust approach evidence was provided to support each impact statement.

7.6.2 Baseline data was extracted from the previous TZW HIA and applied to establish the demographic, social and health profiles for the population within the geographical scope of the HIA.

7.6.3 Sources of baseline information included:

- HIA of the Wales three Regional Waste Plans completed in March 2008 (PBA 2008);
- Wales Waste Strategy (TZW, 2009);
- SA of the TZW strategy;
- SA Scoping Report of the TZW Sector Plans; and
- SA of Waste Sector Plans undertaken to date.

7.6.4 Evidence was sourced from a broad range of sources, principally previous health studies conducted upon hazard and employment associated with the waste industry. Evidence was largely confined to studies conducted within the UK, however a limited number of international studies have been utilised where it was considered both appropriate and transferable.

Key Sustainability Issues

7.6.5 Work undertaken during the baseline review of the Public Sector Waste and Resource Efficiency Plan (Table 4.1) identified key sustainability issues associated with 'Population Health and Well Being'.

7.6.6 In order to provide clarity and continuity between this and the previous HIA's conducted upon Wales Waste Strategies, and the Public Sector Waste and Resource Efficiency Plan SA, links were made between the established overarching determinants for health, the sub-objectives of the Public Sector Waste and Resource Efficiency Plan SA (Table 5.2 of this report) and key sustainability issues (Table 5.1 of this report).

Baseline Summary of Deprivation

7.6.7 In addition to the baseline review the following Table 7.1 is a summary of key deprivation issues in Wales.

Table 7.1 Summary of Key Deprivation Issues in Wales

Determinant of Health	Key Baseline Issue
Income	• £15,272,000 is paid in working age benefits each working day[75], with an average of £3,136 household benefits paid per year in comparison to £3,034 paid in the UK[76] • In 2012/13 30 % of children in Wales were living relative low income, Wales were living in Poverty[77] • In between April 2014 to March 2015 average weekly earnings in Wales were £546, just 77% of the UK average.[78]
Housing	• In 2010 9,000 families a year became homeless[79]. • Overcrowding in accommodation is four times as prevalent in rented accommodation as in owner-occupation[80]
Employment	• Employment in Wales between April to June 2015 was 71.5%, in the UK as a whole it was 73.5%[81] • 32% of the workforce in Wales work part-time[82] In 2015 unemployment rate in Wales was 6.70%, in the UK as a whole it was 7.2%[83] • Between April 2014 to march 2015250,510 (12.4%) working-age people had been receiving a key out-of-work benefit for two years or more. This is comparison to 10.9 % In the UK. [84] • 80% of key out-of-work benefits are claimed due to ill-health in Wales[85] • You are less likely to be in work if you are a lone parent, over 50, a member of a minority ethnic group or have a disability [86] • Two thirds of the long term claimants in Wales are aged 54 or less[87]
Access to services	• Three-quarters of social renters do not participate in any organisation compared to half of owner-occupiers[88].
Education	• In 2013 10 % of working age adults in Wales reported having no qualifications[89];

75 The Effects of Taxes and Benefits on Household Income, Financial Year Ending 2014, ONS 2015

76 Average incomes, taxes and benefits by Country and Region of all households, 2011/12 – 2013/14

77 Households Below Average Income An analysis of the income distribution 1994/95 – 2012/13 July 2014 (United Kingdom), Department for Work and Pensions July 2014

78 EARN05: Gross weekly earnings of full-time employees by region. Date of Publication:12 August 2015. ONS 2015

79 Welsh Assembly Government Housing Statistics: March 2011 (http://www.poverty.org.uk/w81/index.shtml)

80 English Housing Survey, Households,2012-13, Department for Communities and Local Government, July 2014

81 Regional Labour Market, August 2015, ONS 2015

82 http://www.ons.gov.uk/ons/rel/subnational-labour/regional-labour-market-statistics/august-2015/regional-labour-market--august-2015.html#tab-Unemployment

83 http://www.ons.gov.uk/ons/rel/subnational-labour/regional-labour-market-statistics/august-2015/regional-labour-market--august-2015.html#tab-Unemployment

84 Labour Force Survey, 2008 to 2010, ONS (http://www.poverty.org.uk/w45/index.shtml?2)

85 Labour Force Survey, 2008 to 2010, ONS (http://www.poverty.org.uk/w45/index.shtml?2)

86 Work and Pension Longitudinal Study, Department for Work and Pensions, 2010 (http://www.poverty.org.uk/w14/index.shtml)

87 Work and Pension Longitudinal Study, Department for Work and Pensions, 2010 (http://www.poverty.org.uk/w14/index.shtml)

88 Living in Wales, 2008, LGDU-Wales, February 2010 (http://www.poverty.org.uk/w88/index.shtml)

Health	• Unemployed men in Wales are twice as likely to develop mental illness as working men[90]. • Debt, mental health and drug and alcohol abuse are reported as key barriers to work by employment advisers in Wales[91] • 5% of all hospital admissions in Wales are related to alcohol use[92] • 23% of people in Wales reported having a limiting long-term illness, compared with 18% in England and 20% in both Scotland and Northern Ireland[93]Rate of premature death is 66% higher for men than for Women in Wales[94].
Community Safety	• Jobless offenders are more likely to be socially excluded than the general population: they are 13 times as likely to have been in care as a child[95]

Assessment of the Public Sector Waste and Resource Efficiency Plan

7.6.8 Each waste action proposal was assessed against its potential health impact through applying the following criteria:

- its potential health determinant;
- its environmental health pathway;
- its socio-economic health pathway;
- associated vulnerable groups; and
- underlying baseline conditions.

7.6.9 Evidence was extracted from previous Waste Plan HIAs as well as existing studies of health impacts from waste activities.

Stakeholder Response

7.6.10 A review of stakeholder responses was undertaken as part of the HIA assessment, from previous Welsh Government Waste HIA's and Waste Sector plans consultation. These included consultation responses from the Regional Waste Strategy HIA, public engagement exercise for both the TZW Strategy and the MSP1, and the Scoping Report SA for the TZW Sector Plans consultation responses. Where applicable, responses which cited health impacts were included within the assessment table and mitigations.

[89]https://statswales.wales.gov.uk/Catalogue/Education-and-Skills/Post-16-Education-and-Training/Lifelong-Learning/Qualification-Levels
[90] Mental Health and Work, The Royal College of Psychiatrists, 17 March 2008
[91] Alcohol misusers' experiences of employment and the benefit system, Department for Work and Pensions, Research Report No 718, 2010
[92] Alcohol and health in Wales 2014, Public Health Wales Observatory, 2015
[93] A profile of long-term and chronic conditions in Wales, National Public Health Service for Wales, June 2005
[94] General Registry Office for Scotland and Mortality Statistics Division, Office for National Statistics, January 2011
[95] The Cost of Exclusion, Counting the cost of youth disadvantage in the UK, The Prince's Trust, 2007

Recommendations

7.6.11 The objective of this phase of the work was to identify appropriate measures to minimise the negative impacts of the waste sector plan and to maximize the opportunities for beneficial impacts.

7.6.12 The HIA was undertaken in parallel with the SA allowing feedback of the outputs the Appraisal process at the earliest stage. Close collaboration between PB's HIA and SA practitioners avoided duplication of efforts in the recommendations for mitigation.

7.6.13 Results of the HIA are presented in Appendix D and link the health impact, subsequent recommendation/ mitigation and associated evidence to each particular Public Sector Waste and Resource Efficiency Plan action.

7.7 Health Impacts Assessment Summary

7.7.1 The Public Sector Waste and Resource Efficiency Plan sets out proposed actions which seek to prepare both the Public Sector throughout Wales and the waste industry to address waste prevention, preparation for reuse, recycling as well as treatment and disposal.

7.7.2 All positive health impacts resulting from assessment of the Public Sector Waste and Resource Efficiency Plan were largely confined to those actions which involved measures of change rather than proposed research, campaigns or reviews of current practise or capacity.

7.7.3 All optional actions would have indeterminable outcomes and so were treated as having unknown impacts.

7.7.4 The plan provides an opportunity for a considerable positive health effect upon the economy, employment and the public approach to waste minimisation through promoting reuse and whole life procurement practices, rather than short-term use and disposal.

7.7.5 A strong association exists between long-term unemployment and poor health. Therefore where the Public Sector Waste and Resource Efficiency Plan generates new employment opportunities it also provides a positive heath impact on economy and employment However, there may be some negative effects due to job losses in the waste disposal sector.

7.7.6 Sustainable procurement principals as outlined in the Public Sector Waste and Resource Efficiency Plan would have a direct and positive health effect upon employment and economy. Where sustainable procurement would allow for the reduced environmental impact and improved social cohesion of using locally sourced contract staff and suppliers.

7.7.7 A reduction in waste disposal through sustainable procurement measures would result in a reduction in emissions from waste processing and disposal providing direct positive health benefits to both social capital and the environment. However, there would still be some emissions associated with transportation of reused or recycled materials.

7.7.8 Several actions suggested developing practices which would influence the supply chain. Though positive in principal, a potentially negative impact could be the exclusion of SME's who might be less able to compete against larger organisations

ability to adapt to requirements or accreditation measures. Provision should be made to assist smaller suppliers in meeting sustainable procurement benchmarks and accreditation.

8 HABITATS REGULATIONS ASSESSMENT

8.1 Background

8.1.1 This HRA screening assessment has been produced as part of an integrated screening assessment on the draft Public Sector Waste and Resource Efficiency Plan with a SA and a HIA. This screening assessment will sit within the SA and will ensure that all HRA-related considerations are fully integrated into the Public Sector Waste and Resource Efficiency Plan as it is developed.

8.1.2 It should be noted that the inclusion of the HRA within the main body of the SA is for the purpose of presenting all relevant assessment information within a single document. As such, it is important to state that the HRA is not an integrated part of the SA rather a separate specific assessment process that requires consideration in isolation to that of the SA.

8.1.3 Nonetheless whilst the levels of detail required within the SA, HIA and the HRA are different, there are distinct crossovers between the topics, with the information gathered within one being of value to each of the other assessments. The SA assesses, amongst other things, the effects of planning and nature conservation policy and legislation. This HRA provides an examination of the potential impacts of the Public Sector Waste and Resource Efficiency Plan on the nature conservation areas protected under the Habitats Directive, the Wild Birds Directive and the Ramsar Convention. This assessment forms one sub-section of the wider SA of the Public Sector Waste and Resource Efficiency Plan.

8.2 Requirement for Habitats Regulations Assessment

8.2.1 Under Article 6 of the Habitats Directive an assessment is required where a plan or project, not directly connected with or necessary to the management of a Natura 2000 site, either individually or in combination with other plans or projects, is likely to have a significant effect upon that site. Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes Special Areas of Conservation (SAC) designated under the Habitats Directive for their habitats and/or species of European importance and Special Protection Areas (SPA) classified under the Conservation of Wild Birds Directive for rare, vulnerable and regularly occurring migratory bird species. In addition, it is a matter of law that candidate SAC (cSAC) are considered in this process, and a matter of policy that pSACs, sites which are proposed in the UK but which are yet to be submitted to the European Commission are given a similar level of protection not included.

8.2.2 Decision-takers are expected to note this potential designation when considering applications that could affect a pSACs. Furthermore it is a matter of Government policy that sites designated under the 1971 Ramsar Convention for their internationally important wetlands and potential SPAs (pSPA) are considered. For simplicity within this report the term European sites should be taken to include all sites requiring assessment under the Habitats Regulations (i.e. it should be taken to include Ramsar sites).

8.2.3 The requirements of the Habitats Directive are transposed into Welsh law out to territorial water limits (12 nautical miles) by means of the Conservation of Habitats and Species Regulations 2010 (as amended). The Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007 transpose the Habitats Directive in the UK offshore marine area (beyond 12 nautical miles). The Habitats Regulations also

includes SPAs, classified under the Birds Directive, within the definition of a European Site. European offshore marine sites are now included in the HRA process.

8.2.4 Paragraph 3, Article 6 of the Habitats Directive states that:

'any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives...the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public'.

8.2.5 Paragraph 4, Article 6 of the Habitats Directive states that:

'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest… the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected...'

8.2.6 These requirements are implemented in Wales through Regulations 61, 62, 66 and 67 of the Habitats Regulations.

8.3 Stages of Habitats Regulations Assessment

8.3.1 The commission guidance on the Habitats Directive sets out four distinct stages for assessment under the Directive:

- Stage 1: Screening – the process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant.
- Stage 2: Appropriate Assessment – the detailed consideration of the impact on the integrity of the Natura 2000 sites of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site. Specific guidance on this stage is provided in Habitat Regulations Guidance Note 1.
- Stage 3: Assessment of alternative solutions – the process which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site.
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain – an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

8.3.2 This section addresses the requirements for the screening assessment undertaken as part of Stage 1 of the HRA process to establish whether or not the draft Public Sector Waste and Resource Efficiency Plan is likely to have significant effects upon European sites.

8.3.3 As this HRA assessment is of a broad policy rather than of a specific plan or project the information presented within this assessment is high-level and does not contain the level of detail typically presented for HRA screening exercises. Any plan or project brought forward under the draft Public Sector Waste and Resource Efficiency Plan may still require its own HRA assessment[96] and the HRA of the draft Public Waste and Resource Efficiency Sector Plan do not negate the need for project level assessment at the appropriate stage.

8.4 Steps in HRA Screening (Stage 1)

8.4.1 The European Commission guidance recommends that screening should fulfil the following steps:

a) Determine whether the plan is directly connected with or necessary for the management of European sites;

b) Describe the plan and describe and characterise any other plans or projects which, in combination, have the potential for having significant effects on European sites[97];

c) Identify the potential effects on European sites; and

d) Assess the likely significance of any effects on European sites.

8.5 HRA Screening Assessment

Step 1: The strategy and management of international sites

8.5.2 This stage considers whether the draft Public Sector Waste and Resource Efficiency Plan is directly connected with or necessary to the management of European sites. Within this context 'directly' means that the plan is solely conceived for the conservation management of a site or group of sites and 'management' refers to the management measures required in order to maintain in favourable condition the features for which the European site has been designated.

8.5.3 The Public Sector Waste and Resource Efficiency Plan is neither directly connected with, nor necessary for, the management of any European sites within Wales. As such it is clear that further consideration of the plan by way of a HRA screening assessment is required.

[96] Further guidance on how to undertake HRAs can be found at: http://www.environment-agency.gov.uk/business/regulation/101795.aspx

[97] The assessment of significance follows the approach set out by Glasson, J., Therivel, R. and Chadwick, A. (1999, 2nd edition), Introduction to environmental impact assessment, UCL Press, London.
Whereby the following factors are considered:

- the character and perceived value of the affected environment;
- the magnitude, spatial extent and duration of anticipated change;
- the resilience of the environment to cope with change;
- confidence in the accuracy of predictions of change; the existence of policies, programmes, plans, etc. which can be used as criteria;
- the existence of environmental standards against which a proposal can be assessed (e.g. air quality standards, water quality standards);
- the degree of public interest and concern in the environmental resources concerned and the issues associated with a proposed project; and
- scope for mitigation, sustainability and reversibility.

Step 2: Description of the Public Sector Waste and Resource Efficiency Plan

8.5.4 The Public Sector Waste and Resource Efficiency Plan will guide action by public sector bodies funded by the Welsh government and National Assembly for Wales; it will support 'Towards Zero Waste' (TZW), the overarching waste strategy for Wales, by detailing outcomes, policies and delivery actions for the Public Sector.

Step 3: Identify Potential Effects on European Sites

8.5.5 An HRA[98] was carried out on TZW in 2009 and a report produced which lists the European sites in Wales (and in England within 15 km of the Welsh border). The report assigns each site to a broad habitat category (grasslands, woodlands, rivers, etc) and identifies the key sensitivities for each of the broad habitat categories (for example a key sensitivity for grasslands was identified as scrub encroachments, for rivers a key sensitivity was recreational pressure and disturbance).

8.5.6 There is no set guidance on the demarcation of buffer zones. Rather, the zone of influence for HRA screening is defined by the potential effects arising from the project or plan and the available pathways for those effects to reach and affect interest features of European sites. 15km was considered an appropriate buffer for the assessment of air quality impacts as a result of plans or projects implemented under the Waste Strategy. This is following the guidance contained within the Environment Agency's environmental risk assessment for air quality. This buffer has been adopted in this HRA for consistency.

8.5.7 A HRA screening assessment was carried out to ascertain whether TZW could have the potential to impact on European sites. The assessment found that TZW will result in measures to reduce disposal of waste to landfill and further investigations to determine whether greenhouse gas emissions (particularly methane) from existing operational and closed landfills can be reduced. This was assessed as reducing the risks of future adverse effects to European sites and reducing existing effects if controls on emissions from existing landfill sites can be found.

8.5.8 Given that the Public Sector Waste and Resource Efficiency Plan provides no detail in terms of spatial scope and largely focuses on facilitating changes within the industries, it is only possible to consider assumptions with regard to the potential infrastructure that may be covered under the Public Sector Waste and Resource Efficiency Plan at a high level beyond that of the assessment undertaken previously for TZW HRA.

8.5.9 At a non-specific level assumptions or criteria can be made about waste infrastructure within Wales. These assumptions may either be exclusionary or discretionary. Exclusionary criteria are those which will preclude the site from being considered as a site for a waste facility and discretionary criteria are those which are likely to reduce the suitability of a site for development as a waste facility. Possible assumptions are listed within Table 8.1. This does not attempt to provide an exhaustive list but instead illustrates the range of criteria likely to be used when refining potential locations for waste infrastructure facilities.

[98] [98] ERM (2009) *Wales Waste Strategy Habitats Regulations Assessment Report*, available from http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/zerowastebackground/appraisals/?lang=en (accessed June 2010)

Table 8.1: Possible Assumptions used to guide location of Waste Infrastructure Facilities

Assumptions/Criteria
Proximity to Transportation Network *(sites need good road/rail access)*
Vulnerability to Flooding *(flooding presents unacceptable environmental risk)*
Vulnerability to other Natural Disasters *(range of unanticipated environmental impacts)*
Proximity to other Industrial Facilities *(cumulative impacts, in particular associated with accidents on nearby facilities)*
Proximity to Urban or Residential Areas (*sites likely to be some distance from residential areas but on urban fringes to ensure adequate workforce)*
Proximity to Military Activities (*hazards associated with military activities)*
Proximity to Designated Sites of Ecological Importance (*development within sites of importance typically prohibited*)
Proximity to Areas of Amenity, Cultural and Heritage Importance (*development within such zones may often be restricted*)
Proximity to Water Courses and Ground Water Protection Zones (*storage and use of waste substances within sensitive areas generally restricted*)
Proximity to Resources required during operation *(treatment facilities likely to be near to point of waste generation within reason)*

8.5.10 Through analysis of the operation of the various facilities that potentially may be brought forward under the NPS, a number of siting criteria can be identified which are likely to govern the location of new facilities in practical terms. However, for the purposes of this HRA screening assessment they do little to refine the list of European sites which may be affected by the proposed works, in particular given that most siting criteria are likely to be discretionary and therefore it is not possible without certainty to rule out impacts on European sites.

8.5.11 At this stage therefore it is not possible to identify a short list of European sites which are most likely to be exposed via pathways to likely significant effects associated with the Public Sector Waste and Resource Efficiency Plan. The impacts must therefore be viewed on a non-specific basis on all of the different designated habitats and species which form the network of European sites. This includes impacts upon European sites beyond the national boundary, in particular within England as many of these, particularly those close to the nationally boundary, or with a specific transmission pathways such as being connected by a water course.

<u>Other Plans and Programmes and In-Combination Effects</u>

8.5.12 Given the strategic nature of this screening assessment and the uncertainties surrounding the timing and effects of other national level plans and projects, it is not practicable at this stage to identify all the possible plans and projects that may act 'in-combination' or to consider the specific nature of likely effects arising. However, it is possible to outline at a strategic level the broad types of effects that may arise from the implementation of other plans and projects which should inform the overall implementation of the Public Sector Waste and Resource Efficiency Plan. Some of the effects (identified in Table 8.2) may occur as a result of the draft Public Sector Waste and Resource Efficiency Plan alone, but may also occur or be magnified as a

result of a wider range of development actions and activities arising from the implementation of other plans and projects.

