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Towards Zero Waste
One Wales: One Planet

Draft Industrial and Commercial Sector Plan

Sustainability Appraisal

March 2013

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Industrial & Commercial 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 is in the process of developing an initial series of seven 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 I&C Sector 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 the I&C Plan actions have been screened and assessed and presents the findings of the assessments that make up the SA/SEA, HIA and HRA. The report also presents a consideration of two 'alternatives' to the proposed I&C Sector Plan.

This report considers as a starting point a revised version of the information provided on the SA/SEA, HIA and HRA conducted for TZW and the assessment of the Municipal Sector Plan Part 1 (MSP1) following the scoping report consultation responses. Comments received during the consultations on the CIM and FMSR sector plans which took place during Spring/Summer 2011 have also been considered in the preparation of this report.

This report is being issued for public consultation alongside the draft I&C Sector Plan. We welcome all your comments on the content of this 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 links between the draft I&C Sector Plan actions and other Sector Plans actions?
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward?

The I&C Sector Plan

The I&C Sector Plan provides a record of the proposed objectives, targets and actions for commercial and industrial sectors in Wales. When finalised following consultation, it 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. It will focus on;

- the wastes produced directly by the sectors (with a focus on waste prevention, and segregation at source ready for separate collection of recyclate),

- the products produced by the sectors (as these need to generate less waste at end of life, they need to be more recyclable, they need to have a higher recycled content, and the producer needs to take more extended responsibility for its management at end of life).
- the mechanisms by which the above sectors can facilitate a reduction in the waste that they generate by focusing on the products produced by the respective sectors.

Consideration of Reasonable Alternatives

Two alternative scenarios have been discussed with Welsh Government and considered as reasonable alternatives, a 'do minimum' and a 'do maximum' scenario.

Option 1 Do Minimum Alternative (TZW / 'Business as Usual' scenario). This is the 'no plan' alternative. It has been considered in terms of the sustainability effect of producing the I&C Sector Plan compared to not producing the I&C Sector Plan. This alternative includes minimum actions required to meet the objectives and targets of TZW and current legislation/policy.

Option 2 (Preferred Option) Best Practice – The draft I&C Sector Plan. This option is considered a medium level intervention. It assumes the adoption of best practice measures currently available and the behaviours needed to ensure that the TZW requirements are met within timeframe.

Option 3 Do Maximum Alternative (Beyond Best Practice) – This option is considered a high level intervention. It 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.

Option 2 is the preferred option for the development of the draft I&C Sector Plan and that will be adopted subject to the outcome of the SA.

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*".

The SA/SEA follows on from 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. In line with the findings of this review, a revised sustainability framework was adopted to assess the sustainability of the I&C Sector Plan actions.

A HRA and HIA were carried out in parallel to the SA/SEA process and the main findings have been covered in this report.

The Sector Plan SA Approach

The SA approach adopted comprises the following steps:

Compatibility test of the Sector Plan Objectives against the SA Objectives

A matrix was produced to assess whether the objective(s) of the I&C Sector Plan are broadly compatible or not compatible with SA objectives, or whether there was uncertainty over compatibility or no relationship between the objectives.

Screening of Actions to identify actions for inclusion in the SA
A screening of actions 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 I&C Sector 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.

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 I&C Sector Plan is likely to have significant effects upon Natura 2000 sites.

Through the HRA screening, it has not been possible to categorically demonstrate that I&C Sector 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

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

The purpose of an HIA is to identify and assess both the beneficial and detrimental effects of the draft I&C Sector Plan on human health. The HIA recommends aims to enhance the benefits whilst minimising its potential detrimental effects of the plan.

A number of potential opportunities and barriers to health and well-being were identified through the HIA of the I&C Sector Plan have been identified. These are listed below:

- The Industrial & Commercial Sector Plan focuses on the key role that the sector plays in reducing key waste streams both produced from their own premises and generated further along the chain by the public. The plan focuses on waste prevention and segregation at source of both waste and products produced by the sectors.

- The principal actions within the Industrial & Commercial Sector Plan were assessed for their Health Impacts. This included measures to encourage reuse before recycling or disposal, correct storage and segregation of waste allowing reuse, introducing closed loop resource management approach and the promotion of anaerobic digestion as a primary reuse of food waste.

- The actions included market studies and incentives as well as reshaping measures. These measures seek to encourage and prepare businesses within the I&C sector to address issues related to restructuring their waste systems for reduction, separation and specific reuse.

- All positive health impacts resulting from assessment of the Industrial & Commercial Sector Plan were confined to those actions which involved a proactive measure, for example the Welsh Government measure to ban biodegradable waste and priority materials (wood, plastic, metals etc) to landfill.

- Actions within the Industrial & Commercial Sector Plan which were either passive or non-specific were assessed as being either no action or uncertain and therefore their outcome could not be confirmed. This includes actions regarding consultation on restrictions of landfilling certain wastes, which looked at measures to be considered in the future. Such passive or non-specific actions were therefore assessed as having no health impact.