Table 8.2: Potential strategic in-combination effects

Effects	Development actions and activities
Water resources and quality	• sewage and industrial effluent discharges from new developments • abstraction to secure water supplies for planned growth (housing, industry) • flood and coastal risk management development (for example, implementation of new flood defences)
Soil and Geology	• changes in land use, in particular agricultural production • changes in soil function and processes.
Air quality	• increase in atmospheric pollutants (for example, road, rail, airports expansion) • changes in atmospheric pollutants from power generation, in particular change in fossil fuel use • 'cleaner' technologies in industrial and domestic use
Disturbance	• construction and operation of new developments (transportation, residential, commercial, industrial) • recreational pressures including trampling from settlements expansion, improved access (for example, national coastal footpaths • infrastructure at height (chimney stacks, wind turbines)
Habitat (and species) loss and fragmentation	• direct land take (for example, road, rail, settlements, industrial) • barriers to migration (for example, tidal power, bridge construction)

8.5.13 Further assessment of the cumulative impacts of different plans and projects will not be specifically undertaken for this screening assessment. Should further Appropriate Assessment be required it would however be appropriate to consider the potential impacts of in-combination effects in greater detail.

Step 4: Assess the likely significance of any effects on European sites.

8.5.14 The Public Sector Waste and Resource Efficiency Plan does not contain any spatial elements and is unlikely to provide significant new waste infrastructure, with the exception of possible facilities to store and process materials through recycling, and reuse and repair networks.

8.5.15 It is highly likely that within the regulation and permitting of the development of any infrastructure projects to implement the Public Sector Waste and Resource Efficiency Plan, a range of environmental control measures will be required to ensure adverse impacts upon the environment are avoided or minimised. This will include the reduction of air quality emissions to below critical threshold levels as identified by Air Pollution Information System (APIS) and others. The control of water abstraction and

discharge of water (to freshwater and marine) is required via the Water Framework Directive[99], the consideration of impacts on designated sites is covered under the Habitats Regulations, Wildlife and Countryside Act 1981 (as amended), and national and location planning policy. These control measures will ensure that impacts associated with projects to implement the plan are minimised. Indeed it is likely that with the control measures in place, development that may result in significant adverse impacts on European sites would only be permitted in exceptional circumstances. Such circumstances would need to have demonstrated Imperative Reasons Overriding the Public Interest (IROPI) which can only be justified where there are no alternative solutions and any necessary measures taken to ensure that the overall coherence of Natura 2000 is protected.

8.5.16 Nevertheless, as with the TZW HRA it is not possible to conclude that there will be no likely significant effects on European sites.

8.5.17 Given the possibility of significant effects associated with the Public Sector Waste and Resource Efficiency Plan, further, detailed assessment is necessary to satisfy the requirements of the Habitats Regulations. This detailed assessment is described as an 'Appropriate Assessment'.

8.5.18 In order to consider potential impacts in more detail, further information on the proposals of the plan and in-depth consultation with NRW and other key stakeholders would be required.

8.5.19 The draft and finalised Public Sector Waste and Resource Efficiency Plan will not give detail on potential projects or proposals for its implementation. As a result, it is considered that there is insufficient detail at this time to enable a more in-depth analysis to the degree required for Appropriate Assessment. It will only be possible to undertake this level of assessment once specific projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

8.5.20 An assessment of any likely significant in-combination effects will be made and full recommendations for mitigation will be provided within each project/plan-level Appropriate Assessment. These will suggest measures to reduce the potential for any development to result in impacts upon the Natura 2000 network or Ramsar sites.

8.5.21 Where possible over-arching mitigating statements should be incorporated within the, Public Sector Waste and Resource Efficiency Plan and secured as appropriate through the relevant statutory drivers and/or planning conditions, for example:

- that development will not be located within any European site so that no direct habitat loss will occur;
- that wherever possible works will be avoided where there is a direct transmission pathway to European sites;
- that buffer zones will be provided between development zones and European sites (the size and extent of which should be dependent upon the nature of impact and the sensitivity of receptors); and
- that there would be a general presumption against the permitting of construction/improvement works which generate particular adverse effects in

[99] Water Framework Directive (2000): http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:EN:HTML

proximity European sites, which are sensitive to those effects – e.g. where particular adverse impacts on the water environment are identified.

8.5.22 Through the HRA screening it has not been possible to categorically demonstrate that the draft Public Sector Waste and Resource Efficiency Plan will not have any likely significant effects upon European sites, or the network of European sites (including marine and off-shore sites). Given the uncertainty of significant effects, further, detailed assessment through Appropriate Assessment is considered necessary to satisfy the requirements of the Habitats Regulations. However given the strategic level of the plan and lack of detail on potential projects or proposals for its implementation there is insufficient detail at this time to enable a more in-depth analysis to the degree required for Appropriate Assessment. It will only be possible to undertake this level of assessment once specific projects are proposed and/or once sufficient detail is available at the plan level to enable a thorough and robust analysis to be carried out.

8.5.23 The screening assessment does not in any way reduce the scope of project level HRA required in the case of an individual development application. Where initial screening undertaken indicates significant adverse effects on integrity or cannot exclude the possibility of significant adverse effects either alone or in combination with other plans or projects, a full Appropriate Assessment would be required which meets the requirements of the Habitats Regulations. It will be for the competent authority (in the majority of cases for the Public Sector Waste and Resource Efficiency Plan, Welsh Government, and NRW) to apply in full the key tests as stipulated by the Habitats Directive. Furthermore, if no projects or actions arise from the Plan which trigger project level HRA, wider effects of the plan would be monitored through the mechanisms outlined in Section 9.

8.5.24 It should be noted that at a project level the assumption that the possibility of adverse effects cannot be excluded due to a lack of information (and thus consideration of alternatives and IROPI being required) will rarely, if ever, be appropriate. With the location and impacts of the proposed development well understood the project level HRA will be required to present all information necessary to reach a definitive conclusion. Only where projects can categorically conclude that adverse impacts cannot be avoided through mitigation, the individual project will need to present an assessment of alternatives and set out an IROPI case and establish the requirements for compensatory measures.

9 IMPLEMENTATION AND MONITORING

9.1 Links to other Plans and Programmes

9.1.1 The Public Sector Waste and Resource Efficiency Plan contains actions linked to other TZW Sector Plans, such as the CIM, FMSR and I&C Sector Plans. Potential effects of those actions have been assessed in the SA reports for these Plans.

9.1.2 Each of the sector plans must be supportive of and developed in conjunction with one another to maximise the opportunity for the common goals of TZW to be met. The TZW Sector Plans are also linked to the Wales Infrastructure Investment Plan and Technical Advice Note 21 on planning for waste.

9.1.3 The development of future regional and local plans and programmes, including forthcoming changes in relation to the Planning Bill, will have to take into consideration the targets and objectives set out in the Public Sector Waste and Resource Efficiency Plan.

9.2 Monitoring

9.2.1 A monitoring strategy will be implemented to monitor potential effects of the implementation of the TZW Strategy, including the Public Sector Waste and Resource Efficiency Plan. This strategy will ensure alignment and consistency of indicators used to measure performance against the key objectives in this SA with TZW Strategy monitoring indicators and other Sector Plans.

9.2.2 The monitoring strategy will include the framework of indicators set out in the TZW SA:

- Ecological Footprint of Waste;
- Climate change;
- Waste management;
- Eco-design;
- Employment and job type;
- Skill levels and Training;
- Resource use and efficiency;
- Contribution to the wellbeing of Wales through an improved local environment and enriched communities which are empowered to shape their services;
- Full human potential; and
- Equality of opportunity.

Indicators, Responsibility, Reviews

9.2.3 A further aspect of the assessment will be to identify measures to monitor the environmental effects of each Sector Plan and its impacts on the environment (stage E of the SA/SEA process. See Table 1.1 for more detail).

9.2.4 Welsh Government will be responsible for the implementation of a monitoring strategy for the TZW Strategy. Monitoring involves measuring indicators which establish a link

between implementation of the Sector Plans and the likely effects being monitored. The analysis of indicators may include:

- Change in patterns and trends of indicators;
- Baseline information and predicted effects;
- Use of quantitative and qualitative information; and
- Interpretation of monitored data results.

9.2.5 Indicators presented on the environmental baseline should be considered and reviewed to ensure that potential environmental, social and economic effects of the Sector Plans implementation can be effectively measured and monitored after its adoption. Table 9.1 presents a detailed list of potential monitoring indicators for each objective and potential sources of information.

Table 9.1 - Potential Indicators to Monitor the Effects of the TZW Strategy

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• Waste arisings and disposal across all sectors • Waste contribution to Ecological Footprint • Resource use – Wales' domestic material consumption • Electricity from renewable sources - percentage of electricity produced in Wales generated from renewable sources	• Waste arisings by sector in Wales, (kilotonnes per annum) • Waste arisings by disposal (kilotonnes per annum) • Ecological footprint (global hectares per person), Wales and the UK • Resource efficiency - the ratio of carbon dioxide emissions to GVA at current prices • Percentage of electricity generated from renewable sources • Packaging waste recovered or recycled in Wales	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; and • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste	Stocks of Intermediate Level Waste (ILW) and Low Level Radioactive Waste (LLW) Electricity from renewable sources - percentage of electricity produced in Wales generated from renewable sources Resource efficiency State of Environment (SoE) indicators: • Indicator 2a: Ecological footprint • Indicator 6b: Percentage of municipal waste recycled or composted • Indicator 9a: Quantity of municipal waste per person per annum • Indicator 39a: Trends in radioactive discharges from major sources in Wales • Indicator 12b: Proportion of	• Natural Resources Wales • www.wastedataflow.org • SoE Report (July, 2012), available at: www.statwales.gov.uk • Nuclear Development Agency http://www.nda.gov.uk/ukinventory/summaries/wales.cfm • Packaging Waste Data http://www.defra.gov.uk/environment/waste/producer/packaging/index.htm • Resource efficiency data, Department of Energy and Climate Change www.decc.gov.uk • Waste prepared for reuse: waste statistics via WasteDataFlow, which will be adapted if necessary with arisings and activities with the municipal sector, and the end destination for recyclates arisings from the Local Authority Municipal Waste stream. • Surveys, or other methods, may be used for business waste.

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
			management.	packaging waste recovered in the UK • Indicator 12d: Number of Green Dragon certified companies in Wales	
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and capitalise upon opportunities arising from this	• Progress on green jobs, skills and training through the Green Jobs Strategy • Employment - percentage of people of working age in work* • Resource efficiency – the ratio of carbon dioxide emissions to GVA at current prices • Resource use – Wales' domestic material consumption	• Packaging waste recovered or recycled in Wales • The number of fly-tipping incidents by type of land • Most common types of fly-tipped waste • Economic output - Gross Value Added (GVA) and GVA per head • Waste arisings by sector in Wales, (kilotonnes per annum) • Waste arisings by disposal (kilotonnes per annum) • Percentage of municipal waste (excluding abandoned vehicles) recycled or composted in Wales • Kilograms per	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering; • To support	Stocks of ILW and LLW The number of fly-tipping incidents Electricity from renewable sources - percentage of electricity produced in Wales generated from renewable sources Resource efficiency State of Environment (SoE) indicators: • Indicator 2a: Ecological footprint • Indicator 6b: Percentage of municipal waste recycled or composted • Indicator 9a: Quantity of municipal waste per person per annum • Indicator 39a: Trends in radioactive discharges from major sources in Wales • Indicator 12d:	• Environment Agency Waste Data http://www.environment-agency.gov.uk/research/library/data/ • www.wastedataflow.org • SoE Report (July, 2012), available at: www.statwales.gov.uk • Nuclear development Agency data: http://www.nda.gov.uk/ukinventory/summaries/wales.cfm • Packaging Waste data: http://www.defra.gov.uk/environment/waste/producer/packaging/index.htm • Resource efficiency statistics available at: www.decc.gov.uk • New waste infrastructure developed • Number of new business within the collection, infrastructure markets

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
		person per annum of municipal waste in Wales • Kilograms per person per annum of household waste in Wales • Resource efficiency - the ratio of carbon dioxide emissions to GVA at current prices • Percentage of electricity generated from renewable sources	existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-typing; • To provide cost-effective and reliable sustainable waste management.	Number of Green Dragon certified companies in Wales • Indicator 12b: Proportion of packaging waste recovered in the UK • Indicator 28b: Trends in level of fly-tipping	
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• Resource use – Wales' domestic material consumption	• Percentage of species in favourable, recovering or unfavourable condition in Wales • Land Cover Map - % of Wales' land cover designated for nature conservation • Trends in Biodiversity Action Plan priority species and habitats in Wales • Short-term abundance of widespread	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated	• Indicator 19a: Trends in Biodiversity Action Plan species and habitats • Indicator 21: Percentage of features on Natura 2000 sites in favourable or recovering condition • Indicator 26: The number of historic assets deemed to be at risk • Indicator 23: Indicators, measuring quality and diversity, to be	• Natural Resources Wales http://naturalresourceswales.gov.uk and http://landmap.ccw.gov.uk/. • SoE Report (July, 2012), available at: www.statwales.gov.uk

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
		breeding birds in Wales • Long-term changes in the ranges of widespread breeding birds, by major habitat group in Wales • Existing levels of statutory cultural heritage protection in Wales - Number and condition of scheduled monuments • Percentage of sensitive habitats exceeding critical loads for acidification/ eutrofication in Wales • Accessible Natural Greenspace Standards by local authority • Welsh Outdoor Recreation Survey • Percentage of certified woodland area in Wales and the UK	historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens; • To protect the character and visual identity of landscapes and townscapes, including cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.	developed on completion of Countryside Council for Wales (CCW) landscape characterisation work • Indicator 27b: The percentage of the population meeting each of Countryside Council for Wales size/distance criteria for access to natural greenspace. • Indicator 29d: The percentage of adults living in Wales who frequently use the outdoors for informal recreation • Indicator 33j: Area of natural and semi-natural habitat where deposition of acid exceeds critical loads • Indicator 33k: Area of natural and semi-natural habitat where deposition of nitrogen compounds exceeds critical loads • Indicator 20b: Proportion of woodland that is	

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
				certified • Indicators of the status of ecosystem services[100] (e.g. inputs of nitrogen and phosphorus fertilisers, ocean acidification in terms of GHG and carbon dioxide emissions, sea temperature rise, number of wild fisheries, hedgerows in lowland landscapes, costs of dealing with invasive species)	
Soil To protect and enhance soil resources	• Resource use – Wales' domestic material consumption •	• Estimated total stocks of carbon in Welsh soil (million tonnes) • Contaminated land brought back into beneficial use in Wales (hectares), • LULUCF kilotonnes of carbon dioxide (CO2) equivalent • Variations in the percentage of soil groups in Wales • % of Wales' land cover designated for soil	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and flood attenuation; • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the	• Indicator 17: Number of sites complying with standards as set out in Minerals Planning Policy and the associated Technical Advice Note for the protection of the environment and local communities • Indicator 34: Land affected by contamination brought back into beneficial use • LULUCF net sink of greenhouse gases in	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Natural Resources Wales and http://landmap.ccw.gov.uk/

[100] As indicated on the UK National Ecosystems Assessment Synthesis Report will be reviewed. The report is available at: http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
		conservation • Carbon stock (tonnes per hectare) in the top 0-15cm of soil in Welsh broad habitats	quality of Welsh soils.	Wales • Land Use cover • Indicator 16b: The carbon stock and pH in the top 15cm of soil as recorded by Countryside Survey •	
Water To protect and promote the sustainable use of water resources	• Resource use – Wales' domestic material consumption •	• Percentage of river lengths of good, fair, poor or bad biological or chemical quality in Wales • Water Framework Directive Classification - ecological status in Wales • Water Framework Directive Classification - chemical status in Wales • Water Framework Directive Classification - groundwater status in Wales • Percentage of water resource zones meeting target headroom requirements in Wales	• To promote sustainable flood risk management; and • To protect and enhance water quality and quantity in inland, coastal and maritime environments.	• Indicator 35a: River water quality - biological and chemical • Indicator 35c: Compliance with 'good status' under the Water Framework Directive • Indicator 13b: The percentage of resource zones meeting target headroom requirements • Indicator 13a: Level of leakage as a percentage of water supplied in Wales • Indicator 31a: Annual cost of damage due to flooding • Indicator 31b: Probability of flooding of assets at risk	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Natural Resources Wales

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
		• Numbers of properties benefiting from flood alleviation schemes in Wales • Number of properties in Wales with a significant, moderate or low risk of flooding from the rivers or sea • Number of properties in Wales with a significant, moderate or low risk of flooding from the rivers or sea, by source • The percentage of bathing waters which satisfy EC mandatory and guideline standards in Wales • Water abstracted from the environment (excluding electricity generation) in Wales, gigalitres per year		• Indicator 36b: Bathing water quality • Indicator 14b: Volume of water abstracted from the environment	
Air quality, noise and odour To protect and enhance air quality in local, regional and	• Electricity from renewable sources - percentage of electricity produced in Wales generated from	• Annual mean measured concentrations of heavy metals in the air as a percentage of objective	• To promote proximity of facilities to local settlements and sustainable transport	• Indicator 33b: Air concentrations of Heavy Metals • Indicator 33a: Trends in number of days when air	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Natural Resources Wales • AQMAs- Defra: http://aqma.defra.gov.uk/maps-

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
national context	renewable sources • Resource efficiency – the ratio of carbon dioxide emissions to GVA at current prices • Resource use – Wales' domestic material consumption	thresholds in the Air Quality Standards (Wales) Regulations • Percentage of sensitive habitats exceeding critical loads for acidification in Wales • Number of days per year with moderate or higher pollution levels, urban sites in Wales • Number of days per year with moderate or higher pollution levels, urban and rural sites • Number of People Living in 'AQMAs' • Number of waste infrastructure sites built in AQMAs • Number of waste infrastructure sites built in urban areas	modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation of materials to and from facilities; • To minimise adverse impacts to noise levels within communities; • To minimise odours arising from waste processing and its impact upon local communities.	pollution is moderate or higher in rural zones and urban agglomerations • Indicator 33c: Number of people living in Air Quality Management Areas • Indicator 33j: Area of natural and semi-natural habitat where deposition of acid exceeds critical loads • Indicator 33e: Level of emissions from Wales of ammonia • Indicator 33f: Level of emissions from Wales of nitrogen oxides • Indicator 33g: Level of emissions from Wales of fine particulates	wales.php?&la_id=445 • Welsh Government's Noise Mapping: http://data.wales.gov.uk/apps/noise/
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• Greenhouse gas emissions • Electricity from renewable sources - percentage of electricity	• Estimated emissions of greenhouse gases in Wales, million tonnes of carbon dioxide equivalent	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement	• Indicator 7a: Annual emissions of basket of greenhouse gases (by sector) • Indicator 30a: Percentage of	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Resource efficiency and energy statistics are available at: www.decc.gov.uk