- The waste sector is known as a hazardous industry for manual or semi-skilled staff, therefore where the Industrial & Commercial Sector Plan generates new jobs opportunities, there was a slight negative health impact from potential work incidents. This risk needs to be addressed and mitigated against, through management measures and training. However it must not be overlooked that new employment opportunities provide a clear potential positive heath impact on economy and employment.

Sustainability Appraisal Findings

Assessment of Actions

No significant adverse effects have been anticipated in the assessment of the I&C Sector Plan actions. If proposed mitigation and enhancement measures are incorporated in the draft I&C Sector Plan, it is expected that the implementation of the I&C Sector Plan will have an overall positive effect.

Description of Cumulative Effects

The cumulative effects on the waste management and waste infrastructure SA objectives are likely to be significantly positive when considered together with the other 6 sector plans to support 'Towards Zero Waste' (TZW) and other waste plans in England and Wales. This is generally due to the commitments from national, regional and local government to reduce the amount of waste being sent to landfill through initiatives such as those set out in the draft I&C Sector Plan.

The cumulative effects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change SA objectives are likely to be (on balance) positive at a strategic level. This is due to the combined effects of the draft I&C Sector Plan and other waste plans and programmes in optimising materials use and in reducing reliance on landfill/residual treatment. There is however some potential for local cumulative adverse effects depending on the physical developments which may lead from the actions set out in the draft I&C Sector Plan with other developments on the ground. The potential cumulative effects of such developments should be considered at local level through the planning application process.

The cumulative effects of the draft I&C Sector Plan with other plans, programmes and projects on the health SA objective are difficult to predict. At a strategic level, it is more likely that cumulative health effects will be positive.

The I&C Sector Plan contains actions linked to other TZW Sector Plans, such as the CIM and FMSR Sector Plans as well as the Waste Prevention Programme. The positive effects of those plans can enhance positive effects and offset potential adverse effects generated by the I&C Sector Plan.

Assessment of Alternatives

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).

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 than Option 2 which will guarantee meeting the TZW objectives within the timeframe; and
- Option 3 would be a slightly more beneficial option compared to Option 2. However, Option 3 would be more expensive to implement. It provides an insight into the maximum potential of the plan to achieve even better targets in a shorter timeframe, Better targets would be achieved through the availability of highest financial and resource investment, mandatory targets and eco-design to priority and other sectors, mandatory targets for resource efficiency and waste reduction through permits, and employment of business advisors to provide one to one support.

The assessment also indicates that:

- No significant differences between Options 1 and 2 have been identified for meeting the landscape, biodiversity and cultural heritage , soil, water, air quality, noise and odour, climate change, health and civic engagement objectives. Option 3 is likely to have more positive effects on these objectives than the other two options. Actions such as highest financial and resource investment, mandatory targets and environmental standards and support of full programme of business efficiency will enhance the positive effects of the other two Options within a shorter timeframe.

Monitoring

Welsh Government will be responsible for the implementation of a monitoring strategy for the I&C Sector Plan. Monitoring involves measuring indicators which establish a link between implementation of the I&C Sector 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 I&C Sector Plan can be effectively measured and monitored after its adoption.

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

Potential sources of information include data and statistics held by Welsh Government (StatsWales), Environment Agency Wales, 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

No significant adverse effects have been anticipated in the assessment of the I&C Sector Plan. Provided that proposed mitigation and enhancement measures are incorporated in the draft I&C Sector Plan, it is expected that the implementation of the Plan will have a strong positive effect on waste infrastructure and a positive effect (on balance) on all other objectives.

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 I&C Sector 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 links between the draft I&C Sector Plan actions and other Sector Plans actions?
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward
- Are there any other monitoring indicators that could be used to monitor the sustainability of the I&C Sector Plan?

Other steps

The consultation comments will be reviewed and the I&C Sector Plan will be amended accordingly.

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

The consultation period will run until 20 June 2013. 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:

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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 is in the process of developing sector plans to support TZW. The sector plans developed for each of the identified sectors shall 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 emerge, to 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 produced several of the TZW Sector Plans, including the Industrial and Commercial Sector Plan (hereafter referred to as the I&C Sector Plan). This document presents the results of the SA/SEA, HIA and HRA process undertaken for the I&C Sector 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 this case, the I&C Sector Plan is being considered. 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 (85/337/EEC). The I&C Sector 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 I&C Sector 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 I&C Sector 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 I&C Sector Plan.

Table 1.1: The I&C Sector Plan SA Process

SA/SEA Stage	The I&C Sector Plan SA
Stage A: Setting the context and objectives, establishing the baseline and deciding the scope	A Scoping Report for all TZW Sector Plans (including the I&C Sector Plan) was produced in September 2010. This Scoping report included the outcome of Policies, Plans and Programmes (PPPs) review undertaken for TZW SA and the MSP1 SA, and a review of other PPPs emerged after their preparation. It also included a summary of the baseline conditions described in the MSP1 SA. 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 and the MSP1 were reviewed and updated accordingly in this report in accordance with the outcomes of the additional PPPs and baseline conditions review and consultation responses. A review of the HIA and HRA conducted for TZW and the MSP1 was also undertaken.
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 I&C Sector Plan intends to consider and assess alternatives based on the Sector Plan 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 I&C Sector Plan

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

SA/SEA Stage	The I&C Sector Plan SA
	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 I&C Sector Plan. The approach followed was established in MSP1 and has been adopted for subsequent Plans, including the I&C Sector Plan to ensure consistency in throughout the SA process.
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 I&C Sector 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 I&C Sector 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 I&C Sector 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 I&C Sector Plan in view of the predicted environmental and socio-economic effects. The effects predicted at this stage remain at a strategic level and will not provide as much detail or certainty as for project level EIA. Further environmental assessment will be required for projects developed as a result of the actions identified. This SA Report should be read in conjunction with the draft I&C Sector Plan.

1.3.2 This report is based on the information provided on the Scoping Report for the TZW Sector Plans and its consultation responses, the SA/SEA, HIA and HRA conducted for TZW and the SA/SEA/HIA/HRA of the preceding Sector Plans (most notably MSP1, FMSR Sector Plan, CIM Sector Plan and C&D Sector Plan).

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 I&C Sector Plan	Sets out the background and

		contents to the I&C Sector 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 I&C Sector 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 I&C Sector Plan HIA and how they have been incorporated into this report.
Section 8	Habitats Regulations Assessment	Presents a summary of findings of the I&C Sector Plan HRA and how they have been incorporated into this report.
Section 9	Implementation & Monitoring	Sets out monitoring measures of potential predicted effects of the I&C Sector 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 79/409/EEC) 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 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'.

[2] www.wales.gov.uk/waste www.cymru.gov.uk/gwastraff

1.7.4 The I&C Sector 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 I&C Sector Plan.

Table 1.3: Waste Sector Plan Consultations

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

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.

1.8 Consultation on this Report

1.8.1 This Report is being issued for public consultation alongside with the draft I&C Sector 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 links between the draft I&C Sector Plan actions and other Sector Plans actions?
- Are there any other recommendations that could be included against the actions to improve their sustainability going forward?

1.8.2 The consultation period for this Sustainability Appraisal Report, is open until 20 June 2013.

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:

Jennet Holmes
Waste Strategy Branch
Welsh Government
3rd Floor South Wing
Cathays Park
Cardiff
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Email: wastestrategy@wales.gsi.gov.uk

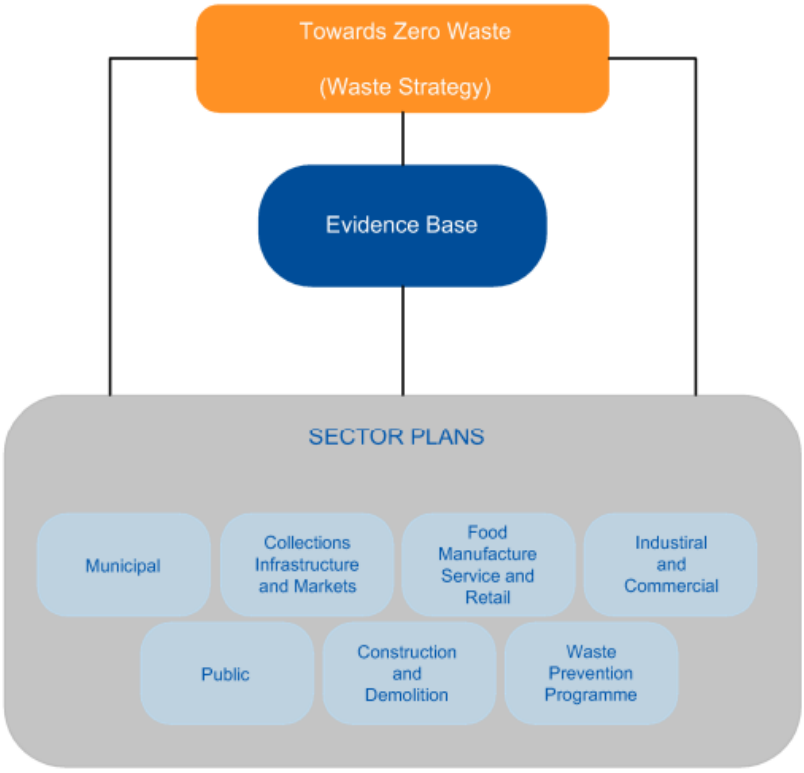
2 THE I&C SECTOR PLAN

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.

Figure 2.1 – Welsh Government's Waste Management Strategy Hierarchy



2.1.3 The report prepared for the *Welsh Assembly Government on the Ecological Footprint impact of the Welsh Waste Strategy* (ARUP, 2009), considered that recycling should not be the primary objective of the waste strategy and it should be realigned towards the objectives of sustainable consumption and production. In addition to a 70% recycling target for 2025, the size of the ecological footprint of Welsh waste could be significantly reduced only after reduction and reuse.