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
	produced in Wales generated from renewable sources • Resource efficiency – the ratio of carbon dioxide emissions to GVA at current prices • Resource use – Wales' domestic material consumption	• Estimated carbon dioxide emissions in Wales by source, millions of tonnes • LULUCF is a net sink of greenhouse gases in Wales • Percentage of electricity generated from renewable sources • Percentage of energy generated from AD and EfW plants • Number of waste infrastructure sites built within land at risk of flooding	strategy/objectives; • To promote the efficient use of on site renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.	people whose main mode of travel to work is a) walking b) cycling • Electricity from renewable sources • Energy from AD and EfW plants	
Health To protect and enhance the health and well-being of communities	• Outcomes generated by relevant third sector organisations. • Active community participation - percentage of people volunteering on a formal and informal basis • Benefit dependency -the percentage of people of working age on key benefits	• GVA per head • Employment status of those of working age • Percentage of the population in low-income households • Level of emissions of ammonia in Wales by source, kilotonnes • Level of emissions of nitrogen oxides in Wales by source, kilotonnes • Number of odour complaints against	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste; • To provide opportunities for those with health issues to gain suitable and meaningful employment;	• Households below average income NS • Economic output - Gross Value Added (GVA) • Indicator 9a: Quantity of municipal waste per person per annum • Indicator 33e: Level of emissions from Wales of ammonia • Indicator 33f: Level of emissions from Wales of nitrogen oxides • Indicator 33g: Level	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Public Health Wales: http://www2.nphs.wales.nhs.uk:8080/ • Local Government Regulation, formerly the Local Authorities Coordinators of Regulatory Services (LACORS): http://www.lacors.gov.uk/lacors/home.aspx • Natural Resources Wales (monitor the number of noise/odour complaints and food waste diverted from landfill) • Food Standards Agency www.food.gov.uk • Food retailers monitoring data • UK National Statistics http://www.statistics.gov.uk/hub/index.html

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
	• Progress on green jobs, skills and training through the Green Jobs Strategy • Employment - percentage of people of working age in work • Resource efficiency – the ratio of carbon dioxide emissions to GVA at current prices	waste infrastructure sites • Number of noise complaints with regard to waste infrastructure sites • Number of waste infrastructure sites built in urban areas • Number of green jobs created in the waste sector (non-disposal) • Number of accidents at waste infrastructure sites • Infant mortality Infant, neonatal and perinatal deaths, Wales (year) • Life expectancy male/female • Serious Acquisitive Crime in Wales • Household Crime in Wales • Percentage of respondents feeling safe in the local area in Wales • Serious Acquisitive Crime in Wales, • Household Crime in Wales	• To provide safe and healthy working environments for employees within the waste and recycling industries.	of emissions from Wales of fine particulates • Health inequality - infant mortality Infant, neonatal and perinatal deaths, Wales (year) • Life expectancy male/female • Crime - Police recorded crime and British Crime Survey figures • Welsh Index of Multiple Deprivation • Workless households - working age • Childhood poverty • Pensioner poverty • Average household costs and breakdown of average low income household expenditure • Food waste diverted from landfill • Obesity • Health and Safety incidents in the waste industry	

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
		• Internal Migration Data • Migration between Wales and the rest of the UK • Number of companies, 50 employees involved in sustainable food clusters. • Number of Health and Safety incidents in the waste industry • Percentage of food waste diverted from landfill • Obesity level			
Civic engagement To increase civic engagement in sustainable waste practice	• Benefit dependency -the percentage of people of working age on key benefits • Outcomes generated by relevant third sector organisations. • Progress on green jobs, skills and training through the Green Jobs Strategy • Employment -	• Percentage of rights of way which are easy to use in Wales • Percentage of households where the time taken to reach local facilities on foot or by public transport is 15 minutes or less (access to key services) • Percentage of respondents volunteering in Wales in last three	• To raise awareness and understanding of sustainable waste strategy, objectives and management; • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and the poor; • To increase	• Indicator 30a: Percentage of people whose main mode of travel to work is a) walking b) cycling • Indicator 29a: Percentage of total length of footpaths and other rights of way which were easy to use by the public • Indicator 24c: Percentage of people volunteering formally or informally at least once over	• SoE Report (July, 2012), available at: www.statwales.gov.uk • Welsh Government

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the Public Sector Waste and Resource Efficiency Plan	Potential Source of Information
	percentage of people of working age in work	years • Average SAP ratings for dwellings • Percentage of Key Stages 1, 2 and 3 assessments in Welsh first language • Key Stage 2 results by subject (LEA, year, gender, level) NS • Percentage of adults aged 19-21 qualified to National Qualification Framework level 2 • Qualification levels of working age adults by NQF level, local authority and NUTS2 area (gender, year) NS • Households Below Average Income NS • Workless households - working age	accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement; • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.	the last 3 years • Indicator 24b: Percentage of people who feel safe in the local area - from Living in Wales Survey • Welsh language - end of Key Stages 1, 2 and 3 teacher assessments in the subject of Welsh first language • Housing - average energy efficiency (SAP rating) • Welsh language - end of Key Stages 1, 2 and 3 teacher assessments in the subject of Welsh first language	

9.2.6 Review is a best practice component in policy making and therefore, it is recommended that future reviews of the TZW Strategy and associated Sector Plans take into account sustainability objectives set out in this appraisal.

9.2.7 Following consultation on the draft Public Sector Waste and Resource Efficiency Plan and this SA Report, responses received on the Plan, SA, HRA and HIA will be considered and taken into account for Plan adoption. This will be outlined in the Post-adoption Statement that will be published with the adopted Public Sector Waste and Resource Efficiency Plan.

9.3 Quality Assurance Checklist

9.3.1 Table 9.2 presents the Quality Assurance Checklist that describes how the requirements of the SEA Directive (covered by the SA stages A1-D1) have been met in this SA Report.

Table 9.2 – SEA Directive requirements checklist

SEA Requirement	SA Report Section
Preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated (Art. 5 and Annex I).	All sections
An outline of the contents and main objectives of the plan or programme.	Section 2
Relationship of the plan with other relevant plans and programmes.	Section 4
The environmental characteristics of areas likely to be significantly affected.	Section 4
Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.	Section 4, 5 & HRA
The environmental protection objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental, considerations have been taken into account during its preparation.	Section 4, 5 & 8
The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors (including secondary, cumulative, synergistic, short, medium, and long term permanent and temporary, positive and negative effects) .	Section 6
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Section 6

SEA Requirement	SA Report Section
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Section 6
A description of measures envisaged concerning monitoring in accordance with Art. 10.	Section 9
A non-technical summary of the information provided under the above headings	See NTS Document
Consultation on: - the scope of the environmental report - The environmental report (Art. 6.1, 6.2) - Other EU Members where the implementation of the plan or programme is likely to have significant effects on the environment of the country	 Section 1.7 Section 6 Welsh Government will undertake consultation with relevant EU Member States as appropriate.

10 NEXT STEPS

10.1 Consultation on the SA Report

10.1.1 Stage D of the SA/SEA process involves formal pre-submission consultation on the draft Public Sector Waste and Resource Efficiency Plan and this SA Report, which Welsh Government will be made available to the public for a minimum period of 6 weeks. The consultation period is open until 05 December 2015.

10.1.2 We would like to hear any comments on the content of this SA report, in particular responses to the following questions:

- Do you agree with the approach taken in this report and the conclusions reached? If not, please explain your reasons.
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward?
- Are there any other links between the draft Public Sector Waste and Resource Efficiency Plan actions and other Sector Plans actions?

10.1.3 Consultation responses to this SA Report will be analysed and a summary identifying the main issues raised will be provided.

10.1.4 Please send any comments on the contents of this SA Report, or in response to the questions posed above by letter, fax or e-mail to:

Waste Strategy Branch
Department for Natural Resources
Welsh Government
Cathays Park
CF10 3NQ

Email: wastestrategy@wales.gsi.gov.uk
Tel: 0300 0603300 or 0845 010 3300

10.2 Post-Adoption Statement

10.2.1 The findings of the consultation on the draft Public Sector Waste and Resource Efficiency Plan and this SA Report will be consequently considered and incorporated to finalise the SA Report and the Public Sector Waste and Resource Efficiency Plan. Once completed this task, a Post-adoption Statement will be produced to summarise how the SA process has influenced the drafting of the Public Sector Waste and Resource Efficiency Plan and actions undertaken in this respect.

11 REFERENCES

11.1 Sustainability Appraisal (SA) / Strategic Environmental Assessment (SEA)

- Countryside Council for Wales Landmap. Available at: http://landmap.ccw.gov.uk (now Natural Resources Wales).
- DEFRA/ Welsh Government (2010) Environmental Permitting (England and Wales) Regulations 2010
- Welsh Assembly Government (WAG) (2007) Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process
- Welsh Government (2013) Draft Waste Prevention Plan.
- Welsh Government (2014) Draft Public Sector Waste and Resource Efficiency Plan.
- Welsh Government (2010) Draft Municipal Sector Plan – Part 1, June 2010
- Welsh Government (2010) Municipal Sector Plan Sustainability Appraisal.
- Parsons Brinckerhoff (PB) (prepared by Welsh Government) (2011) I&C Sector Plan SA/SEA Report, March 2011
- PB (prepared by Welsh Government) (2011) Draft C&D Sector Plan SA/SEA Report, October 2011
- Welsh Government (2010) Planning Policy Wales (Edition 3, July 2010)
- Department for Communities and Local (2010) PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide
- Entec (2010) Sustainability Appraisal of the Wales Waste Strategy Municipal Sector Plan Part 1.
- Environment Agency (2009) Environment Agency Wales' Corporate Plan - Working Together for a Better Wales (2010-15)
- Welsh Government (2010) Natural Environment Framework – A living Wales.
- PB (2010) Sustainability Appraisal Scoping Report of the Wales Waste Strategy Sector Plans.
- Welsh Government (2012) State of the Environment Report. Last updated 2012. Available at:

  http://wales.gov.uk/docs/statistics/2012/120725stateofenvironment12en.pdf
- Welsh Government (2010) TAN 6 Planning for Sustainable Rural Communities (includes sustainable agriculture and rural services) July 2010.
- Welsh Government (2010) Climate Change Strategy for Wales (Launched 7th Oct 2010)
- Welsh Government (2010) Economic Renewal Programme: A New Direction 2010
- Welsh Government (2010) Food for Wales, Food from Wales 2010-2020.
- WAG (2008), The Welsh Soils Action Plan (consultation closed but final document not yet published)

- ERM (2009) Sustainability Appraisal of the Wales Waste Strategy (Towards Zero Waste).
- WAG (2009) Minerals Technical Advice Notes (MTAN) Wales 2 Coal.
- Uk Government (2009) Planning (Listed Building and Conservation Areas) Act 1990 (as amended in 2009)
- WAG (2009) The Welsh Historic Environment Strategic Statement Action Plan
- WAG (2009) Farming Food and Countryside: Building a Secure Future Strategy.
- Environment Agency (2009) Welsh River Basin Management Plans.
- EU (2008) Ambient Air and Cleaner Air for Europe Directive 2008/50/EC
- Nuclear Development Agency (2007) UK Radioactive Waste Inventory. Available at: http://www.nda.gov.uk/ukinventory/summaries/wales.cfm
- WAG (2007) TAN 18 planning for transport infrastructure.
- WAG (2007-2013) Rural Development Plan Programme (2007-2013)
- EU (2006) Registration, Evaluation, Authorisation and Restriction of Chemicals. Regulation (EC) 1907/2006.
- Office of the Deputy Prime Minister (ODPM) (September 2005), A Practical Guide to Strategic Environmental Assessment Directive. London: HMSO.
- WAG (2005) TAN 8 Renewable Energy.
- WAG (2004) TAN 15 –Development and Flood Risk.
- UK Government (2003) The Water Environment (Water Framework Directive) (England and Wales) Regulations.
- EU (2003) CAP Single Payment scheme Cross Compliance Regulation (Annex III Council Reg No.73/2009)
- WAG (2001) Minerals Planning Policy Wales 2001.
- WAG (2001) TAN 21 Waste.
- WAG (2000) Minerals Technical Advice Notes (MTAN) Wales 1 Aggregates.
- UK Government (1990) Planning (Hazardous Substances) Act 1990
- UK Government (1990) Town and Country Planning Act 1990
- UK Government (1979) Ancient Monuments and Archaeological Areas Act 1979
- WAG (2007) Regional Waste Plans (Strategic Framework)– First Review.

11.2 Habitats Regulation Assessment (HRA)

- ERM (2009) Wales Waste Strategy Habitats Regulations Assessment Report, available at http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/zerowastebackground/appraisals/?lang=en (accessed June 2010)
- Water Framework Directive (2000): available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0060:EN:HTML

11.3 Health Impact Assessment (HIA)

- Marc E. Pratarelli (2010) S.A.P.I.E.N.S Vol.3 / n°1, Perspectives, Social Pressure and Recycling: A Brief Review, Commentary and Extensions,
- Association of Public Health Observatories (2009) Recycling and Health the Evidence - Health of Workers in the Recycling Industry, 2009
- Health Protection Agency (2009) Position Paper on Municipal Solid Waste Incineration, (September 2009). Available at: http://hpa.org.org.uk/hpa/chemicals/MSWIpositionpaper.htm
- Health and Safety Executive (2009) Update to mapping health and safety standards in the UK waste industry.
- Mary Lyons, Paolo Luria, Jane Harris, JMU (August 2009) Recycling and Public Health.
- Health and Safety Executive (2008). Reducing 'kerbside' glass collection noise risks in the waste and recycling industry. Health and Safety Executive. www.hse.gov.uk/pubns/waste16.pdf. [accessed 6th July 2009]
- Russell K, Broadbridge C, Murray S, Waghorn D, Mahoney A. (2008) Gardening can seriously damage your health. The Lancet; 371(9629):2056 59 Vincken W, Roels P. Hypersensitivity pneumonitis due to *Aspergillus fumigatus* in compost. Thorax 1984; 39:74-75.
- Defra (2007) Waste Strategy for England 2007. Available at: http://www.defra.gov.uk/ENVIRONMENT/waste/strategy
- Food Standards Agency (2007). Low Income Diet and Nutrition Survey. Available at: http://www.food.gov.uk/science/dietarysurveys/lidnsbranch/#h_3
- Harris, P. Harris-Roxas, B., Harris, E., & Kemp, L (2007) 'Health Impact Assessment: A Practical Guide.' Sydney: Centre Health Equity Training, Research and Evaluation (CHETRE)
- Shanks E. (2007) Glass recycling: noise exposure from simulated roadside collection of recyclable glass. Health and Safety Executive.
- Recycling for flats, planning, monitoring, evaluating and the communication of recycling schemes for flats with case studies from the UK and abroad. March 2006.
- Cluttons (2005) Residential Price Forecasts. Available at: http://www.cluttons.com/clientupload/pdf/research/Residntial MarketForecasts_March2005.pdf
- Centre for Economic and Business Research Limited (2003) The Economic Impact of an EfW incinerator in Newhaven.
- Cabinet Office September (2002) Public Attitudes Towards Recycling and Waste Management Quantitative and Qualitative Review Research Study Conducted for The Strategy Unit,
- National Atmospheric Emissions Inventory (2002) Vehicle Speed Emission Factors (Version 02/3) http://www.naei.org.uk/datachunk.php?f_datachunk_id=8
- Brook Lyndhurst/MORI (2001) Household Waste in London.
- Bünger J, Antlauf-Lammers M, Schulz TG, Westphal AA, Müller MM, Ruhnau P, Hallier E (2000). Health complaints and immunological markers of exposure to

bioaerosols among biowaste collectors and compost workers. Occupational and environmental medicine 2000; 57:458-464.

- EU (2000) Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste.
- Independent Expert Group on Mobile Phones (2000). Mobile Phones and Health. Available at: http://www.iegmp.org.uk/report/summary.htm
- Committee on Health Effects of Waste Incineration Board on Environmental Studies and Toxicology Commission on Life Sciences National Research Council (1999).Waste Incineration and Public Health.
- R. L. Jin, C. P. Shah and T. J. Svoboda (1995) The impact of unemployment on health: a review of the evidence, Canadian Medical Association Journal, Vol 153, Issue 5 529-540.
- Mattson RH (1992) Prescribing health benefits through horticultural activities. In: Relf D, (Editor). The role of horticulture in human wellbeing and social development: a national symposium, 19–21 April 1990, Arlington, Virginia. Portland, OR: Timber Press; 1992. pp161–168.
- Lewis CA. (1990) Effects of plants and gardening in creating interpersonal and community wellbeing. In: Relf D. (Editor). The role of horticulture in human wellbeing and social development: a national symposium, 19–21 April 1990, Arlington, Virginia. Portland, OR: Timber Press; 1992. pp55–65.
- Latane B., Williams K. & S. Harkins (1979). Many hands make light the work: The causes and consequences of social loafing. Journal o*f* Personality & Social Psychology, 37(6):822-832.

GLOSSARY

Term	Definition
Appropriate Assessment	A process required by the Habitats Regulations (SI 2010/490) to avoid adverse effects of plans, programmes and projects on Natura 2000 sites and thereby maintain the coherence of the Natura 2000 network and its features.
Anaerobic Digestion (AD)	A process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for anaerobe bacteria species, which convert the inputs to a methane-rich biogas and whole digestate.
Civic Amenity Site	Sites provided by the local authority for the public to drop off household and municipal solid waste.
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.
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.
Compost Like Output (CLO)	The residue created when mixed municipal waste is biologically treated. Currently there is no spreading of CLOs on land in Wales; however, under certain circumstances, the Environment Agency may permit trial spreading of the material.
Cumulative effects	Effects arise, for instance, where several developments each have insignificant effects but together have a significant effect, or where several individual effects of the plan have a combined effect.
Digestate	Output produced by anaerobic digestion of biodegradable organic materials. It may include liquid or separated fibre after digestion.
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.
Effect	Used to describe changes to the natural or social environment as a result of an option.
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.
Intermediate Level Waste (ILW)	ILW is waste with radioactivity levels exceeding the upper boundaries for LLW but which does not generate enough heat for this to need to be taken into account in the design of storage or disposal facilities. However like other radioactive waste it still needs to be contained to protect workers from radiation. The major components of ILW are metal items such as nuclear fuel casing and nuclear reactor components, graphite from reactor cores, and sludges from the treatment of radioactive liquid effluents[101].
Indicator	A measure of variables over time, often used to measure achievement of

[101] http://www.nda.gov.uk/ukinventory/glossary/

Term	Definition
	objectives.
Fly-tipping	Commonly is used to describe larger amounts of waste left on land than litter. It is usually a pre-meditated act rather than the thoughtless act of littering[102].
Landspreading	Recovering waste by spreading on land primarily for agricultural benefit[103]. In the UK, potentially suitable waste for landspreading include: waste soil, compost, wood, food waste, sludge, textile waste, waste gypsum, waste lime, blood and gut contents from abattoirs.
Low Level Waste (LLW)	Low Level Waste (LLW) is the lowest activity category of radioactive waste. Overall, the major components of LLW are building rubble, soil and steel items such as framework, pipework and reinforcement from the dismantling and demolition of nuclear reactors and other nuclear facilities and the clean up of nuclear sites[104].
Mitigation	Measures to prevent, or reduce as fully as possible any significant adverse effects.
Natura 2000	Natura 2000 is the European Union-wide network of protected areas, recognised as 'sites of Community importance' under the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). The Natura 2000 network includes two types of designated areas: Special Areas of Conservation (SAC) and Special Protection Areas (SPA).
Negative effects	Changes which are unfavourable for an environmental or social receptor. Can sometimes be referred to as 'adverse'.
Permanent effect	An effect which will last at least for the lifetime of the structure (i.e. it is seen as permanent in relation to the human lifetime).
Positive effects	Changes which are favourable for an environmental or social receptor. Can sometimes be referred to as 'beneficial'.
Ramsar site	Ramsar sites are designated under the International Convention on Wetlands of International Importance 1971 especially as Waterfowl Habitat (the Ramsar Convention).
Receptor	An entity that may be affected by direct or indirect changes to an environmental variable.
Scoping	The process of deciding the scope and level of detail of an SA/SEA, including the environmental effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the Environmental Report.
SA objective	A statement of what is intended, specifying the desired direction of change in trends.
Secondary effects	Effects which are not a direct result of the Feasibility Study, but occur away from the original effect or as a result of a complex pathway.
Significant environmental effects	Effects on the environment which are significant in the context of a plan or programme. Criteria for assessing significance are set out in Annex II of the SEA Directive (2001/42/EC).
Site of Special Scientific Interest	Designated under the Wildlife and Countryside Act 1981, any land

[102] http://www.wao.gov.uk/assets/englishdocuments/Environment_Agency_Wales_Waste_Management_agw_2004.pdf
[103] http://www.wao.gov.uk/assets/englishdocuments/Environment_Agency_Wales_Waste_Management_agw_2004.pdf
[104] http://www.nda.gov.uk/ukinventory/glossary/

Term	Definition
(SSSI)	considered by Natural England to be of special interest because of any of its flora, fauna, or geological and physiographical features.
Special Area of Conservation (SAC)	Strictly protected site designated under the EC Habitats Directive 92/43/EEC. Article 3 of the Habitats Directive requires the establishment of a European network of important high-quality conservation sites that will make a significant contribution to conserving the 189 habitat types and 788 species identified in Annexes I and II of the Directive (as amended). The listed habitat types and species are those considered to be most in need of conservation at a European level (excluding birds).
Special Protection Area (SPA)	Strictly protected site classified in accordance with Article 4 of the EC Directive on the Conservation of Wild Birds (79/409/EEC), also known as the Birds Directive. They are classified for rare and vulnerable birds, listed in Annex I to the Birds Directive, and for regularly occurring migratory species.
Strategic Environmental Assessment (SEA)	Generic term used to describe environmental assessment as applied to policies, plans and programmes. 'SEA' is used to refer to the type of environmental assessment required under the SEA Directive.
Synergistic effects	Effects which interact to produce a total effect greater than the sum of the individual effects, so that the nature of the final impact is different to the nature of the individual effects.
Temporary effects	An effect which only lasts part of the project lifetime.
Waste electrical and electronic equipment (WEEE)	The WEEE Directive defines WEEE as "electrical or electronic equipment which is waste within the meaning of Article 1(a) of Directive 75/442/EEC on waste, including all components, subassemblies and consumables which are part of the product at the time of discarding".