2.1.4 TZW's three priority areas[3] for waste reduction are:

[3] TZW One Wales One Planet: A Consultation on a New Waste Strategy for Wales (2009)

- Food waste –working with food producers, food retailers and food industries such as hospital catering facilities;
- Paper and card waste; and
- Chemical waste from commercial and industrial sector.

2.1.5 TZW concentrates on the following areas for action for recycling:

- Diverting food waste from landfill to anaerobic digestion (AD) plants;
- Recycling paper and card; and
- Recycling metals.

2.2 Aim & Scope of the I&C Sector Plan

2.2.1 The I&C Sector Plan needs to provide policy interventions which will result in Wales meeting the aims and objectives of the Revised Waste Framework Directive and Towards Zero Waste. It will focus on;

- the wastes produced directly by the sectors (with a focus on waste prevention, and segregation at source ready for separate collection of recyclate),
- the products produced by the sectors (as these need to generate less waste at end of life, they need to be more recyclable, they need to have a higher recycled content, and the producer needs to take more extended responsibility for its management at end of life).

2.2.2 Construction and Demolition waste is excluded from the draft I&C Sector plan as it is covered by a separate sector plan[4]. The Food Manufacture, Service and Retail (FMSR)[5] sector plan covers 144,300 tonnes of food and associated packaging waste from the food manufacturers, wholesalers and retailers and the service sector (this equates to an average of 85-90% of the sector's total arisings). The Public Sector Plan (to be developed) will cover 365,000 tonnes (100%) of waste produced by that sector.

2.2.3 The Plan is primarily to guide action by the industrial and commercial sectors. It also identifies what the WG will do, including the delivery bodies that it funds.

2.2.4 It will also be of interest to other businesses, the public sector and householders because it will influence the quantity and type of waste that these parties generate, and its resultant management. It will help local authorities deliver the waste prevention and recycling targets.

2.2.5 Responsibility for delivery is identified for each sector involved in the plan, with the WG driving and overseeing its delivery in partnership with the delivery bodies.

2.3 Content

2.3.1 The draft I&C Sector Plan provides a record of the overarching proposed objectives for industrial & commercial waste. When finalised following consultation, it 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.

4 http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/publication/canddsectorplan/?lang=en

5 http://wales.gov.uk/consultations/environmentandcountryside/foodsectorplan/?lang=en to be finalised 2013

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'[6]. 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 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 sectors considered in the I&C Sector plan (as outlined in Towards Zero Waste) are outlined below;

- *Industrial*: reduction of 1.4% every year to 2050 based on 2006/7 baseline. This equates to 26,546 tonnes per annum of industrial waste.
- *Commercial:* reduction 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 approach being followed is to take forward actions in respect of the following elements of the waste hierarchy:

- Waste prevention – to reinforce the important role of businesses in the commercial and industrial sectors to prevent and reduce their own waste arisings and reduce the impact of the products they produce. Companies also need to reduce waste generated through the supply chain and ultimately put out for collection, thus helping to meet environmental outcomes, increasing opportunities for enhancing social wellbeing through waste reuse and reducing the costs of waste collection and management.
- "Preparing for reuse" is a key element of the waste hierarchy. Increasing the preparation for reuse and recycling opportunities for I&C wastes by sectors and stakeholders.
- Recycling – to ensure that recycling targets can be achieved in a sustainable

6 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).

way by this sector.

- Recovery - Increasing where relevant and appropriate other recovery methods for waste arising from I&C sectors.

- Treatment and disposal – to ensure that this draft sector plan, and sectors involved, supports the Collection, Infrastructure and Markets sector plan with regards to supporting market development for recyclate and digestate and choice of waste management options.

2.5.2 The draft I&C Plan outlines the actions that will be further developed through further sector engagement to provide clear guidance and support to each on their roles and responsibilities required to ensure that Towards Zero Waste targets are met. It also includes overarching actions which cover one or more of the above. These have been classed as those which cover all aspects of business efficiency.

3 APPRAISAL METHODOLOGY

3.1.1 In line with the commitments made by Welsh Government in TZW, the I&C Sector 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.

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 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.

3.2.3 Chapter 5 and Annex B of TZW SA/SEA contained the baseline conditions considered for the MSP1 SA/SEA. The MSP1 SA/SEA amended those baseline conditions with further information that became available since publication of the TZW SA/SEA (Appendix B of MSP1 SA/SEA).

3.2.4 For consistency, baseline conditions described on the MSP1 SA/SEA were used and any information that became available since the publication of the MSP1 SA/SEA has been incorporated together with the responses received as a result of the consultation on the TZW Sector Plans Scoping report and subsequent Sector Plan SAs.

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

Identification of sustainability issues and opportunities

3.2.6 The identification of key sustainability issues and opportunities was undertaken for the elaboration of the TZW SA and the MSP1 SA through a review of existing baseline information and other relevant policies, plans and programmes.