APPENDICES

Appendix A – Scoping Report Consultation Responses

Welsh Assembly Government
Towards Zero Waste: Sector Plans Sustainability Appraisal Scoping
20 September 2010 – 25 October 2010

Contents

1 Consultees

Ruth Tipping, Environment Agency Wales
Lucia Susani, Environment Agency (deferred response to EAW)
Pat Aird, English Heritage
Richard Kevern and Suzanne Whiting, Cadw
Alison Brown, CCW (cc Keith Davies, CCW)
Andrew Canning-Trigg, Natural England

2 Summary of comments and responses/actions

Respondent	Comment	Response/Action
Cadw	Cadw is generally content with its content but suggest the following amendments: p.14 Policy/ Plan/ Programme Reviewed UK Insert • Ancient Monuments and Archaeological Areas Act 1979 • Town and Country Planning Act 1990 • Planning (Listed Building and Conservation Areas) Act 1990 • Planning (Hazardous Substances) Act 1990 National Delete • Welsh Assembly Government (2003) Review of the Historic Environment of Wales: A consultation Document Insert • Welsh Assembly Government (2009) The Welsh Historic Environment Strategic Statement • Welsh Assembly Government (2007) Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process	Amend PPP review as indicated.
CCW	See attached letter.	Conference Call to discuss and agree actions held 28 October 2010. Please see attached minutes for agreed actions.
English	Whilst this is unlikely to have a major impact on the	Amend PPP references as indicated.

Respondent	Comment	Response/Action
Heritage	HE in England or the sea I am responding to advise you: • there is a reference to RSS in Table 2.1 - the RSSs have been abolished • PPS5, the Marine Plan and MPSs, and the NPSs are not referred to • tables 2.2 and 3.1 refer only to the impact in Wales. • in the absence of the RSS, the LDFs of the local authorities along the border would be important, likewise the HERs.	Review implications following dissolution of the Regional planning documents. Review tables 2.2 and 3.1 to identify whether effects in England should be covered.
Environment Agency	1.0 Introduction: 1.1 The Environment Agency is the principal environmental regulator in Wales and England, with a range of responsibilities including the protection of soil, air and water. Within the context of sustainable development, the Environment Agency has a lead role in the integrated protection and enhancement of natural resources, the management of waste, the management of flood risk, water related sports recreation, fisheries and navigation. We share the common vision to contributing to sustainable development and achieving a better quality of life. 1.2 The Environment Agency welcomes the opportunity to respond to the consultation on the Strategic Environmental Assessment (SEA) scoping report for the Towards Zero Waste Sector Plans. 1.3 We are responding to this consultation in our role as a consultation body identified in 'the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004' (Statutory Instrument No.1656 (W.170)). 2.0 Key Messages Whilst we generally support the approach put forward for the SA scoping report, we do have some concerns that relying on baselines and summary sustainability issues from the earlier TZW and Municipal Part 1 sector plan SA/SEA's, particularly where comments made then have not been incorporated, could lead to incorrect or missing data or information being carried forward into the assessment of these sector plans. As an example we made comments with respect to the Water Framework Directive and Fly-tipping which do not seem to have been incorporated and which we are repeating here. We have therefore recommended some changes to help achieve the stated objectives of the SEA, especially to 'consider the environmental implications of the draft programme.' Our key messages are below and our more detailed recommendations and comments on the consultation questions are in Annex 1.	No action No action No action Noted Noted

Respondent	Comment	Response/Action
	We recommend in respect of the proposed SA sustainability objectives: 1. The main water objective should relate to meeting Water Framework Directive outcomes and not General Quality Assessment. 2. The sub-objective of the water objective be reworded to include protection of water "resource" and not just "quality". 3. The landscape sub-objectives should include reference to protecting ecological services, not just connectivity. 4. The soils objective be amended to include reference to minimising loss of carbon and maintaining carbon storage capacity. 5. A "fly-tipping" sustainability objective should be included. In line with the above we also recommend specific changes to the environmental information baseline with respect to: 1. Water Quality and the need to meet the EU Water Framework Directive requirements with respect to quality status of welsh rivers (see detail Annex 1 below). 2. Fly-tipping: we recommend inclusion of data on fly-tipping incidents in Wales in the baseline. This can be obtained from the Fly-capture data base (see detailed reason below Annex 1.). 3. Baseline Ecosystem Services (ES) data available for Wales and the UK respectively at http://www.werh.org/nef.php.en and http://uknea.unep-wcmc.org .	 Review and amend Review and amend Review and amend Review Amendment proposed in relation to CCW comments Review and amend Review Review Review
EAW detailed response	**Consultation Question1**: Given the preceding work undertaken for TZW and MSP1, are there any plans, programmes or environmental protection objectives that you consider particularly important for consideration in identifying sustainability objectives for the remaining Sector Plans? As raised in our response to the Draft Municipal Sector Plan Part 1 SA scope, It will be particularly important to consider Water Framework Directive (WFD) environmental protection objectives. The Water Framework Directive sets new and challenging standards for all waters. It focuses on the ecological condition of water bodies and key biological species (including plant and fish life) and not just chemical quality as the General Quality Assessment (GQA) does. The statement in the report "the quality of fresh rivers has been stable at a very high level" (Table 2.2. p16 Summary of baseline review) would appear to be based upon GQA headline statistics. This needs to be replaced by a WFD headline statistic. The objective of the WFD is to achieve Good Status. In Wales only 33% of water bodies currently achieve Good Status under the WFD. Therefore through the SA of the waste sector plans it will be	 Noted Amend Noted

Respondent	Comment	Response/Action
	important to ensure that WFD environmental protection objectives can be met. More information can be found on the Agency's website in " See What's In Your Backyard" at : http://maps.environment-agency.gov.uk/wiyby/wiybyController?x=357683.0&y=355134.0&scale=1&layerGroups=default&ep=map&textonly=off&lang=_e&topic=wfd_rivers We also recommended in our response to the Draft Municipal Waste Sector Plan Part 1 SA scope May 2010, inclusion of data on fly-tipping incidents in Wales in the baseline. This can be obtained from the Fly-capture data base. A sustainability objective on fly-tipping/illegal waste disposal should be included in the SA of the sector plans. This would enable the plans to be assessed against this objective to ensure they prevent or minimise the drivers or opportunities for illegal waste disposal. We are disappointed that these two points made at the Draft Municipal Sector Plan part 1 SA scope, do not appear to have been picked up in this scoping for the SA of the remaining sector plans. Another key environmental protection objective relates to carbon storage of soils. Whilst we welcome the sustainability issues identified under soils in the key sustainability issues table p21, we are concerned that it does not refer to the carbon storage capacity of soils and the need to mange this better in the context of climate change. Protection of soil carbon should be a sub-objective in the Soil Objective, Table 4.1 p 23. **Consultation Question 2**: Are there any additional plans, programmes or environmental protection objectives that should be taken into account for this strategic-level environmental assessment? On P13-15 section 2. Setting the context and baseline, Table 2.1 – List of PPP reviewed in the MSP1 SA, reference should also be made to the: EU: • EU Water Framework Directive 2000/60/EC http://ec.europa.eu/environment/water/water-framework/index_en.html The Directive sets new and challenging standards for all waters, it requires member states to aim to achieve good chemical and ecological status in inland and coastal waters (i.e. rivers, lakes, estuaries, coastal and ground waters) by 2015. As discussed above, the Water Framework Directive needs to be utilised to set the water sustainability	Or at least ensure no detriment? Check Apply to MSP, C&D possibly also to Retail and C&I possibly also to Agriculture N/A – this was explained in the scoping report and will be picked up in subsequent SA Reports. Objective has already been revised and expanded in response to similar points raised by CCW Check and add Check and add

Respondent	Comment	Response/Action
	objectives for the SA and not GQA.	
	• EU (2003) CAP Single Payment scheme Cross Compliance Regulation (Annex III Council Reg No.1782/2003) (Link to soils management and agricultural waste sector plan).	Check and add
	• 2008/50/EC Directive on ambient air and cleaner air for Europe. This merges most legislation into one Directive, including 96/62/EC (which is already in the list) and the 1st, 2nd and 3rd Daughter Directives (1999/30/EC, 2000/69/EC, 2002/3/EC), but not the 4th Daughter Directive (2004/107/EC).	Check and amend
	• Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation EC 1907/2006. REACH regulates the use of chemicals in products and requires registration and assessment of their potential environmental and health impacts. The registration requirements may impact on the re-use of some waste streams UK.	Review
	• The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 Regulation 17 states that each public body has a duty in exercising their functions so far as affecting a river basin district, to have regard to River Basin Management Plans (RBMPs). The RBMPs contain the status and objectives for all water bodies, and the actions that will be taken to achieve these outcomes.	Check and add
	• DEFRA/WAG Environmental Permitting (England and Wales) Regulations 2010. National.	Add
	• WAGs Climate Change Strategy for Wales (Launched 7th Oct 2010)	Add
	• WAG (2007-2013) Rural Development Plan Programme (2007-2013)	Review and add
	• WAG (2009) Farming Food and Countryside: Building a Secure Future Strategy.	Review and add
	• WAG (2010) Food for Wales, Food from Wales 2010-2020 (currently subject to consultation)	Review and add
	• Planning Policy Wales – overarching policy consolidated in 2010 to incorporate MIPPS and covers all aspects of planning policy for Wales, except mineral, which we also believe should be considered in this SEA and are referenced below	Review and add
	• TAN 15 –Development and Flood Risk (2004)	Check and add
	• TAN 6 Planning for Sustainable Rural	Check and add

Respondent	Comment	Response/Action
	Communities (includes sustainable agriculture and rural services) July 2010.	Check and add
	• TAN 8 Renewable Energy (2005)	
	• TAN 21 Waste (2001) this includes development of waste facilities and flood risk and implications for water quality	Check and add
	• TAN 18 planning for transport infrastructure (2007) we have referenced because we are aware transport has been raised as an issue with energy from waste sites.	Check and add
	• We note there is no reference to the Minerals Planning Policy Wales 2001; MTAN 1 Aggregates; MTAN2 Coal – we believe these may have some relevance to waste sector plans.	Check and add
	• In Wales, the first RBMPs were approved by the Minister in December 2009. See: http://wales.gov.uk/publications/accessinfo/drnewhomepage/environmentdrs2/environmentdrs2009/welshrbmps/?lang=en	Review and add
	Wales' 3 RBMPs for Western Wales; Dee; and Severn can be found at: http://www.environment-agency.gov.uk/research/planning/33106.aspx	Review and add
	Other plans and programme that may be relevant:	
	• WAG Economic Renewal Programme: A New Direction 2010 – particularly in relation to proposal for an infrastructure strategy for Wales, but more generally to ensure the waste sector plans support the new direction fro economic renewal.	Review and add
	• UK Shared Framework on SD	Review and add
	• Whilst we welcome reference to the Environment Agency's Corporate Strategy, Environment Agency Wales has its own Corporate Plan -Working Together for a Better Wales (2010-15).	Amend
	Documents currently being developed or imminently to be launched that should also be considered:	
	• Natural Environment Framework (currently out to consultation)	
	• WAG Welsh Soils Action Plan (consultation closed but final document not yet published). http://wales.gov.uk/consultations/environmentandcountryside/130308welshsoilsactionplan/;jsessionid=sQp3MZKBD2p7m61pdt8Z07rJhfN2nXWSfTp15JyMv1W5QJjVtS23!-42672990?lang=en	Review and add Check and add
	It will be important that the sector plans are assessed against WAG's draft Soils Action Plan and that they will enable, where appropriate, the CAP Health Check Challenge agenda to be met, particularly climate change outcomes relating to soil carbon management as well as water quality and quantity outcomes and wont prevent farmers	Add Plan

Respondent	Comment	Response/Action
	accessing schemes such as Glastir. Points to note about Plans and Programme listed • Creating Sustainable Places – DE&T – revised/updated 2010 • Whilst plans may still be in existence and relevant to assessing the Wales Sector Plans at the England Wales borders for the time being, it must be recognised that the English spatial planning regimes and regional strategies have been abolished under the new coalition government, and a new planning framework is proposed. Additional comments: <u>Agriculture Sector Plan</u>. It is evident that the Agriculture sector plan looks at the Wastes produced on the farm but a major factor that should be covered in this plan is in relation to soil protection. This is referred to in table 3.1 in the soil section. It is important to reflect in every sector plan the need to reduce, reuse and recycle waste but this is particularly true in relation to soil protection/land quality in the Agricultural plan. The reduction in waste to landfill means that "wastes" are being diverted to other end disposal. The main ones being Incineration or treatment by Anaerobic Digestion/ Composting, but in every case (including the use of the ash element from use of biomass as a fuel), the final disposal/use of the residues is as a fertiliser/soil conditioner on land, be that Agricultural or development land. The Agricultural plan should have a strong emphasis towards the soil protection angle rather than just concentrating on the waste types produced. Ecological Footprint Where reference is made in the document towards reducing the Ecological Footprint (and constituent Carbon Footprint - pages 22/27), this should also include assessment of and reduction of water footprint. **Consultation question 3**. Building on previous consultations, is there any additional information that could help supplement the baseline data? Any further information relating to the baseline indicators and trends over time would be very useful. As discussed above: • WFD data/ River Basin Management Plans • Fly-tipping data – fly capture (http://www.environment-agency.gov.uk/reserach/library/data/41333.aspx) • The Welsh Index of Multiple Deprivation	Amend Noted Noted Noted Review Review Review

Respondent	Comment	Response/Action
	WIMD could be used in the baseline – the physical domain of the index includes environmental criteria. This would help support the social data for the sustainability assessment and help asses how the plans will help address the issues causing deprivation.	Review
	Consultation question 4. Is there any important information that has not been addressed in view of the SA/SEA scope? As discussed above:	
	It will be important to asses your plans against WFD outcomes and not just GQA, since Wales will be reporting in future on WFD status of watercourses and not just chemical quality.	Review
	We also believe that data, information and a sustainability objective on Fly-tipping in Wales, are important information missing from the SA/SEA scope.	Review and add
	Whilst we understand there are some specific plans or programmes being developed by WAG to deal specifically with Fly-tipping, we believe that a waste strategy and its sector plans should set the overarching framework in which these specific programmes can operate. The waste strategy and its sector plans should be assessed against a fly-tipping/illegal waste disposal sustainability objective to ensure they do not create reason or opportunity for waste to be fly-tipped in the first place.	Review
	Fly-tipping costs Wales £3m a year in clean up alone (not true costs) - so any strategy to deal with waste should take account of how those policies may lead to further fly-tipping (or reduce it) i.e. take a holistic approach.	Noted
	Please see below some examples of where we believe the sector plans could help address fly-tipping: <u>Markets Sector Plan</u> Probable key areas of sector plan of relevance: - Waste Collection & Infrastructure - Treating waste and using it as a resource Factors that may help alleviate fly-tipping: - Turning waste into a resource so that people don't need or want to fly-tip - Encouraging builders to use recycled materials instead of raw materials – maybe a reward scheme? - Education to ensure waste is segregated properly and managed <u>Construction and Demolition Sector Plan</u> Probable key areas of sector plan of relevance:	Noted

Respondent	Comment	Response/Action
	- Small scale construction and demolition waste collection (trade waste sites) - Difficult wastes such as plasterboard and asbestos - Small traders / Builders – Housing repairs Factors that may help alleviate fly-tipping: - Making it easier to dispose of small quantities of waste via trade waste sites - Having options for traders to dispose of difficult wastes - Encourage builders to deal with wastes generated on household jobs rather than simply leave with the householder We recommend that In Table 3.1 key sustainability issues (Material Assets) or in 5.6.2 (Commercial & Industrial Sector Plan), some reference is made to dealing with very low level or low level radioactive waste (VLLW/LLW), perhaps where hazardous waste is mentioned. Landfill is a route for such wastes, but clearly as we move to zero waste to landfill, other routes of disposal will be needed (similar to hazardous waste). If the sub-objective "to increase infrastructural capacity and facilities for sustainable waste management", under the Waste Management sustainability objective, will not consider the impacts of the facilities provided for such waste, then a separate sustainability sub-objective may be needed to assess the environmental impact of managing these. **Consultation question 5.** Is the range of environmental problems, issues and receptors covered appropriate? • Using WFD data it is clear we have issues in Wales with respect to water quality (ecological) which need addressing. This is contrary to the purely chemical (GQA) analysis. It is therefore important that the water quality assessments undertaken as part of this SA/SEA assessment are based on WFD and not GQA criteria. • We also believe Fly-Tipping, soil carbon and assessment of the management of VLLW and LLW and hazardous waste should also be included. **Consultation question 6**. Are there any major plans or projects that should be included in the assessment of cumulative effects? We recommend the website of the Infrastructure Planning Committee is consulted for any Nationally Significant Infrastructure Projects, e.g. energy from waste plants etc. that are not being planned for at local or national level in Wales. **Consultation question 7**. Are there any changes	Noted and reviewed as per comments on consultation question 4 Review

Respondent	Comment	Response/Action
	that should be made to the proposed SA/SEA objectives; including any consolidation of the objectives? See comments above in Q 1 and 5, and With respect to Table 4.1: • Under Water, The main objective should refer to 'water environment' and not water resource, since it needs to encompass both water resources and water quality. The sub-objectives therefore need to ensure the sector plans are assessed against impacts on the quality and quantity of the water environment. The current sub- objective "to protect and enhance groundwater and river quality in the inland, coastal and maritime environments" is not correct, since you cannot enhance river quality in the maritime environment. We would suggest either one sub-objective covering protection and enhancement of both water quality and quantity in the relevant water environments, or two separate sub objectives, ones to assess against impacts on water quality and one on sustainable water resource management. • Under Climate Change, we suggest inclusion of the word "efficiency" before "use" in the 3rd bullet about energy. **Consultation question 8**. Are there any other SA/SEA objectives, assessment criteria or indicators that should be included? See specific points raised above re fly-tipping and soils. **Consultation question 9**. Any further suggestions regarding the scope of the SA/SEA and its proposed assessment of the Sector Plans? With the development of the Natural Environment Framework (NEF) WAG are moving towards an ecosystem services approach to managing the environment. It will be necessary in future to be able to assess plans and programmes against their impact on ecosystem services. This will put the true value of the natural environment at the heart of Government and enabling people to appreciate, protect and enhance their local environment. Both are vital steps in securing a sustainable future for people and wildlife. Integrating ecosystem services and their societal values into SEA can help demonstrate the social, economic and financial reasons for environmentally sustainable policies. Considering a broad range of ecosystem services helps ensure an SEA includes a comprehensive and balanced assessment of environmental impacts and considers the trade-offs of alternative options.	Amend Amend Review Review

Respondent	Comment	Response/Action
	Baseline data on ecosystem services in Wales are now being collated by the UK National Ecosystems Assessment and will be available on http://www.werh.org/nef.php.en	Review and add
	Integrating ecosystem services into SEAs can be done at various levels of intensity, either including general appreciation and awareness of impacts or detailed valuations. Whatever the intensity, however, the analysis starts at the screening stage, identifying likely ecosystem services impacts of the policy or plan, followed by the scoping stage to show the existing ecosystem services status.	Noted
	Assessing the baseline should include identifying the future ecosystem service provision without the plan/policy in place. The assessment of the alternatives proposed also looks at their impacts on ecosystem services and any impacts on the ecosystem services requiring mitigation. The impacts of mitigation on ES should then be assessed.	Review and add
	Whilst relatively new, various tools are available to undertake ecosystem service assessments.	
	Please see information on NEF and Ecosystems Services baseline and briefing guide at http://www.werh.org/nef.php.en and the national UK Ecosystem assessment at http://uknea.unep-wcmc.org	Check
Natural England	Whilst Natural England commented on the strategic level MSP1 document, it is unlikely that we would seek to influence the preparation of individual sector waste plans and we have no additional information to provide to you at present. We would expect to receive the formal consultation documents as a statutory consultee for SEA and will make a more detailed appraisal of whether we will comment on the scoping reports for each SEA, at that time.	Noted. No action required.

3 Full consultation responses

4 Minutes of conference call with CCW (28/10/10)

Minutes

Date:	28 October 2010	
Venue:	Conference Call	
Contract title:	WAG Waste Sector Plans SA/HIA/HRA	
Contract No:	FSE3511003A	
Purpose:	Discussion with CCW about concerns raised in consultation responses	
Present:	Delyth Toghill	Parsons Brinckerhoff
	James Colcombe	Parsons Brinckerhoff
	Andy Rees	Welsh Assembly Government
	Jennet Holmes	Welsh Assembly Government
	Alison Brown	Countryside Council for Wales
Apologies:	Charles Morrison	Parsons Brinkerhoff

Item		**Action and date required**
1	**INTRODUCTIONS & APOLOGIES**	
	DT led the call in introductions and apologies.	
2	**SUMMARY OF TZW WORK AND CURRENT STATUS**	
	JH provided a brief summary of the status of Towards Zero Waste and the current Sector Plans.	
3	**IDENTIFICATION OF CCW'S MAIN CONCERNS**	
	AB highlighted the main concerns raised by CCW. These comprise:	
	1. Actions from previous consultation responses 1.1. The possible changes raised by CCW in previous responses in relation to Objectives and Indicators do not appear to have been taken on board. 1.2. CCW were not clear on whether comments made on the recent MSP1 consultation were going to taken on board	
	2. In relation to the approach, particularly with regard to objectives and indicators, CCW are concerned that the objectives are too general to enable proper assessment of the issues. AR explained that the intention from the initial SA of TZW and through to the sector plans was to have a generic SA framework that could be applied to all of these high level plans which focus on common waste elements (i.e. the priority waste materials). DT & JC explained that having a generic framework should not be an obstacle to identifying specific issues and that there is scope for these to be picked up through the assessment without re-drafting the objective and sub-objectives for each plan. It was agreed that the issues specific to each plan will be clearly identified in the relevant sector plan, enabling their full	*JH*

Item		Action and date required
	consideration through the SA process. AB confirmed that CCW did not have any particular issues with the generic approach, but wanted to have confidence that the plan-specific issues would be picked up. The discussion identified a need to define what wastes are to be included in the agriculture/retail sectors plans and where the lines are to be drawn. Specifically a need to identify where wastes from intensive pig and chicken systems would be covered.	*DT* *AR*
	3. Baseline: CCW raised concerns that the baseline is being 'recycled' from TZW. The baseline must be kept up to date and changes fed through the SA as needed. CCW also have concerns about some of the assertions being made in the scoping report. CCW suggested some other SA/SEA reports with complementary baseline information (Nuclear work done by NDA and recent Terrestrial Oil & Gas work) DT agreed the baseline must be aligned with recent baseline information and will review it using other, more contemporary sources. All baseline sources will be clearly referenced to enable the reader to trace the provenance of the data.	*DT*
	4. Over-compartmentalisation of the SA. CCW are concerned about the potential over-compartmentalisation of the SA and that this may risk interrelated aspects being over-looked. In the baseline review PB will check that relationships are identified in the baseline and will ensure appropriate coverage of inter-related effects in the assessment. In discussion a number of potential cumulative effects relating to Shoreline Management Plans, Catchment flood risk management strategies and Water Resources Management Plans were flagged. These will be considered. Discussion also identified a potential gap in the coverage of historic landfill and managed realignment; and a related issue with the siting of new waste facilities in relation to proposed managed realignment work on the Welsh Coast. AR agreed to follow this up within WAG.	*DT* *AR*
	5. Habitats Regulations Assessment Fundamentally CCW are concerned that the approach as it stands is not compliant with the Habitats Regulations. The sector plans must provide robust caveats on the management of effects to facilitate the HRA process. (This can be informed by recommendations from the HRA.) Examples can be found in the Wales Transport Plan prepared by Len Wyatt. Deferring further assessment to the project level is not acceptable without such caveats.	*CM & JH*
4	**RUN THROUGH OF CCW SCOPING RESPONSE (1 OCTOBER 2010)**	
	A brief run though of the response was undertaken to ensure all issues had been addressed to the satisfaction of all on the call. The references refer to the CCW scoping response.	
	Page 1; paragraph 4: comment regarding inclusion of social & community	

Item		Action and date required
	data – CCW was unclear on its relevance to a waste plan. DT and AR explained that the inclusion is to provide context in terms of the distribution of social and economic deprivation in Wales and that this is important in relation to the wider sustainability goals throughout WAG, but is also of particular relevance to waste planning (there is often a coincidence of waste facilities with deprived areas, which may be linked to past industrial legacy, but there is also a perception that these areas are 'easy targets' for new industrial development). DT to ensure that appropriate content is included to allow the reader to receive these data in context.	*DT*
	Page 2; paragraph 2. CCW queried the apparent economic emphasis in the selection of alternatives. AR explained that there are very strong environmental drivers behind all of the options – it will be made clearer in the Sector plans and the SA that this is the case.	*JH & DT*
	1.1.17 DMT explained that PB's approach is always to engage with CCW on HRA at the earliest opportunity and maintain that contact. CM will contact AB in due course	*CM*
	1.24 JH will send AB a copy of the TZW Post Adoption Statement	*JH*
	Fig 1.1 – the relevance of and relationship between the Regional Waste Plans (RWP) and TZW will be set out in the CIMS plan. It was also noted that the RWP will be subject to review alongside a planned review of TAN21.	*JH*
	1.2.6. It was agreed that caveats will be included in the relevant sector plans to make clear the position with regard to the release of funding and EIA. (i.e. no funding will be released without appropriate approval and EIA).	*JH & DT*
	Table 3.1: Soil. CCW is concerned that the full range of soil function are not being considered (e.g. flood attenuation, carbon storage). DT agreed that this needs to be reflected. In discussion, AB also highlighted that there seemed to be some issues developing around the perception of 'contamination' of foodstuffs as a result of the spread of composting and AD products to agricultural land. AR confirmed that this is known and WAG are actively seeking to address this through education and engagement programmes, which include large food retailers.	*DT*
	Table 4.1: It was agreed that the Soil sub objectives would be amended to make retention of natural soil functions more explicit as an objective. It was agreed that the Water sub-objectives would be amended to cover protection of water quantity as well as quality. It was agreed that the noise sub-objective would be expanded to take into account wildlife and landscape effects.	*DT*

Item	Action and date required
5.8.5 It was agreed that WAG would ensure these elements and those raised in earlier discussion (under agenda item 2) would be addressed as in the appropriate Sector Plans.	*AR & JH*

DISTRIBUTION

All participants and apologies; Aida Khalil, Peter Walsh.

Approved by: Date:

Issued by: Date:

Appendix B – Policies, Plans & Programmes

Appendix B: PPP Review

Table 1: List of PPP Reviewed in TZW SA

Policy/Plan/Programme Reviewed
SUSTAINABLE DEVELOPMENT
World Summit on Sustainable Development - Earth Summit leading to the Johannesburg Plan of Implementation (Johannesburg, 2002)
EU Sustainable Development Strategy (2006)
One future: different paths - UK Shared Framework for Sustainable Development (2005)
Securing the Future - UK Government Sustainable Development Strategy (2005)
One Wales: One Planet - The Sustainable Development Scheme of the Welsh Assembly Government (May 2009)
Starting to Live Differently - The Wales Sustainable Development Scheme and Sustainable Development Action Plan 2004 - 2007
Environment Strategy for Wales (2006)
Welsh Assembly Government Integration Tool (2002)
People, Places, Futures - The Wales Spatial Plan 2004 and the Wales Spatial Plan 2008 Up-date
One Wales: Connecting the Nation - the Wales Transport Strategy (2008)
Planning Policy Wales (2002)
Creating Sustainable Places (2005)
Making the Connections: Delivering better services in Wales (2004) and Delivering the Connections: From vision to action (2005)
Beyond Boundaries: Citizen-Centred Local Services for Wales (2006)
Planning (Wales) Act 2015
ECONOMY
EU European Employment Strategy - EES (2005)
A Winning Wales - The National Economic Development Strategy of the Welsh Assembly Government (2001 and 2004)
Wales: A Vibrant Economy (2005) - the Welsh Assembly Government's Strategic Framework for Economic Development
Green Jobs for Wales (2008/2009)
DCELLS assorted literature
Valuing our Environment: Economic Impact of the Environment of Wales (2003)
Heads - We Win… A Strategic Framework for the Heads of the Valleys (2005)
Enter the Dragon Economy - SE Wales Development Strategy (Capital Wales)
A Government Action Plan for Small Business
Business Crime Reduction Strategy Wales (2005 - 2008)
Social Enterprise Strategy for Wales (2006)
SE Action Plan for Wales up-dated version 2009
The Third Dimension: A Strategic Action Plan for the Voluntary Sector (2007)
Rural Development Programme 2014-20
Jobs Growth Wales programme (2014)
POPULATION, HEALTH AND WELL-BEING

Policy/Plan/Programme Reviewed
EU Directive 2002/49/EC relating to the assessment and management of environmental noise - The Environmental Noise Directive (EU, 2002)
TAN 11 - Noise (1997)
Health, Social Care and Well-being Strategies Policy Guidance (2003)
Community First Guidance (2007)
Well Being in Wales Consultation Document (2002)
The Learning Country 2: Delivering the Promise (2006)
Race Equality Scheme 2005 - 2008
Iaith Pawb: A National Action Plan for a Bilingual Wales (2003)
The Strategy for Older People in Wales (2003)
Road Safety Strategy for Wales (2003)
Health Strategy for Wales
Public Health (Wales) Bill (introduced June 2015)
HSE Literature (assorted)
The Quality of Food Strategy for Wales (2007)
Housing (Wales) Act 2014
Social Service and Well-being (Wales) Act 2014
Well-being of future generations (Wales) Act 2015
Child Poverty Strategy for Wales (2015)
CLIMATIC FACTORS
Stern Review on the economics of climate change (2006)
Kyoto Protocol on Climate Change (UN, 1997)
EU Directive to promote Electricity from Renewable Energy (2001/77/EEC)
EU Emissions Trading Scheme (2005)
Climate Change: the UK Programme (2001)
Our Energy Future - 'Creating a Low Carbon Economy' - UK white paper on energy (2003)
Climate Change - The UK Programme: Tomorrow's Climate Today Challenge (DEFRA 2006)
One Wales - A progressive agenda for the government of Wales: An agreement between the Labour and Plain Cymru Groups in the National Assembly (2007)
Climate Change Strategy - High Level Policy Statement Consultation (Welsh Assembly Government, 2009)
The Environment Strategy for Wales
One Wales: Connecting the Nation - The Wales Transport Strategy (2008)
Wales Changing Climate, Challenging Choices: The impacts of climate change in Wales from 2000 to 2080
Energy Wales - Route Map: Consultation Document (2005)
Climate Change Wales - Learning to Live Differently
Consultation package on planning and climate change (Welsh Assembly Government, 2006)
The Bioenergy Action Plan for Wales (2009)
Energy Wales Statement (2015)
MATERIAL ASSETS

Policy/Plan/Programme Reviewed
Waste Framework Directive 2006/12/EC (as amended by Directive 2008/98/EC)
EU Waste to Landfill Directive (99/31/EC)
EU Directive on the Incineration of Waste (2000/76/EC)
Waste Electrical and Electronic Equipment (WEEE) Directive 2006
End of Life Vehicles Directive (2000/53/EC)
Taking sustainable use of resources forward: A Thematic Strategy on the prevention and recycling of waste (COM (2005) 666)
DEFRA Waste Strategy for England 2007 and Annual Progress Report 2007/08
Waste Management (England and Wales) Regulations 2006
The Landfill (England and Wales) Regulations 2002
Clean Neighbourhoods and Environment Act 2005
Planning Policy Wales 2002
TAN 8 - Renewable Energy (2005)
TAN 21 - Waste (2001)
North Wales Regional Waste Plan (2003)
North Wales Regional Waste Plan 1st Review Recommended Draft (2008)
South East Wales Regional Waste Plan (2004)
South East Wales Regional Waste Group: The Regional Waste Plan 1st Review - Content and Approach (2006)
South West Wales Regional Waste Plan (2003)
South West Wales Regional Waste Plan, 1st Review (Recommended Draft) 2008
European Commission White Paper on the European Transport Policy (EC, 2001)
One Wales: Connecting the Nation, the Wales Transport Strategy 2008
Wales Freight Strategy Consultation Draft (2007)
TAN 18 - Transport (2007)
National Transport Plan Consultation Draft (2014)
Johannesburg Renewable Energy Coalition - JREC (2002)
UK Fuel Poverty Strategy (2001)
Mineral Planning Policy Wales (2000)
Local Vision - Statutory Guidance from the Welsh Assembly Government on Developing and Delivering Community Strategies (2008)
Community Strategy Advice Note on the Environment
Community Strategy Advice Note on Climate Change
Identifying Areas of Search for Regional Waste Facilities Across Wales 2007
AIR QUALITY
Clean Air for Europe (CAFÉ((2001)
Convention on Long Range Trans-boundary Air Pollution (1979)
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (DEFRA 2007)
Air Pollution in Wales (2006)
BIODIVERSITY AND GEODIVERSITY
Ramsar Convention of wetlands of international importance especially as waterfowl habitat (1971)

Policy/Plan/Programme Reviewed
Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979)
Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)
The Convention on Biological Diversity, Rio de Janeiro (1992)
EU Directive on the Conservation of Wild Birds (2009/147/EC)
EU Habitats Directive (92/43/EEC)
EU Biodiversity Strategy (EU, 1998)
Natural Environment and Rural Communities Act (UK) (2006)
Wildlife and Countryside Act 1981 (as amended) (UK)
UK Biodiversity Action Plan (Defra, 1994)
Conservation of Habitats and Species Regulations 2010 (as amended)
CCW Priority Habitats of Wales (2003)
TAN 5 - Nature Conservation and Planning (1996)
Consultation on Draft Revised Technical Advice Note 5 'Nature Conservation and Planning' (2006)
Wales Biodiversity Framework (Wales Biodiversity Partnership, 2007)
Tir Gofal Agri-Environment Scheme (1999)
Woodland for Wales (Welsh Assembly Government, 2001)
Better Woodlands for a Better Wales (FCW, 2005)
Draft Policy Statement for Protected Landscapes in Wales (2013)
WATER AND FLOOD RISK
Directive on the assessment and management of flood risks (2007/60/EC)
EU Nitrates Directive (91/676/EEC)
EU Directive Establishing a Framework for the Community Action in the Field of Water Policy (2000/60/EC) - The Water Framework Directive
EU Freshwater Directive 78/659/EEC
Water resources for the future: a water resources strategy for England and Wales (2001)
Water for People and the Environment - developing a water resources strategy for England and Wales (2007)
A Better Environment, Healthier Fisheries: Better Fisheries for our nations 2006 - 2011 (EA, 2006)
TAN 15 - Development and Flood Risk (2004)
Dee River Basin District - Significant Water Management Issues *Environment Agency, 2007)
Severn River Basin District Significant Water Management Issues (Environment Agency, 2007)
Western Wales River Basin District Significant Water Management Issues (Environment Agency, 2007)
Water Strategy for Wales Consultation Draft (due to be published 2015)
CULTURAL HERITAGE
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972)
The Charter for the Conservation of Historic Towns and Urban Areas (1987)
Charter for the Protection of the Management of Archaeological Heritage (1990)
The Florence Charter (1981)
A Culture Strategy for Wales (2002)
Welsh Office Circular 60/96 Planning and the historic environment: archaeology

Policy/Plan/Programme Reviewed
Welsh Office Circular 61/96 Planning and the historic environment: historic buildings
Traffic Management in Historic Areas (CADW, 2003)
Historic Environment (Wales) Bill (Royal Assent anticipated in Spring 2016)
LANDSCAPE AND SOIL RESOURCES
World Heritage Convention (UNESCO 1972)
European Landscape Convention (Council of Europe, 2000)
EU Thematic Strategy on Soil Protection 2006
Countryside and Rights of Way Act (CroW) (ODPM, 2000)
Working Together for Wales (Welsh Assembly Government, 2007)
National Park Management Plans Guidance (CCW, 2007)
Draft Welsh Soils Action Plan (2007)
TAN 6 Agricultural and Rural Development (June 2000)

Table 2: Review of relevant policies, plans, programmes and environmental protection objectives for Public Sector Plan

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
EU (2003) CAP Single Payment Scheme Cross Compliance Regulation (Annex III Council Reg No.73/2009)	New horizontal regulation dealing with the common provisions applicable to direct aid schemes for European farmers. The 2003 reform decoupled the majority of direct aid and transferred it to the new single payment scheme. Regulation (EC) No 1782/2003 brought together in a single document the SPS and other specific aid schemes, still linked to the area cultivated or to production. This regulation was replaced by Regulation (EC) No 73/2009 following the 2009 CAP 'Health Check'.	Link to soils management and agricultural waste sector plan
EC Directive 2008/50/EC on Ambient Air Quality and Cleaner Air, 2008	This Directive includes the following key elements: • The merging of most of existing legislation into a single directive (except for the fourth daughter directive) with no change to existing air quality objectives* • New air quality objectives for PM2.5 (fine particles) including the limit value and exposure related objetives – exposure concentration obligation and exposure reduction target • The possibility to discount natural sources of pollution when assessing compliance against limit values • The possibility for time extensions of three years (PM10) or up to five years (NO2, benzene) for complying with limit values, based on	The waste sector plans should support this Directive by ensuring the air pollution in Wales is managed and possible steps are taken to alleviate air quality problems.