3.2.7 The key sustainability issues and opportunities that emerged from the TZW are identified in Chapter 6 of TZW SA. The MSP1 SEA (Chapter 2) reviewed these key sustainability issues and identified a number of additional issues that should be considered following the review of the baseline conditions and the PPP. Following that approach, the TZW Sector Plans Scoping report used those key sustainability issues identified in the SA/SEA of MSP1. This report also takes into account the scoping report consultation comments which lead to an updated review of the baseline conditions after the publication of MSP1, the C&D Sector Plan and the draft I&C Sector Plan.

3.2.8 The key sustainability issues identified from the TZW and MSP1 baseline review were set out 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.

3.2.9 There have been no changes to the key sustainability issues following the revision of updated baseline conditions and review of additional PPP undertaken to date. Further detail is presented in Section 4 below.

Sustainability objectives

3.2.10 The I&C Sector Plan is being developed to implement the objectives of TZW. In order to ensure consistency the same basic framework will be used to appraise future emerging draft Sector Plans. This framework comprises nine headline sustainability appraisal objectives derived from the key sustainability issues, and supported by a number of sub-objectives.

3.2.11 The SA framework sub-objectives 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 follows that established in the SA of TZW and MSP1. It 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.

3.5.2 For consistency, this screening assessment uses the reasons for omission of actions used in the MSP1 SA actions screening. The actions considered omitted for assessment are those which fall into one of the following categories:

- The action is related to administrative / procedural measures;
- The action provides a signpost to other legislation, strategy, targets and guidance;
- The action sets out measures that may be considered in the future once further research has been undertaken;
- The action forms part of a future Plan which will be subject of SA; and
- The action was included in TZW and was already subject to SA.

3.5.3 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 in the process of elaboration of the I&C Sector Plan if taken forward to SA. For each action, potential changes to the sustainability baseline are identified. The assessment will be undertaken 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 I&C Sector 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.

3.9.3 Baseline information, the review of PPP and the approach used for screening actions in the TZW Strategy and the subsequent Sector Plan SAs was used as a starting point for this assessment to ensure alignment of the I&C Sector Plan sustainability objectives. Where applicable, and following the consultation responses, this information has been updated.

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 to inform the preparation of TZW and its SA/SEA (2009), the Scoping Report and subsequent Sector Plan SAs These have been updated for the WPP.

4.1.2 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 28 Air Quality management Areas (AQMAs) in Wales (as listed in the 2010 statistic for 'Number of People Living in AQMA' (StatsWales, 2010)) The main causes of pollution at urban sites are fine particles (PM10) and ozone. The main causes of air pollution at urban sites are fine particles (PM10) and ozone. There are 25,251 people living in AQMAs in Wales in 2011 (0.8 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. Local air pollutants are likely to increase due to expanding air travel from Cardiff International Airport.	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%	Landscape Climate Factors Cultural Heritage and Historic Environment Ecological Impacts of Air Pollution Birds Soil River Quality

[7] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=6003
[8] Welsh Government, 2010. State of the Environment Report (Last updated, December 2010)
[9] 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.
[10] http://www.jncc.gov.uk/page-3753
[11] http://www.jncc.gov.uk/default.aspx?page=3320

Topic	Baseline Conditions	Related topics
	recovering. (Welsh Government, 2010) In the period 2002 to 2005, the number of BAP priority species increased from 178 to 181 and the number of habitats increased from 37 to 39. Of the priority habitats with information available, the percentage of habitats classed as declining increased from 57 per cent in 2002 to 62 per cent in 2005. However, this has since fallen to 53 per cent in 2008 (Welsh Government 2010). 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[9]. The aggregate indexes for Broad Habitats published by JNCC[10] 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[11].	Water and Flood Risk
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. 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 increased from 47.3 million tonnes of CO2 equivalent in 2007 to 49.5 million tonnes CO2 equivalent in 2008. CO2 emission rates have also increased during the same period[12] and non-CO2 GHG (Methane, Nitrous oxide and Hydrofluorocarbons) have decreased. The size of the net sink of greenhouse gases in Wales, has in overall decreased 44.1 kilotonnes of CO2 equivalent since 1990 (Welsh Government, 2010). The overall trend has been an estimated decrease of 15 per cent in emissions of the basket of greenhouse gases from Wales in 2007 compared to base year (1990 / 1995) emissions. (Since the publication of the sustainable development Indicators, figures for 2008 have been published and show that greenhouse gas emissions had decreased by 9.9 per cent in 2008 compared to the base year) [13].	Ecological Footprint Air Quality Biodiversity and Geodiversity Resource Efficiency Water and Flood Risk Health

[12] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5758
[13] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	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]. A net sink of greenhouse gases in Wales predictions suggest that this sink 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.	Electricity from Renewable Sources
Cultural Heritage and Historic Environment	Baseline Characteristics Wales has a rich and diverse cultural and historic heritage. Two world heritage sites, including the industrial landscape of Blaenavon, are internationally recognised for their outstanding universal value and another is currently under consideration by UNESCO. 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 During the period 2007-2010, there was an easy, equitable access to ample high quality green space (Welsh Government, 2010). Torfaen and Monmouthshire (76 per cent) have the highest percentage of its population living within a 300m walk of any accessible natural green space, 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]. 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	Biodiversity and Geodiversity Cultural Heritage and Historic Environment River Quality Soil