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	conditions and the assessment by the European Commission. * Framework Directive 96/62/EC, 1-3 daughter Directives 1999/30/EC, 2000/69/EC, 2002/3/EC, and Decision on Exchange of Information 97/101/EC.	
EU (2006) Registration, Evaluation, Authorisation and Restriction of Chemicals. Regulation (EC) 1907/2006	REACH regulates the use of chemicals in products and requires registration and assessment of their potential environmental and health impacts. The aim of REACH is to improve the protection of human health and the environment through the better and earlier identification of the intrinsic properties of chemical substances. At the same time, innovative capability and competitiveness of the EU chemicals industry should be enhanced. The benefits of the REACH system will come gradually, as more and more substances are phased into REACH.	The registration requirements may impact on the re-use of some waste streams
Ancient Monuments and Archaeological Areas Act 1979	The AMAAA was a law passed by the government to protect the archaeological heritage of Great Britain. Section 61(12) defines sites that warrant protection due to their being of national importance as 'ancient monuments'. These can be either Scheduled Ancient Monuments or "any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it". The Act (in Part II) also introduced the concept of Areas of Archaeological Importance, city centres of historic significance which receive limited further protection by forcing developers to permit archaeological access prior to building work starting.	The waste sector plans should seek to protect and enhance the historic environment in Wales including designated historic assets while developing waste infrastructure
Town and Country Planning Act 1990	The Town and Country Planning Act 1990 is an act of the British Parliament regulating the development of land in England and Wales. This is the land use planning system governments use to balance economic development and environmental quality. The English and Welsh governments are responsible for town and country planning devolved to the England Parliament and the Welsh Assembly.	The waste sector plans should consider the land use planning system in Wales while developing waste infrastructure and waste management initiatives
Planning (Listed Building and Conservation Areas) Act 1990 (as amended in 2009)	The Planning (Listed Buildings and Conservation Areas) Act 1990 is an Act of the UK Parliament that altered the laws on granting of planning permission for building works, notably including	The waste sector plans should seek to protect and enhance the historic environment in Wales including listed building and

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	those of the listed building system in England and Wales. The Planning (Listed Buildings and Conservation Areas) (Amendment No. 2) (England) Regulations 2009 came into force on 2 November 2009. They amend The Planning (Listed Buildings and Conservation Areas) (England) Regulations 1990 by substituting Schedule 4 of the 1990 Regulations (notices that a building has become listed or that a building has ceased to be listed), to reflect the fact that English Heritage now compiles lists of buildings of special architectural or historic interest and the Secretary of State (SoS) is responsible for approving them.	conservation areas while developing waste infrastructure
Planning (Hazardous Substances) Act 1990	The Planning (Hazardous Substances) Act 1990 is an Act of the UK Parliament to consolidate certain enactments relating to special controls in respect of hazardous substances.	The waste sector plans must seek to promote initiative and schemes that do not conflict with this planning act.
Department for Communities and Local (2010) PPS5 Planning for the Historic Environment: Historic Environment Planning Practice Guide	PPS 5 sets out the Government's planning policies on the conservation of the historic environment. This replaces Planning Policy Guidance 15: Planning and the Historic Environment (PPG15) published on 1994; and Planning Policy Guidance 16: Archaeology and Planning (PPG16) published on 1990. PPS5 is supported by a Practice Guide endorsed by Communities and Local Government, the Department for Culture, Media and Sport (DCMS) and English Heritage. Specifically, the purpose of this guide is to assist local authorities, owners, applicants and other interested parties in implementing PPS 5 and to help in the interpretation of policies within the PPS.	The waste sector plans should seek to protect and enhance the historic environment in Wales while developing waste management initiatives and waste infrastructure.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003	The regulations are an opportunity to plan and deliver a better water environment, focussing on ecology. They help to protect and enhance the quality of: • surface freshwater (including lakes, streams and rivers) • groundwaters • groundwater dependant ecosystems • estuaries • coastal waters out to one mile from low-water.	Regulation 17 states that each public body has a duty in exercising their functions so far as affecting a river basin district, to have regard to River Basin Management Plans (RBMPs). The RBMPs contain the status and objectives for all water bodies, and the actions that will be taken to achieve these outcomes.

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
DEFRA/Welsh Government (2010) Environmental Permitting (England and Wales) Regulations 2010	The Regulations widen the existing streamlined environmental permitting and compliance system in England and Wales by integrating existing permitting regimes covering water discharge consenting, groundwater authorisations and radioactive substances regulation authorisations and the outcomes of the Waste Exemptions Order Review into the Environmental Permitting system. They also bring amending Environmental Permitting Regulations that transposed the majority of the Mining Waste Directive and the permitting parts of the Batteries Directive into a single system which already covers Pollution Prevention and Control and Waste Management Licensing. The Regulations reduce the administrative burden of regulation on industry and regulators without compromising the environmental and human health standards previously delivered by the separate regimes and create an extended permitting and compliance system that brings increased clarity and certainty for everyone on how the regulations protect the environment.	The waste sector plans must seek to promote initiatives and schemes that do not conflict with the objectives of the Regulations.
Welsh Assembly Government (2009) The Welsh Historic Environment Strategic Statement Action Plan	This Plan outlines the action to be implemented during the life of the present Welsh Assembly Government. It is highlighted also the areas for action to support and input from the Heritage Assembly Government Sponsored Bodies and other partners in Wales. The objectives are: 1. Conservation and protection of the historic environment • A modern, clear accountable and simple system of heritage protection • Identification, recording and designation of heritage assets • Conservation of properties in State care • Effective management and provision of access to historic environment records • People with the skills and understanding to conserve and regenerate heritage assets. 2. Regeneration and sustainable development through heritage • Capturing distinctiveness • Tackle heritage at risk • Ensure that the historic	The waste sector plans should seek to protect and enhance the historic environment in Wales while developing waste infrastructure and waste management initiatives

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	environment contributes to regeneration objectives and the Welsh tourism offer nationally and locally • Sustainable Development 3. Public Access and Appreciation • Making heritage sites enjoyable, relevant and stimulating to visit • Understanding and tackling barriers to access • Language and 'sense of place' • Public participation and volunteering • Public access to information and online service provision 4. Research and Scholarship • Study of Welsh history • Community engagement and participation • Extending understanding of the Welsh historic environment	
Welsh Assembly Government (2007) Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process	The Guide is intended to assist local planning authorities to decide how much weight to give to information in the Register when determining planning applications. It is also intended to assist others involved in the planning and development process in Wales, particularly developers preparing EIA statements, to bring forward plans and proposals that are likely to have the least possible adverse impact on historic landscape areas on the Register.	The waste sector plans should seek to protect and enhance the landscape of historic interest in Wales while developing waste infrastructure and implementing waste management initiatives.
WAGs Climate Change Strategy for Wales (2010)	It restates the target of reducing greenhouse gas emissions from Wales by 3% per year from 2011 (excluding heavy industry and power generation) There is a commitment to achieve 40% reduction in all greenhouse gas emissions by 2020 (against 1990 baseline) It specifies targets for minimum emission reductions in each of six sectors: transport, residential, business, agriculture and land use, public sector, waste sector. There is a maximum level for emissions from public sector buildings so government can "lead by example." And there is a national, co-ordinated approach to ensure that Wales is well placed to adapt to climate change.	The waste sector plans should take account of climate change and should support the Strategy.
WAG (2007-2013) Rural Development Plan Programme (2007-2013)	The Rural Development Plan (RDP) for Wales is part of a new European Union programme to promote the economic	The waste sector plans should support the Plan.

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	regeneration of rural areas. The RDP is aimed at assisting communities, helping to boost their local economy by supporting local businesses, improving basic services, village enhancement schemes, improving skills through training, and improving public and community transport.	
WAG (2009) Farming Food and Countryside: Building a Secure Future Strategy.	'Farming, Food & Countryside – Building a Secure Future' outlines the Welsh Assembly Government's Rural Affairs policy direction through to 2020. The strategy's aim is to secure a sustainable future for the farming, food and land based production industries and the Welsh countryside environment. The objective of the Strategy is to achieve a sustainable and profitable future for farming families and businesses through the production and processing of farm and forestry products. The objective also includes safeguarding the environment, animal health and welfare, adapting to climate change and mitigating its negative impacts. The strategy outcomes will contribute to the vitality and prosperity of our rural communities.	The waste sector plans should take account of farming, food and land based production industry and should support the Strategy.
Welsh Government (2010) Food for Wales, Food from Wales 2010-2020: Food Strategy for Wales	It sets out a wide ranging vision of the place of food in Wales, with a view to develop a clear direction for the Welsh food industry to grow in a sustainable and profitable manner over the next 10 years. It is founded on principles of sustainable development, which include economic, social and environmental aspects of the production and consumption of food. It takes into consideration cross-cutting issues such as health, food culture and education, food security, environmental sustainability and community development to provide the basis for an integrated approach to food policy in Wales. Such an integrated approach is also intended to build resilience in the food system, to encourage a stronger food economy in Wales and, hence, to enhance the capabilities and capacities of food businesses to compete effectively both at home and abroad.	The waste sector plans should take account of farming, food and land based production industry and should support the Strategy.
Planning Policy Wales (Edition 3, July 2010)	This is an overarching policy consolidated in 2010 to incorporate MIPPS and covers all aspects of planning policy for Wales. It provides the policy framework for the effective preparation of local planning authorities' development plans.	The waste sector plans should consider the national planning policy while developing waste infrastructure and waste management initiatives

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	This is supplemented by 21 topic based Technical Advice Notes (TANs). Procedural guidance is given in Welsh Office / National Assembly for Wales / Welsh Assembly Government circulars. Planning Policy Wales, the TANs and the circulars may be material to decisions on individual planning applications. They will be considered by the Welsh Ministers and Planning Inspectors in the determination of called-in planning applications and appeals.	
TAN 15 –Development and Flood Risk (2004)	TAN 15 provides technical guidance which supplements the policy set out in Planning Policy Wales in relation to development and flooding. It advices on: • Development advice maps; • Nature of development or land use; • Justifying the location of built development; • Assessing flooding consequences; • Surface water run-off from new development; • Action through Development Plans; • Development Control.	The waste sector plans should consider this guidance to promote sustainable flood risk management
TAN 6 Planning for Sustainable Rural Communities (includes sustainable agriculture and rural services) July 2010.	Technical Advice Note (TAN) 6 supports national planning policy on sustainable rural communities. This policy is set out in Planning Policy Wales. This guidance provides advice on: • sustainable rural communities; • sustainable rural economies; • rural affordable housing; • rural enterprise dwellings; • One Planet Developments; • sustainable rural services; and • sustainable agriculture.	The waste sector plans should consider this guidance to promote sustainable rural communities
TAN 8 Renewable Energy (2005)	This guidance provides advice on: • Renewable Energy and Planning; • Onshore Renewable Energy Technologies; • Design and Energy; • Implications for Development Plans; • Development Control; and • Monitoring.	The waste sector plans should consider this guidance when it comes to waste management initiatives
TAN 21 Waste (2001)	This guidance provides advice on: • Planning framework in Wales • Regional co-ordination in Wales	The waste sector plans should consider this guidance since this includes development of waste facilities and flood risk and

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	• Principles and techniques • Planning considerations in waste issues • Unitary development plans • Development control • Types of waste	implications for water quality
TAN 18 planning for transport infrastructure (2007)	It describes how to integrate land use and transport planning. Explains how transport impacts should be assessed and mitigated. This guidance provides advice on: • Integration between Land Use Planning and Transport; • Location of Development; • Parking; • Design of Development; • Walking and Cycling; • Public Transport; • Planning for Transport Infrastructure; • Assessing Impacts and Managing Implementation.	The waste sector plans should consider this guidance since it seems transport has been raised as an issue with energy from waste sites.
Minerals Planning Policy Wales 2001	It sets out the land use planning policy guidance of the National Assembly for Wales in relation to mineral extraction and related development in Wales, which includes all minerals and substances in, on or under land extracted either by underground or surface working. Policy guidance for marine aggregates is not included in this minerals planning policy guidance.	The waste sector plans should take into account this guidance since they are relevant to waste management.
Minerals Technical Advice Notes (MTAN) Wales 1 Aggregates (2000)	It supplements Minerals Planning Policy Wales (2000) by topic based This guidance provides advice on: • providing mineral resources to meet society's needs • current Aggregates production • future demand • future supply • protecting areas of importance • reducing the impact of aggregates production • restoration and aftercare • efficiency of use/recycling • annexes on Regional Aggregates Working Parties (RAWPs), Reclamation to Agriculture, Soil, Planting and seeding	The waste sector plans should take into account this guidance since they are relevant to waste management.
Minerals Technical Advice Notes (MTAN) Wales 2 Coal (2009)	It sets out detailed advice on the mechanisms for delivering the policy for coal extraction, through surface and underground working, by mineral planning authorities and the coal mining	The waste sector plans should take into account this guidance since they are relevant to waste management.

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	industry. It should be read with Minerals Planning Policy Wales which sets out the general policies for all mineral development.	
Welsh River Basin Management Plans (2009)	It is designed to improve and integrate the way water bodies are managed throughout Wales The main aim is to achieve good chemical and ecological status in inland and coastal waters by 2015. The Water Framework Directive establishes a strategic river basin management approach to the land and water environment. It requires setting environmental objectives for all water bodies, and Member States to draft plans to meet those objectives in each River Basin District. In Wales there are three River Basin Districts. One is wholly in Wales, the Western Wales River Basin District, and the remaining two are cross border, Severn River Basin District and Dee River Basin District. Therefore there are 3 RBMPs: for Western Wales; Dee; and Severn	The waste sector plans should support this plan to protect and enhance groundwater and river quality in the inland, coastal and maritime environments
Welsh Government Economic Renewal Programme: A New Direction 2010	It sets out the role devolved government can play in providing the best conditions and framework to enable the private sector to grow and flourish. This approach will create the right environment to encourage entrepreneurship allowing the private sector to flourish rather than directly deliver support to individual businesses. The approach is organized by five priorities: • Investing in high-quality and sustainable infrastructure • Making Wales a more attractive place to do business • Broadening and deepening the skills base • Encouraging innovation • Targeting the business support we offer	Particularly in relation to proposal for an infrastructure strategy for Wales, but more generally to ensure the waste sector plans support the new direction for economic renewal.
Natural Environment Framework (Dec 2010)	NEF proposes an ecosystems approach which acknowledges the intrinsic value of nature, biodiversity and ecosystems and makes use of ecosystems services, networked environment regions, protected sites and biodiversity action planning to maximise the long term benefits to nature and, hence, ourselves. The ecosystems approach to policy	The waste sector plans should support this Framework to encourage the protection and enhancement of biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity;

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	development and implementation to be embodied in the NEF was endorsed by the European Union on 15 March this year, when the Environmental Council met to agree a new biodiversity target. The Council agreed to: 'halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020' and to 'restore them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss' by the same date.	
WAG, 2008, The Welsh Soils Action Plan	This Action Plan is one component of the National Environment Strategy and states that achieving a high level of protection of soil resource is an important part of delivery of a sustainable future for Wales and globally. The actions within the plan to protect and enhance the soil resources in Wales are proposed within the following sectors: agriculture; forestry; planning, transport and minerals; wastes and pollution; ecosystems services; soils and cultural heritage; recreation and education.	The waste sector plans should support the actions of this plan related to waste and pollution to protect and enhance soil resources (i.e. natural soil functions and ecosystems; protecting against soil contamination; conserving and treating source segregated organic waste for improving the quality of Welsh soils).
Natural Resources Wales and the Environment Agency, 2013, Managing Flood Risk from the Severn Estuary	Over the coming years property and land around the Severn Estuary will be at greater risk of tidal flooding. Consultation document to plan what defences are needed in the future to protect the maximum number of homes and businesses and continuing to protect the natural environment.	Project based aspects of Waste Sector Plans will need to consider future flood risk.
Shoreline Management Plans (SMP's) DEFRA, 2000. - Severn Estuary SMP : Anchor Head to Lavernock Point) - South Wales SMP: Lavernock Point to St Ann's Head - West Wales SMP: St Ann's Head to Great Ormes Head - North West England and North Wales SMP: Great Ormes Head to Scotland	The Department for Environment, Food and Rural Affairs (DEFRA) and the National Assembly for Wales (NAW) have identified the need for a regional strategy when assessing the requirements for coastal defence which also takes account of other shoreline interests. Shoreline Management Planning will develop a sustainable strategy for coastal defence in the Severn Estuary. It will also help to inform the statutory planning process and the wider-ranging coastal zone management process.	Project based aspects of Waste Sector Plans will need to consider the objectives of regional shoreline management plans.
Flood Risk Management Plans	Under the Flood Risk Regulations (2009) flood risk management plans have to be produced and published by December 2015. Lead local flood authorities will produce flood risk management plans for Flood Risk Areas. Flood Risk Areas have been	The waste sector plans shall incorporate Flood Risk Management Plans in line with advice from 'Flood Risk Management Wales'.

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	identified through a Preliminary Flood Risk Assessment published in December 2011	
United Utilities. Revised Draft Water Resource Management Plan, November 2013.	This plan describes in detail United Utilities assessment of the available water supplies and the demand for water over the 2015 – 2040 period. The plan also sets out the proposed strategy for water resources and demand management to ensure adequate water supplies.	The waste sector plans should consider the objectives of utility companies Water Resource Management Plans.
Dwr Cymru / Welsh Water and Severn Trent, Water Resource Management Plan, September 2012	This plan outlines our 25-year strategy for managing water resources across our supply area and maintaining the balance between supply and demand. It identifies deficit zones where demand is exceeding (or forecast to exceed) supply and identifies appropriate measures to either increase supply or to manage demand in each water resources zone. A range of options to meet the deficit including developing new water resources and the promotion of water efficiency measures have been looked at.	The waste sector plans should consider the objectives of utility companies Water Resource Management Plans.
Dee Valley Water, Water Resources Management Plan, 2012.	The Plans include data on climate change, metering policy, leakage, water conservation and many other areas relevant to the provision of adequate supplies of wholesome drinking water for the next 25 years.	The waste sector plans should consider the objectives of utility companies Water Resource Management Plans.
Albion Water, Draft Water Resource Management Plan, March 2013.	Albion's draft WRMP considers options to balance supply with demand including, where relevant, water trading, cross boundary supplies and third party solutions to reduce overall demand for water.	The waste sector plans should consider the objectives of utility companies Water Resource Management Plans.
Scottish Southern Electric (SSE), Water Resources Management Plan (England) Draft Consultation, 2015 – 2040.	SSSE Water (SSEW) currently has no water or sewage treatment works in service; therefore this Water Resource Management Plan (WRMP) has been prepared from the perspective of a net importer of bulk potable water and a net discharger of surface and foul waste.	The waste sector plans should consider the objectives of utility companies Water Resource Management Plans.
Wales Infrastructure Investment Plan (WIIP), May 2012	The Wales Infrastructure Investment Plan is the Welsh Government's key vehicle to drive collaboration, increase visibility and deliver our strategic capital investment decisions.	The waste sector plans should consider the objectives of the WIIP.
Well-being of Future Generations (Wales) Act 2015	The Well-being of Future Generations (Wales) Act strengthens existing governance arrangements for improving the well-being of Wales to ensure that present needs are met without compromising the ability of future generations to meet their own needs.	The waste sector plans should consider the goals of the Well-being of Future Generations (Wales) Act
Planning (Wales) Act 2015	The Planning (Wales) Bill sets out a series of legislative changes to deliver	The waste sector plans should consider the five key

Policy, plan, programme or legislation	Objective or requirements of the policy, plan, programme or legislation	How the objectives or requirements might be taken on board
	reform of the planning system in wales, to ensure that it is fair, resilient and enables development.	objectives of the Planning (Wales) Bill.
Environment (Wales) Bill (Due Royal Assent in Spring 2016)	The Environment (Wales) Bill creates the legislation needed to plan and manage Wales' natural resources in a more sustainable and joined-up way.	The waste sector plans should consider the objectives of this Bill particularly in relation to improving waste management processes.

Appendix C – Sustainability Assessment of the Public Waste and Resource Efficiency Sector Plan

PARSONS BRINCKERHOFF

Public Sector Waste and Resource Efficiency Plan - Appendix C, Assessment of Actions

SCORING KEY:

✓✓	Strong positive effect
✓	Positive effect
×	Negative effect
××	Strong negative effect
✓/×, ✓✓/××	Mixed positive and negative effect
?	Unknown effect
0	No relationship/neutral effect

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste management.	✓✓	The actions look at mechanisms which actively encourage waste prevention through the supply chain. This increases client and supplier awareness in resource efficiency. In relation to food waste, the actions look at raising awareness and changing behaviours in relation to food waste. Waste prevention throughout a product's life-cycle will help minimise Wales' Ecological Footprint (EF), for example reducing the loss rate of finite resource, greenhouse gas (GHG) emissions associated with transportation and embodied carbon and reduced demand for land required to accommodate waste management facilities.
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies	✓	These actions would promote development of green technologies sector through encouraging eco-innovation. Waste materials represent a cost to organisations and companies can be more profitable by adopting waste

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary
capitalise upon opportunities arising from this	and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering; • To support existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-typing; • To provide cost-effective and reliable sustainable waste management.		prevention and reduction. In addition to waste disposal and transport costs, there are further hidden costs such as the value of lost raw materials, including purchasing food, and the value-added cost from labour and energy. Minimising waste through these actions can therefore contribute to more cost-effective sustainable waste management for the public sector. Increasing service based, rather than product based, procurement, e.g. through lease/ hire of equipment and regular maintenance, not only reduces waste but also has potential to improve employment opportunities.
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens; • To protect the character and visual identity of landscapes and townscapes, including	✓	Encouraging waste prevention through procurement and prevention of food waste has indirect effects on reducing raw materials, land take and energy used. This will have long-term beneficial effects for the natural and historic environment. Improving natural resource use and reuse will prevent loss of habitats and avoid effects on erosion and terrestrial and marine life. In addition, minimising the volume of waste to landfill/residual treatment will reduce the need for new landfill developments and associated contamination and landtake, encouraging therefore the protection of landscape, historical resources and biodiversity.

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary
	cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.		
Soil To protect and enhance soil resources	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and flood attenuation. • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the quality of Welsh soils.	✓	These actions should have indirect long term benefits for the soil environment. Encouraging prevention and minimisation of waste will reduce the volume of waste going to landfill, which in turn will minimise landtake. Increased reuse should also offset land take associated with mineral extractions. In addition, reducing the volume and type of waste going to landfill will avoid generation of landfill gas and leachate and therefore minimise the risk of soil contamination and maintain natural soil functioning and associated ecosystem services.
Water To protect and promote the sustainable use of water resources	• To promote sustainable flood risk management; • To protect and enhance water quality and quantity in inland, coastal and maritime environments.	✓	These actions should have an indirect long-term beneficial effect for the water environment, through reducing waste facilities such as landfill can result in preventing water pollution to groundwater, rivers and coastal environments due to surface water runoff and leeching. No direct link between these actions and flood risk management has been identified.
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• To promote proximity of facilities to local settlements and sustainable transport modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation	✓	The actions could generate positive indirect effects in relation to air quality by encouraging a minimisation of emissions to air mainly due to a reduction in waste going to landfill, a reduction in use of transport (for example to landfill sites) and in reprocessing.

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary
	of materials to and from facilities; • To minimise adverse impacts to noise levels within communities, to ; • To minimise odours arising from waste processing and its impact upon local communities.		Similarly, these actions may have an overall positive effect on noise levels within communities given an overall reduction in noise related to transport and waste treatment. It is assumed that, as a result of a reduction in residual waste requiring treatment due to waste prevention, there will be a reduction in odours arising from waste storage and processing and landfill. This particularly applies to food waste.
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement strategy/objectives; • To promote the efficient use of on site renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.	✓	Encouraging consideration of materials and waste throughout the product life cycle and through eco-innovation will reduce GHG emissions through considerations such as transportation, embodied carbon, energy use and energy sources.
Health To protect and enhance the health and well-being of communities	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste; • To provide opportunities for those with health issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries	✓	The reduction of residual waste requiring treatment as a result of these actions should help to provide a safe and healthy working environment for waste management in public sector organisations. For example, there will be a reduction in air and noise pollution, odours and hazardous materials associated with the management of waste. Reducing the production of food waste or hazardous waste on site and at end of life is also likely to prevent exposure of members of the public and staff to hazards as a result of the nature of the material. Raising awareness on food waste, may also have indirect

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary
			benefits for health, for example in relation to portion size, attractive food combinations and observing mealtimes.
Civic engagement To increase civic engagement in sustainable waste practice	• To raise awareness and understanding of sustainable waste strategy, objectives and management • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and the poor. • To increase accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.	✓	The actions should help public sector organisations make the right purchasing decisions to avoid waste. They should encourage waste minimisation through the supply chain. In order to maximise the benefits of waste prevention and maintain equality through procurement, engagement of organisations such as SME's and the voluntary sector throughout the process is important. Additional guidance through Value Wales and other actions recommended in the Sector Plan to explore service provision opportunities and review and overcome perceived barrier to procurement, would help to enable access by all organisations.

Summary

The actions are considered to have a strong positive effect in relation to waste management objectives as they actively encourage waste minimisation through the supply chain. The Public Sector is both a major purchaser of goods and services and producer of 190,000 tonnes of waste per annum[1]. The Carbon Footprint (expressed in CO^2 equivalent emissions) dominates the Ecological Footprint and is estimated to total around 4.8 million tonnes(CO_2e) [2]. 72% percent of the carbon footprint of the public sector in Wales arises through the consumption of products and services. Waste minimisation is also likely to have

[1] Wales Public Sector Waste Production Survey, Welsh Assemble Government, November 2009
2 Ecological Footprint impact of the Welsh Waste Strategy Study Report, Arup, January 2009

Actions for Waste Prevention:

- Promote eco-design
- Green Public Procurement and other procurement processes
- Avoid food waste production

Objective	Sub-objectives	Score	Commentary

economic benefits for the public sector reducing costs for products, food and transportation.

There are likely to be benefits to waste infrastructure. The actions encourage the development of green technologies and potentially improved job opportunities through procurement of services rather than products. There would be a reduced requirement for facilities and transportation for waste processing and disposal, reducing the requirement (and associated impacts) for waste infrastructure.

Waste prevention actions have indirect benefits positive effect on objectives relating to landscape/biodiversity/cultural heritage, soil, water, air quality/noise/odour and health. This is due to reducing impacts arising from land-take, use of natural resources and requirement for waste processing and disposal.

In order to ensure that specifying waste minimisation through procurement does not isolate some companies or make it difficult for them to compete, other actions within the public sector plan/ TZW Plans provide guidance and help to organisations in different sectors could include :

- Investigate potential for waste prevention through reuse in the public sector –Welsh Government will continue discussions with the social enterprise sector and with local government to further explore how the establishment of more extensive reuse and repair networks can be encouraged and supported.
- Public sector procurement strategies incorporate mandatory targets on recycled content and conservation of natural resources - A key role for public sector bodies is to use their purchasing power to create a demand for recycled content materials and products to support the infrastructure development activities defined in the CIMS plan. The public sector can help cultivate cross chain collaborative working with suppliers by establishing clear product specifications / guidelines for suppliers and meeting procurement standards.

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste management.	✓✓	These actions aim to extend awareness of recycling activities, which may be undertaken at home (e.g. separation of waste for recycling, composting of food waste) to public sector workplace and sites used by the public. Actions will encourage greater provision of waste facilities on site, including recycling facilities for food, paper and card, plastic and metal drinks cans. Delivering high quality recycling can also make significant reductions in the Ecological Footprint of waste for the different sectors. In particular, the closed loop recycling of quality materials from all waste streams, will increase self sufficiency in waste management since they will ensure that the value of recylates is retained in Wales.
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and capitalise upon opportunities arising from this	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering;	✓/×	Increased segregation and recycling of waste on site, including composting of food waste, may require innovative design and solutions, particularly where space is limited.. As recycling of waste is encouraged, there may be a requirement to manage less residual waste which in turn may result in a reduction in the number of jobs within this sector, should staff affected not be redeployed. This would be a negative effect in relation to local employment opportunities. Potential mitigation measures could include training and upskilling in the use of new tools and staff to be redeployed. Activities to support local industries to utilise the resulting recycling waste streams could also mitigate any negative

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary
	• To support existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-typing; • To provide cost-effective and reliable sustainable waste management.		economic impacts by enabling businesses to diversify. In 2007 a waste survey of the public sector[3] estimated that based on an average composition of commercial waste, a maximum of 49,800 tonnes of paper and cardboard, metal, food waste, plastic and wood could be diverted from landfill if effectively separated (assuming 100 per cent capture). This is 82 per cent of the general mixed municipal waste reportedly sent to landfill by the public sector per annum. Recycling of all materials means that waste is providing a resource. For example, recycled waste is a material in a range of products and food is a fuel in anaerobic digestion. There are indirect economic benefits arising from these actions. Activities to support industries to recycle those waste streams collected will ensure these benefits are maximised.
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens;	✓/×	The actions could have indirect long-term beneficial effects on the natural and historic environment. Recycling helps conserve limited resources and reduce land-take for disposal. This reduces loss of habitats and changes to the landscape. In addition, reducing the type and volume of waste to landfill, including organic and hazardous waste from the public sector, should also avoid adverse effects in relation to contamination of flora, fauna and habitats. There are indirect effects from increased provision of recycling facilities on requirements for collection and treatment infrastructure. This may have negative effects on

[3] The Public Sector Waste Minimisation Campaign 2007

Actions for Waste Recycling • Supporting industry use of collected waste streams • Collaborative behaviour change • Recycling on the go			
Objective	**Sub-objectives**	**Score**	**Commentary**
	• To protect the character and visual identity of landscapes and townscapes, including cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.		landscape, historical resource and biodiversity. Potential mitigation measures could include the promotion of sustainable and safe/healthy location of new collection and recycling facilities. These impacts would require further consideration and assessment at project level.
Soil To protect and enhance soil resources	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and flood attenuation. • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the quality of Welsh soils.	✓/×	The actions should have indirect long term beneficial effects on the soil environment. Encouraging recycling will reduce land-take for landfill, and natural resources, e.g. tree growth for virgin paper production. In addition, reducing the volume of waste going to landfill will avoid generation of landfill gas and leachate and therefore minimise the risk of soil contamination, helping to maintain natural soil functioning and associated ecosystem services. The collection and treatment infrastructure for recycling could generate negative effects on soil resources. The location of recycling infrastructure could produce adverse effects in terms of local impacts on soils and ecosystems. Potential mitigation measures could include the promotion of sustainable and safe/healthy location of new collection and recycling facilities. These impacts would require further consideration and assessment at project level. There would also be positive effects on soils from an increase in composting organic waste on-site, and its use on public sector sites.

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary
Water To protect and promote the sustainable use of water resources	• To promote sustainable flood risk management; • To protect and enhance water quality and quantity in inland, coastal and maritime environments.	✓/×	The actions should have indirect long-term beneficial effects on the water environment. Reducing the requirement for new landfill facilities would reduce water pollution to groundwater, rivers and coastal environments. The collection and treatment infrastructure for recycling could generate negative effects on water resources and flood risk. Potential mitigation measures could include consideration of the location and design of recycling facilities to avoid pollution of water resources and increasing flood risk.
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• To promote proximity of facilities to local settlements and sustainable transport modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation of materials to and from facilities; • To minimise adverse impacts to noise levels within communities, to ; • To minimise odours arising from waste processing and its impact upon local communities.	✓/×	The action could generate indirect long-term positive indirect effects in relation to reducing emissions to air caused by landfill, e.g. emission of methane from organic waste decomposition and a possible reduction in use of transport. However, these benefits may be offset by some increase in emissions as a result of increased transport associated with recycled waste. Waste collection services should minimise transportation journey times and distances. The actions may have indirect negative effects due to increased noise associated with collections and provision of extended or new recycling facilities, for treatment of recycled waste. These would be mitigated by consideration of the location of facilities at the project level. In order to minimise any impacts arising from odour from on-site food waste (e.g. composting), the location of composting sites on public sector premises will also need to be considered.

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement strategy/objectives; • To promote the efficient use of onsite renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.	✓/ ×	Promoting the recycling of public sector waste will reduce greenhouse gas emissions including methane and transport to landfill as described above. Some energy is used in the recycling processes, including transportation. Segregation and collection of food waste that isn't composted on site enables more energy to be produced from anaerobic digestion.
Health To protect and enhance the health and well-being of communities	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste; • To provide opportunities for those with health issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries	✓/ ×	By promoting the recycling of waste, the actions have the potential to provide a safer and healthier working environment by providing alternatives to storing waste for disposal on site (and associated odour, hazards). However, to ensure that there are no negative effects in relation to health and safety (e.g. from location of on the go recycling facilities, food storage and composting) the location and design of facilities would need to considered. Guidance on provision of recycling facilities is one of the actions within the Public Sector Waste and Resource Efficiency Plan.
Civic engagement To increase civic engagement in sustainable waste practice	• To raise awareness and understanding of sustainable waste strategy, objectives and management • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and	✓	The provision of recycling facilities throughout public sector premises will enable access by all staff and public using these facilities. The public sector estate has the potential to be accessed by all members of society, including disadvantaged or minority groups so therefore has greater potential to change

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary
	the poor. • To increase accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.		behaviours outside the home. The actions therefore provide better facilities and opportunities for recycling for all members of the community.

Summary

The actions are considered to have a strong positive effect in relation to waste management objectives to extend awareness of recycling activities, which may be undertaken at home (e.g. separation of waste for recycling, composting of food waste) or at public sector workplaces and sites used by the public. In 2007 a waste survey of the public sector estimated that based on an average composition of commercial waste, a maximum of 49,800 tonnes of paper and cardboard, metal, food waste, plastic and wood could be diverted from landfill if effectively separated (assuming 100 per cent capture). This is 82 per cent of the general mixed municipal waste reportedly sent to landfill by the public sector per annum. Recycling of all materials also means that waste is providing a resource either through providing a material to be used in products, or as a fuel (e.g. food waste in anaerobic digestion).

Actions will encourage greater provision of waste facilities on site, including recycling facilities for food, paper and card, plastic and metal drinks cans. As recycling of waste is encouraged, there may be a requirement to manage less residual waste which in turn may result in a reduction in the number of jobs within the sector, should staff affected not be redeployed.

Potential mitigation measures could include training and upskilling in the use of new tools and staff to be redeployed. Some employment opportunities could potentially be supported by the action in the longer term. Research[4] shows that implementing a 70% recycling rate by 2025 would potentially create new jobs in Wales in the order of:

4 More Jobs Less Waste' Friends of the Earth Report September 2010

Actions for Waste Recycling

- Supporting industry use of collected waste streams
- Collaborative behaviour change
- Recycling on the go

Objective	Sub-objectives	Score	Commentary

- 3,600 new jobs across municipal, commercial and industrial (including construction and demolition) sectors
- 2,600 new jobs in the municipal sector alone.

There are also mixed positive and negative indirect effects on landscape, biodiversity and cultural heritage, soil, air quality, noise and odour, and climate change. A reduction in landfill reduces land-take for disposal, use of natural resources and transportation and therefore has positive impacts on these objectives. However, increased requirement for transportation and recycling facilities could also have negative impacts on these objectives.

The provision of recycling facilities throughout public sector premises would enable greater community engagement in recycling as there is access for all staff and public using these facilities.

One of the proposed key activities in the Public Sector Waste and Resource Efficiency Plan looks at updating guidance[5] for the Public Sector to encourage behavioural / attitude change to enable waste minimisation / prevention to be given a higher priority.

The following mitigation and enhancement measures could be considered by Welsh Government when developing the final version of the plan:

- Include a commitment to retrain and upskill staff affected by reduction in residual waste e.g. in the use of new tools and alternative waste treatment technologies/processes such as the operation of recycling and reuse stations.
- Promoting the sustainable and safe/healthy location of new recycling facilities. This includes avoiding areas at flood risk.
- Consideration of waste collection services to minimise any additional transportation requirements, for example collection locations and schedules.

Actions for Waste Recovery and Disposal:

- Energy recovery from waste

Objective	Sub-objectives	Score	Commentary

[5] Wales Public Sector Sustainable Waste Management Guidance Manual 2003, part of the Public Sector Waste Minimisation Campaign

PARSONS BRINCKERHOFF

Actions for Waste Recovery and Disposal: • Energy recovery from waste			
Objective	**Sub-objectives**	**Score**	**Commentary**
Waste Management To increase sustainable waste management and reduce Wales' ecological footprint	• To raise awareness and understanding of sustainable waste reduction and management and encourage resource efficiency and sustainable consumption; • To increase infrastructural capacity and facilities for sustainable waste management; • To encourage behavioural change and participation amongst household, commercial and industrial operators; • To contribute to the reduction/ minimisation of Wales' Ecological Footprint and progress self-sufficiency in waste management.	✓	The action will reduce the amount of residual waste going to landfill and reduce the need of new disposal facilities by diverting the waste for energy recovery. Therefore this action will have a positive effect increasing infrastructural capacity and facilities for sustainable waste management.
Waste Infrastructure To increase the infrastructure and facilities for sustainable waste management and the capacity of people to create and capitalise upon opportunities arising from this	• To promote markets for recyclates and recycled goods; • To encourage the development and deployment of alternative waste technologies and R&D; • To encourage sustainable design of waste infrastructure and promote the development of the green technologies sector and sustainable procurement; • To promote equality of opportunity and access to local employment, training and upskilling and volunteering; • To support existing and develop new social enterprises focusing on waste as a community resource; • To promote equality and opportunity to access waste management facilities to prevent instances of fly-typing; • To provide cost-effective and reliable	✓✓	The action will ensure the creation of heat and incinerator bottom ash (IBA) reprocessing markets, new enterprises and economic development, and encourage investments for co-locating energy recovery facilities to utilise synergies. They will also encourage R&D in finding new alternatives to the disposal of IBA and compost-like output (CLO). The action will encourage the development of cost-effective and reliable sustainable residual waste management. The action will also have a positive effect on employment generation in markets of energy from waste (EfW) and heat. The action present an opportunity to provide waste management facilities to ensure equality access in those areas lacking of waste management facilities. This could also have an indirect effect on reducing the number of fly-tipping events.

Actions for Waste Recovery and Disposal:

- Energy recovery from waste

Objective	Sub-objectives	Score	Commentary
	sustainable waste management.		
Landscape, biodiversity and cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	• To protect designated landscapes: environmental, cultural and historic; • To protect and enhance biodiversity, geodiversity, flora and fauna including biodiversity and ecological services and connectivity; • To protect designated and undesignated historic assets and their settings, including listed buildings, scheduled ancient monuments, and historic parks and gardens; • To protect the character and visual identity of landscapes and townscapes, including cultural and historic landscapes; • To promote the use of brownfield land use; • To ensure the provision of recycling facilities in all new developments and improve capacity in existing built infrastructure; • To remediate contaminated land.	✓/ ×	The action will have an indirect positive effect on biodiversity generated by a reduction in the need of raw materials waste to generate energy and heat. A reduction of the amount of residual waste going to landfill, and therefore the need for disposal facilities that could potentially affect adversely on landscape, biodiversity and cultural heritage sites of importance will also have a positive effect. Conversely, the creation of new EfW facilities could also have a negative visual effect on local communities, and a potential effect on local biodiversity.
Soil To protect and enhance soil resources	• To protect natural soil functions and ecosystems, preserving ecosystem services such as nutrient cycling, carbon storage and flood attenuation. • To protect against contamination to soil; • To conserve and treat source segregated organic waste for improving the quality of Welsh soils.	✓/ ×	This action will generate a long-term positive indirect effect on soil resources. A reduction in the amount of waste going to landfill is likely to minimise the risk of soil contamination from this source. Conversely, the creation of new EfW facilities could also have a negative effect on soil resources.
Water To protect and promote the sustainable use of water resources	• To promote sustainable flood risk management; • To protect and enhance water quality and quantity in inland, coastal and maritime	✓/ ×	This action will generate a long-term positive indirect effect on water resources. A reduction in the amount of waste going to landfill is likely to minimise the risk of water

Actions for Waste Recovery and Disposal:

- Energy recovery from waste

Objective	Sub-objectives	Score	Commentary
	environments.		contamination from this source. Conversely, the creation of new EfW facilities could also have a negative effect on water resources.
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• To promote proximity of facilities to local settlements and sustainable transport modes/practices to serve such facilities with preferences given to walking and cycling; • To minimise adverse impacts to air quality arising directly from facilities or transportation of materials to and from facilities; • To minimise adverse impacts to noise levels within communities, to ; • To minimise odours arising from waste processing and its impact upon local communities.	✓/ ×	The action will have an indirect positive effect on air quality and noise generated by a reduction in the transportation of raw materials to generate energy and heat. Conversely, the creation of new EfW facilities could also have a negative effect on local air quality and public nuisance in terms of noise and odours, although this would be managed through compliance with emissions limits and sensitive siting.
Climate change To assist with Wales' capacity to adapt to and mitigate against climatic change	• To reduce GHG emissions; • To contribute to national, regional and local level carbon abatement strategy/objectives; • To promote the efficient use of on site renewable energy and energy from waste where appropriate; • To be adaptable to predicted climate change effects including fluvial and maritime flooding and extreme weather effects.	✓✓	This action will have a long-term positive effect on climate change by helping businesses to adapt to climate change. This will involve considering issues such as the location of new recovery and EfW sites (e.g. avoiding areas of 'managed realignment' along the Welsh coastline) and capacity to cope with changes in waste composition. EfW facilities can be designed to provide low carbon power (electricity) and/or heat and linked to district heating networks. In the long term, this will reduce the greenhouse has (GHG) emissions of current waste management operations in Wales.
Health To protect and enhance the health and well-being of communities	• To provide safe, secure, mechanisms for civic engagement; • To prevent the exposure of members of the public to hazards, noise and odour arising from waste;	✓	This action will have a long-term positive effect on employment through the promotion and creation of new facilities (e.g. EfW, combined heat and power (CHP), IBA reprocessing) and services associated with collections and

Actions for Waste Recovery and Disposal:

- Energy recovery from waste

Objective	Sub-objectives	Score	Commentary
	• To provide opportunities for those with health issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries		R&D activities. The action presents the opportunity to provide affordable secure and sustainable energy through district heat networks.
Civic engagement To increase civic engagement in sustainable waste practice	• To raise awareness and understanding of sustainable waste strategy, objectives and management • To increase participation in more sustainable waste practice for all members of society, including socially disadvantaged groups and the poor. • To increase accessibility to sustainable waste facilities and infrastructure and tackle physical and social barriers to engagement • To support and provide opportunities for volunteering in the waste and recycling industries; • To ensure all promotional literature is published in Welsh as well as English where appropriate; • To provide community facilities including visitor and educational centres.	0	There are no effects identified for this action on health objectives. Welsh Government will engage with key partners, especially those with an environmental permitting and human health responsibility, educational centres and the media to promote facilities for use/treatment of residual waste.