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

Topic	Baseline Conditions	Related topics
	(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%[18] of the Welsh countryside is accessible for public access on foot. There are also 58 landscapes[19] 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). Future changes to the farming subsidy regime have the potential to result in significant changes to the landscape.	Waste Water and Flood Risk Population Mobility Social Accessibility
Ecological Footprint	Baseline Characteristics Although there is a stable / no clear trend[20], the ecological footprint of Wales increased from 4.2 global hectares per person in 1999 to 4.8(r) in 2004. However, it has since fallen to 4.4 in 2006[21]. 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'[22] 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[23]. Future trends: Welsh Government's commitment to reduce the Ecological Footprint of Wales in One Wales One Planet 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	Air Quality Biodiversity and Geodiversity Birds Climate Factors

[18] http://www.ccw.gov.uk/about-ccw/newsroom/latest-news/discovering-waless-natural-he.aspx
[19] http://www.cadw.wales.gov.uk/default.asp?id=108 and http://www.cadw.wales.gov.uk/upload/resourcepool/Caring%20for%20Historic%20Landscapes4584.pdf
[20] Stats Wales SoE (2010) http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5786
[21] Stats Wales SoE (2010): http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5786
[22] 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).

[23] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	these levels are reduced. There was a clear improvement [24]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. 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.	Soil Water and Flood Risk Health
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 2009, 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]. 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 The ratio of carbon dioxide emissions to GVA in Wales has decreased by 12 per cent between 2005 and 2007[28]. The SoE[29] (2010) indicates that no data was available in 2008 regarding the total amount of aggregates used in Wales. It is estimated that 12.2 million tonnes of construction and demolition waste was produced in Wales in 2005-06. Just under half of this was aggregate waste, i.e. secondary aggregates. As at December 2010, there are 32 "live" cases of agricultural after use throughout Wales. Within the Green Dragon Standard there are five levels, with each step contributing towards achievement of the International and European environmental standards ISO 14001 and EMAS. In 2010, there were 119 Green Dragon[30] certified companies in Wales, with 12 of these companies achieving the highest rating (Level 5). Future trends: Although there is a stable / no clear trend in the proportion of construction and demolition waste reused and recycled, it is expected to increase.	Economy / Employment Soil Health Waste
River Quality	Baseline Characteristics	Sustainable Water Management

[24] SoE (2010) Stats Wales: http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=10410
[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] The Sustainable Development Annual Report 2009-2010
[29] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5858
[30] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5853

Topic	Baseline Conditions	Related topics
	Wales enjoys a high percentage of rivers with good chemical quality, with an increase in the percentage of such river length relative to previous years. The quality of Welsh groundwater, rivers, lakes and coastal waters is maintained and enhanced[31]. The percentage of river lengths in Wales of good or fair chemical quality, as the General Quality Assessment (GQA), has been consistently higher than 98 per cent since 1994. The percentage of river lengths of good chemical quality has remained fairly stable over the same period, peaking at 95.4 per cent in 2007[32]. The Environment Agency has developed a method statement for the classification of surface water bodies. This is based on the Water Framework Directive (WFD) Environmental Flow Indicator for each surface water body[33]. The GQA shows that water quality has improved over the last 20 years, but, in Wales only 33% of water bodies currently achieve Good Status under the WFD. The GQA has been superseded by the WFD parameters. The percentage of river lengths in Wales of good biological quality has steadily increased since 2000, peaking at 88 per cent in 2008[34]. 75 per cent of coastal water bodies assessed were given a good or better ecological status in 2008. 35 per cent of transitional water bodies, 29 per cent of rivers and canals and 20 per cent of lakes assessed were given a good or better ecological status in 2008. <u>Future trends:</u> Due to the requirements of the WDF 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.	Waste Water and Flood Risk
Soil	<u>Baseline Characteristics</u> Soil is managed to safeguard its ability to support plants and animals, store carbon and provide other important ecosystem services. It is estimated that Welsh soils contain 409 million tonnes of carbon[35]. 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. Wales' greenhouse gas emissions are minimised, consistent with Wales contributing fully to meeting UK wide targets and in line with more specific Wales targets that are in development[36]. 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[37]. <u>Future trends:</u> There are areas of peat bog (including raised bog and fen peat) throughout Wales. 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[38].	Waste Resource Efficiency Air Quality Biodiversity and Geodiversity Cultural Heritage and Historic Environment Landscape

[31] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5830#sustainable
[32] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5824
[33] WFD Method statement for the classification of surface water bodies. Monitoring Strategy (April 2011) Environment Agency
[34] Sustainable Development Annual Report (2009-2010)
[35] Sustainable Development Annual Report (2009-2010)
[36] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=23027
[37] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5875
[38] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=23027