Summary

This action would have a positive effect on the waste management objective by reducing the amount of residual waste going to landfill Recovering energy from waste also benefits other objectives, particularly those of waste infrastructure and climate change, by facilitating the creation of new facilities, and reducing the need for raw materials to generate energy and heat. Residual waste has a value as a fuel, which is otherwise lost when sent to landfill.
Reducing the need to send residual waste to landfill, and therefore reducing the requirement for landfill facilities, will have a positive impact on landscape, biodiversity, and sensitive cultural heritage sites. With less landfill there is also a reduced risk of soil and water contamination.

Actions for Waste Recovery and Disposal: • Energy recovery from waste			
Objective	**Sub-objectives**	**Score**	**Commentary**
In order to maximise benefits, other key activities within the Public Sector Waste and Resource Efficiency Plan raise awareness of the waste hierarchy to enable waste prevention, waste reduction and high quality recycling.			

Appendix D – Health Impact Assessment of the Public Sector Waste and Resource Efficiency Plan

PARSONS BRINCKERHOFF

Public Sector Waste and Resource Efficiency Plan – Appendix D, Health Impact Assessment

NB: Non-mandatory actions within the Public Sector Waste and Resource Efficiency Plan were assessed as being optional and, as such, their outcome is not confirmed. These are indicated by 'Uncertain Impact' in the Health Impact column of table below.

Actions	Description	Health Impact	Recommendation	Evidence
Overarching Actions				
Compliance with Wales Procurement Policy (WPP)	Public sector organisations should assure themselves that they are complaint with the Wales Procurement Policy Statement and are adopting more detailed guidance and tools referred to in the document and Value Wales' web-based Procurement Route Planner.	Positive health impact upon economy and employment through increased resourcing of sustainable materials sourced from Wales and the UK. Positive health impact upon economy and employment through the creation of new domestic sustainable products markets.	Opportunity to specify benefit of offering sustainable products to local SMEs. Assist local SME's to identify sustainable label materials and source them easily At present, public sector purchasers have only a limited amount of information to determine the ethical credentials of the products that they buy. However, this is costly and time consuming. Further steps need to be taken to allow for the ethical trade / procurement of products to be developed further. [2]	http://www.uniformreuse.co.uk/pdf/product_labelling_for_eol_management.pdf (Page 18) Existing labeling standards ISO 14020, ISO 14021, ISO 14024, Sustainable supply network management techniques (Young and Kielkiewicz-Young (2001))
Encourage all public sector organisations to sign up to procurement frameworks for commonly procured	Implement the business case to establish a National Procurement Service for common and repetitive spend and deliver the projected benefits;	Unknown Impact		
	Continue to increase adoption and utilisation of e-procurement – by moving the 'xchangewales'	Unknown Impact		

Actions	Description	Health Impact	Recommendation	Evidence
items, which will embed sustainability as underlying principle	programme into a national e-procurement service;			
	Embed the Wales Procurement Policy to simplify and standardise procurement practice and realise social and economic benefits; and	Positive health impact upon economy and employment through increased resourcing of sustainable materials sourced from Wales and the UK. Positive health impact upon economy and employment through the creation of new domestic sustainable products markets.	Opportunity to specify benefit of offering sustainable products to local SMEs. Assist local SME's to identify sustainable label materials and source them easily At present, public sector purchasers have only a limited amount of information to determine the ethical credentials of the products that they buy. However, this is costly and time consuming. Further steps need to be taken to allow for the ethical trade / procurement of products to be developed further. [2]	http://www.uniformreuse.co.uk/pdf/product_labelling_for_eol_management.pdf (Page 18) Existing labeling standards ISO 14020, ISO 14021, ISO 14024, Sustainable supply network management techniques (Young and Kielkiewicz-Young (2001))
	Develop organisational procurement capability through the instigation of a Procurement Fitness Check programme.	Unknown Impact		
Provision of assistance to public sector organisations in Wales to help embed sustainable public procurement strategies	Transforming Procurement through Home-Grown Talent'1 project to be run by 'Value Wales' has secured £5.7m ESF Convergence Programme funding over 5 years project to improve procurement across public services in Wales. Project will raise procurement skills and capability across public services, including training of a cohort of procurement leaders of the	Positive health impact upon economy and employment through increased resourcing of sustainable materials sourced from Wales and the UK. Positive health impact upon economy and employment through the creation of new domestic sustainable products markets.	Opportunity to specify benefit of offering sustainable products to local SMEs. Assist local SME's to identify sustainably labeled materials and source them easily	http://www.uniformreuse.co.uk/pdf/product_labelling_for_eol_management.pdf (Page 18) Existing labeling standards ISO 14020, ISO 14021, ISO 14024,

[1] http://wales.gov.uk/topics/improvingservices/bettervfm/procskills/?lang=en

Actions	Description	Health Impact	Recommendation	Evidence
	future.		At present, public sector purchasers have only a limited amount of information to determine the ethical credentials of the products that they buy. However, this is costly and time consuming. Further steps need to be taken to allow for the ethical trade / procurement of products to be developed further. [2]	Sustainable supply network management techniques (Young and Kielkiewicz-Young (2001))
	Value Wales competency framework and associated training modules to be rolled out to all public sector organisations who will then undertake a skills / training needs analysis for their procurement staff with emphasis on sustainability.	Positive health impact upon economy and employment through increased resourcing of sustainable materials sourced from Wales and the UK. Positive health impact upon economy and employment through the creation of new domestic sustainable products markets.	Opportunity to specify benefit of offering sustainable products to local SMEs. Assist local SME's to identify sustainably labeled materials and source them easily At present, public sector purchasers have only a limited amount of information to determine the ethical credentials of the products that they buy. However, this is costly and time consuming. Further steps need to be taken to allow for the ethical trade / procurement of products to be developed further. [2]	http://www.uniformreuse.co.uk/pdf/product_labelling_for_eol_management.pdf (Page 18) Existing labeling standards ISO 14020, ISO 14021, ISO 14024, Sustainable supply network management techniques (Young and Kielkiewicz-Young (2001))
	Value Wales 3 year programme of Procurement	Unknown Impact		

Actions	Description	Health Impact	Recommendation	Evidence
	Fitness Checks. Assessments of procurement processes and policies.			
Engage with food / catering goods and services providers	Public Sector are required, as per Wales Procurement Policy Statement, to use the outcome based specifications Supplier Qualification Information Database (SQuID) to support and achieve food waste prevention	Unknown Impact		
	Public sector organisations to sign up to WRAP's Hospitality and Food Service (HaFS) Sector Agreement2 to ask their suppliers how waste prevention targets will be achieved.	Unknown Impact		
Environment Bill proposals on additional requirements for separate collection, discouraging sewer disposal of food waste and energy from waste/ landfill bans for recyclable biodegradable waste	These proposals included options to increase the recycling and recovery of waste. They propose to give the Welsh Ministers the power to: • Place a duty on non-domestic waste producers to segregate specified waste materials for collection (paper, card, plastic, glass, metal, food and wood); • Require waste collectors to collect waste food, wood and card by means of separate collection, in addition to those already required to be collected separately under the Waste (England and Wales) Regulations 2011 (as amended); • Ban specified materials (paper, card, plastic, glass, metal, food and wood) from landfill and Energy from Waste facilities; Ban the disposal of non-business food waste to sewer	Positive health impact on the environment. Potentially negative economic impact on SME' producers of non-domestic waste, with the burden of additional duty Positive health impact on the environment. Positive health impact on the environment through the anticipated reduction in landfill and potential contamination from disposal.	Additional support aimed at small and vulnerable companies as well as large waste producers could assist the early uptake to implement guidance principles. WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the	The Envirowise Savings Calculator (http://www.envirowise.gov.uk/savingscalculator) helps businesses realise how resource efficiency can save them considerable costs. http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html

[2] http://www.wrap.org.uk/content/hospitality-and-food-service-agreement-3

Actions	Description	Health Impact	Recommendation	Evidence
		Possible negative economic impact upon the economic sustainability of Energy from Waste facilities, through loss of feedstock. Positive health impact on the environment. Positive health impact on environment through indirect emissions reduction from waste disposal, e.g. air quality, odour, noise and dust. Positive health impact on social capital though the reduction of vermin, odour and bioaerosols arising from disposal of food waste.	amount of sent to landfill "record-setters"[5,6]	
Public sector organisations to implement accredited environmental management systems	All government funded public sector bodies achieve an accredited EMS by 2015 as a condition of funding and achievement reported annually	Positive impact upon social cohesion of work colleagues in delivering the waste minimisation message. Indirect positive health impact upon social capital and community cohesion from promoting sustainable practices throughout the workplace, having a larger benefit upon wider social cohesion and economy	Opportunity to generate employment/ occupational opportunities through new social enterprises based around reuse and reselling. Redeployment of jobs to take account of any losses in the waste disposal sector.	A strong correlation exists between health and well-being and employment.[1]
	All schools in Wales should aim to achieve the Eco-Schools Green Flag award, the international standard for their student led environmental program, within X years of becoming an Eco-School	Positive impact upon social cohesion of work colleagues in delivering the waste minimisation message. Indirect positive health impact upon social capital and community cohesion through highlighting sustainable practices within educational institutions, having a larger benefit upon wider social cohesion and economy	Opportunity to establish sustainable practices as the norm amongst pupils and students.	Young children can be powerful agents of change within the home. Women appear to do most of the household chores they are, by default, the ones who throw most away including whether and how recycling is done3.
	All higher and further education establishments in Wales should aim to achieve or be working	Positive impact upon social cohesion of work colleagues in delivering the waste	Opportunity to establish sustainable practices as	

Actions	Description	Health Impact	Recommendation	Evidence
	towards a Silver EcoCampus award or equivalent EMS level by end of 2015	minimisation message. Indirect positive health impact upon social capital and community cohesion through educated workforce, education having a larger benefit upon wider social cohesion and economy	the norm amongst pupils and students	
Well-Being of Future Generations (Wales) Act	The act strengthens existing governance arrangements for improving the well-being of Wales to ensure that present needs are met without compromising the ability of future generations to meet their own needs. The act: - identifies goals to improve the well-being of Wales - introduces national indicators, that will measure the difference being made to the well-being of Wales - establishes a Future Generations Commissioner for Wales to act as an advocate for future generations - puts local service boards and well-being plans on a statutory basis and simplifies requirements for integrated community planning.			
Waste Prevention (including reuse)				
Encourage manufacturers and retailers to eco-design, produce and sell products that are easily repairable and upgradeable.	Enhance eco-design by changing the way that products are designed reducing the amount and type of material in products; improve longevity; and design for reuse, separation and recycling.	Positive health impact on social capital and community cohesion and environment through the anticipated increase in recycling rates and the reduction in movement of HGV waste vehicles	WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the amount of construction, demolition and excavation waste sent to landfill.	http://www.cewales.org.uk/waste/tips-to-reduce-waste/

Actions	Description	Health Impact	Recommendation	Evidence
Using public sector contracts to encourage waste prevention through the Green Public Procurement Process.	Use of the 'whole life costing' approach to procurement, making procurement move away from traditional "take, make, dispose" industrial process, adopting a more "cradle to cradle" approach.	Positive impact on employment and economy through the promotion of new employment opportunities in the recycling and waste sectors.	Increase scoring on publically fund projects for reducing waste and using recycled materials.[3,4] Create new opportunities for knowledge sharing between BREEAM and CEEQUAL practitioners.	The use of social pressure on individuals to encourage collective community behaviour had been demonstrated as practically viable[2].
Packaging waste reduction	Welsh Government to explore need for additional guidance for the public sector regarding supplier waste prevention including reducing packaging volumes through minimising delivery packaging; encouraging packaging take-back schemes, employ re-usable transit packaging.	Unknown Impact		
	Public sector to specify increase in recyclability of products and packaging, and increase use of recycled content	Positive health impact on social capital and community cohesion and environment through the anticipated increase in recycling rates and the reduction in movement of HGV waste vehicles	WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the amount of construction, demolition and excavation waste sent to landfill.	http://www.cewales.org.uk/waste/tips-to-reduce-waste/
Implementation of sustainable waste management practices through waste prevention and reuse throughout the Welsh Government Estate.	Use service based procurement rather than product or activity based procurement such as long-term hire and leasing of products to drive a longer term approach to product durability, with longer service life, lower maintenance load and lower use of materials and CO2.	Positive impact on employment and economy through the promotion of sustainable employment opportunities . Positive environmental benefits through reduced potential contamination from disposal.	Create new opportunities for knowledge sharing between BREEAM and CEEQUAL practitioners.	
	Eliminate end-of-useful-life environmental concerns leading to a reduction in disposal of	Positive impact on employment and economy through the promotion of	Create new opportunities for knowledge sharing	

[3] http://www.constructingexcellence.org.uk/pdf/Wales/080304_CEEQUAL_presentation_North_Wales.pdf
[4] CEEQUAL Assessment Manual Projects in UK & Ireland (Page 72 – 91)

Actions	Description	Health Impact	Recommendation	Evidence
	contaminants.	sustainable employment opportunities . Positive health impact on the environment through the anticipated reduction in landfill and potential contamination from disposal.	between BREEAM and CEEQUAL practitioners. WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the amount of sent to landfill "record-setters"[5.6]	http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Avoid food waste production	All public sector organisations offering food provision services (through both internal catering staff and external catering contractors) carry out a review of levels of food waste production at their premises; identify the main reasons for the wastage, and set out an action plan for improving systems and processes. The action plan should set out food waste reduction targets and a monitoring program.	Positive health impact upon social capital through reduced waste disposal. Positive health impact upon environment from reduced emissions from waste disposal activities, e.g. waste vehicle emissions, noise.	Opportunity to draw links between waste minimization and an improvement to environmental quality.	Waste minimisation reduces potential waste processing facilities emissions to the environment, incineration/ landfill. Recycling/ reusing products reduces the emissions to the environment which occur when new replacement products are manufactured.
Recycling				
Ensure that waste streams are kept separate and clean at source to allow them to be collected separately and recycled to a high quality.	All public sector Organisations to ensure that waste management activities support the objectives set out in Towards Zero Waste in that waste streams are kept separate and clean at source to enable the collection of high quality recyclate. (Through specifications with third party contractors and procurement initiatives and internal waste management best practice)	Unknown Impact	Welsh Government to work with WRAP to provide Public Sector Sustainable Waste Management Guidance to include advice on how to meet the requirements of the proposed duty.	

[5] http://www.ilsr.org/recycling/recordsetters/index.html
[6] http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_10-2-2009-10-36-36

Actions	Description	Health Impact	Recommendation	Evidence
Support the development of reprocessors, manufacturing companies and agricultural/horticultural industries that can use collected waste streams.	Welsh Government through WRAP to provide support to the reprocessing sector by ensuring that public sector provide high quality recyclate /waste streams for collection.	Unknown impact	Welsh Government to work with WRAP to provide Public Sector with sustainable waste/resource efficiency guidance	
Collaborative behaviour change in the public sector	Maximise the potential for active engagement of employees, users of services and suppliers through the provision of information and education and infrastructure – precipitating increased social cohesion.	Positive impact upon social cohesion of work colleagues in delivering the waste minimisation message. Positive health impact on environment through indirect emissions reduction from waste disposal, e.g. air quality, odour, noise and dust. Positive health impact on social capital though the reduction of vermin, odour and bioaerosols arising from disposal of food waste.	Opportunity for public sector to establish a resource management culture over a dominant disposal culture. Involve training of staff at all levels. Use the opportunity to establish links between sustainable behaviour and healthy eating7,8,10.	Deprived communities appear to consider recycling a peripheral issue in relation to the more immediate concerns facing them.6 Need to address that a greater proportion of young people on low income consume processed and packaged foods than other age or income groups. The most important influences on food choice reported by adults aged 19-49 years were the price or value of food and money available to purchase.
Work with other public bodies to encourage recycling on the go and implement reuse and recycle initiatives for	It is proposed that WRAP and the Waste Awareness Wales campaign work with public sector organisations to ensure that recycling on the go initiatives are developed across all public sector premises open to the public to facilitate consistent recycling and support the proposed	Positive impact upon social cohesion of work colleagues and visitors in delivering the waste minimisation message. Positive health impact on environment through indirect emissions reduction from waste disposal, e.g. air quality, odour,	Opportunity for public sector to establish a resource management culture over a dominant disposal culture. Involve training of staff at all	

Actions	Description	Health Impact	Recommendation	Evidence
the public sector.	behaviour change actions and the actions defined in the Collections Infrastructure and Markets Sector plan and the Food Manufacturing Services and Retail sector plan.	noise and dust. Positive health impact on social capital though the reduction of vermin, odour and bioaerosols arising from disposal of food waste.	levels.	
Other recovery & disposal				
Support high efficiency energy recovery of residual wastes that are not technically, environmentally or economically practical to prevent, reuse, recycle or otherwise recover.	Whilst there remains waste items that cannot practicably be prevented, reused or recycled it is better to recover energy (at a high efficiency) from that waste rather than landfill it. The Welsh Government will work with planning authorities to explore the possibilities to encourage the development of facilities which offer the best options for the utilisation of maximum heat recovery through the planned revision of TAN21 (Planning and Waste) and supplementary guidance. Under its Residual Waste Treatment Procurement Programme the Welsh Government provides funding support to local authority consortia. It is a condition of such funding, that: 1) where the solution chosen is an energy from waste 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 should operate or be capable of operating in combined heat and power mode.			
Measuring and monitoring progress				
	A sustainable development duty proposes to strengthen the governance framework for sustainable development through increased	Unknown Impact		

Actions	Description	Health Impact	Recommendation	Evidence
	accountability of public sector organisations. Public sector organisations will be obliged to demonstrate compliance in sustainable practices through existing reporting arrangements.			