Topic	Baseline Conditions	Related topics
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[39]. Current assessment of the water resource management across the country indicates that the percentage of water resource zones in England and Wales meeting target headroom requirements increased to 92.2% in 2008-2009, following a stable period since 2004-2005. The percentage of water resource zones in Wales meeting target headroom requirements in 2009-2010 was 92.3% compared to 72% in 2001-2002. The picture across England Wales indicates that there has been a significant improvement, with the objective being to continue reducing the number of such zones suffering a deficit in future years. Average per capita consumption in Wales has remained fairly stable In Wales, people in measured households used an average of 117 litres per person per day in 2009-10[40]. Overall, there has been a downward trend in water leakage in Wales, from 249 mega litres per day in 2001-02, to 196 mega litres per day in 2009-10[41]. Future trends: The percentage of water resource zones that are recording a deficit, and level of leakage will continue to drop into the future.	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[42] and there has been a corresponding improvement in recycling performance with an estimated all-Wales average of 12.5%. 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[43]. 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[44]. 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	Soil Ecological Footprint Resource Efficiency Education

[39] The Sustainable Development Annual Report 2009-2010
[40] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5810
[41] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5787
[42] The Sustainable Development Annual Report 2009-2010
[43] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5807
[44] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	Wales. No High Level Waste (HLW) is managed in Wales[45]. 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[46]. Most common types of fly-tipped waste include household waste and construction and demolition waste, followed by other commercial waste and green waste[47]. Future trends: Recovery and Recycling rates achieved in the UK from 2006 to 2010 show an increasing trend[48] 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.	
Water and Flood Risk	Baseline Characteristics The issue of sustainable water resource management has been addressed previously. 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. [49]. In 2010, 67 per cent of coastal water-bodies assessed were given a 'good' or 'high' ecological status, and 39 per cent of transitional water-bodies, 31 per cent of rivers, 44 per cent of canals and 21 per cent of lakes assessed were given a 'good' or 'high' ecological status[50]. Overall, 66 per cent of ground-waters assessed were classed as 'good' status and 34 per cent were classed as 'poor'. Overall, approximately 65% of the water bodies assed in 2010 were given good chemical status in 2010. The percentage of bathing waters complying with the mandatory EC standards in Wales has consistently been over 97 per cent since 2002, reaching 100 per cent in 2002, 2004, 2005, 2009 and 2010. There has been significant progress on building in sustainability into flood and coastal erosion risk management in 2009-10[51] through the update of the Flood and Water Management Act (2010). There has been a clear improvement in the number of properties in Wales that have benefited from construction of flood alleviation schemes to reduce flood risk[52]. In Wales, the number of properties located in the floodplain has increased from 169 thousand in 2006 to 220 thousand in	Climate Factors River Quality Sustainable Water Management

[45] http://www.nda.gov.uk/ukinventory/summaries/wales.cfm
[46] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6808
[47] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6809
[48] Draft FMSR Sector Plan
[49] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5881&IF_Language=eng
[50] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5879
[51] The Sustainable Development Annual Report 2009-2010
[52] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=6002

Topic	Baseline Conditions	Related topics
	2008, of which 62 per cent of properties located in the floodplain had a significant or moderate risk of flooding, compared with 59 per cent in 2006[53]. Trends in radioactive discharges to the marine environment from major sources in Wales show a clear improvement from 1996 to 2008[54]. The percentage of bathing waters complying with the mandatory EC standards in Wales has reached 100 per cent in 2002, 2004, 2005, 2009 and 2010[55]. Future trends: The number of serious water pollution incidents has been declining in Wales since 2001; this trend is expected to continue. The number of designated bathing waters in Wales is expected to increase. 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. North East Wales enjoys the highest rate of employment at 76%, especially in Flintshire and Wrexham; however, Blaenau Gwent registered the lowest employment rate (61.7%) in 2010. 98.2% of business in Wales have 0-50 employees. Employment rates for men of working age are higher than those for women; however women employment has increased 12% from 1984 to 2010. 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[56]. The total percentage of working age people claiming benefits declined from 2000 to 2008 and has raised 1.5% from 2008 to 2009 due to the economic downturn. The jobseekers allowance rate follows a similar trend. The lone parents and incapacity benefit rates have decreased from 2008 to 2009. 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 2009 increased £4 billion since 2005.	Economy/ Economic Employment

[53] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5984
[54] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5826
[55] http://www.statswales.wales.gov.uk/TableViewer/document.aspx?ReportId=5878
[56] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	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. However the GVA has decreased compared to 2008 due to the economic turndown. Future trends: The GVA and GVA per head in Wales are expected to be stable / increase slightly.	Population
Social Accessibility	Baseline Characteristics The percentage of households where the time taken to reach a GP surgery or grocer by foot or by public transport in 15 minutes or less has increased since 2005/06[57]. 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 [58]. The percentage of people involved in voluntary activities in Wales had increased from 2001 to 2009, and decreased slightly in 2010. 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[59].	Social Accessibility Mobility Economy/ Economic Employment Education
Child poverty	Baseline Characteristics In Wales in the period 2005-06 to 2008-09, the percentage of children living in relatively low-income households (excluding housing costs) was 32% in Wales, compared to 29% in 2004-05 to 2006-07. Figures for the whole of the UK are not significantly different. 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 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 2008-09[60]. 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.	Economy/ Economic Employment Health Benefit dependency and Workless Households

[57] The Sustainable Development Annual Report 2009-2010
[58] The Sustainable Development Annual Report 2009-2010
[59] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	BCS burglaries and robbery rates are expected to continue at the present rates	
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 to 77 per cent in 2009. 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 4 percentage points to nearly 78 per cent in 2008[61].The percentage of pupils assessed in Welsh at the end of Key Stages 1, 2 and 3 have all increased since 2000[62]. 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 4.1 in 2008. There has been a sustained increase in life expectancy for both males and females since 1993-95[63].. 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 81.4 for females and 77 years for males in 2006-08. The number of adults who reported key illnesses or health status has shown a stable trend from 2005 to 2009[64]. 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[65]. The average SAP rating for dwellings in Wales was 50 in 2004. This was slightly below the average for England in 2003 (51.4). 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.	Economy/ Economic Employment Social Accessibility Electricity from Renewable Sources
Mobility	Baseline Characteristics	Social Accessibility

[60] The Sustainable Development Annual Report 2009-2010
[61] The Sustainable Development Annual Report 2009-2010
[62] The Sustainable Development Annual Report 2009-2010
[63] The Sustainable Development Annual Report 2009-2010
[64] http://www.statswales.wales.gov.uk/TableViewer/tableView.aspx?ReportId=6312
[65] The Sustainable Development Annual Report 2009-2010
[66] The Sustainable Development Annual Report 2009-2010

Topic	Baseline Conditions	Related topics
	The average number of walking or cycling trips made per person per year decreased between 1995 and 2008 while trips in private motor vehicles increased over the same time period. Trips made using public transport trips have seen a slight increase. The number of trips made per person per year by walking and cycling decreased from 1995/97 to 2002/03, and has since remained relatively unchanged. In terms of travelling to work, in 2010, 79 per cent of people travelled to work by car, van, minibus or works van, 13 per cent travelled to work by walking or cycling and 8 per cent travelled to work using other modes of transport[66]. 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 trends are expected to continue.	Economy/ Economic Employment
Pensioner poverty	Baseline Characteristics There has been little change in the percentage of pensioners in relative low-income households before housing costs[67]. In the period 2002-03 to 2004-05, the percentage of pensioners living in relatively low-income households (including housing costs) was 20% in Wales and decreased to 18% in 2006-09. The number of individuals living in low income households has decreased 1% from 2005-06 to 2008-09. 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. 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.	Economy/ Economic Employment Economic Output Benefit dependency and Workless Households Mobility Housing Health Crime Social Accessibility

[67] The Sustainable Development Annual Report 2009-2010

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 State of the Environment Report (2010), and the Wales Sustainable Development Indicators (2010). 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 It is recognised that the draft I&C Sector Plan does not provide details on the potential location of facilities and resources proposed within the plan. Therefore, the PPP review, 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 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 the need for, and promotion of individual and

SA Topics	Key Sustainability Issues
	corporate sustainability for waste production and disposal • 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.

SA Topics	Key Sustainability Issues
	• To collectively reduce Wales' Carbon Footprint through strategic 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 varies 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

SA Topics	Key Sustainability Issues
	land resources generally. • 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

SA Topics	Key Sustainability Issues
	when considering the location and deployment of new waste 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 The I&C Sector Plan is being developed to implement the objectives of TZW. In order to ensure consistency, the same basic framework will be used to appraise the emerging draft Sector Plans. 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	• To promote sustainable flood risk management; and • To protect and enhance water quality and quantity in inland,

Objective	Sub-objectives
water resources	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.

6 SUSTAINABILITY APPRAISAL RESULTS

6.1 Compatibility of SA Objectives and Draft I&C Sector Plan Objectives

6.1.1 A compatibility test to examine the relationship between the draft I&C Sector Plan objectives 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 No conflicts were identified, but should they have been these could be identified through amendments to the I&C Sector Plan Objectives. Where positive or uncertain relationships were identified, these have been used to inform the development if recommendations for the actions going forward. See Table 6.1 for more detail.

Table 6.1: I&C Sector Plan Compatibility Objectives

KEY:

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

		SA/SEA Objectives								
Category	**I&C Sector Plan Objectives**	**Waste Management**	**Waste Infrastructure**	**Landscape, biodiversity & cultural heritage**	**Soil**	**Water**	**Air Quality, Noise, Odour**	**Climate Change**	**Health**	**Civic engagement**
Resource Efficiency Over-arching Objectives	To ensure that the products use fewer resources (reducing especially those that are non-renewable), are more durable and/or have an extended life, are more reusable and/or refurbishable/upgradeable and that opportunities are taken to deploy the products more efficiently through leasing and/or "collaborative consumption". Products should also generate less waste at end of life, be more recyclable, and have a higher recycled content. The producer should take more extended responsibility for the product's management at end of life, including in respect of the costs of end of life management. Producers will also be expected to play a role in promoting behavioural change to customers/consumers.	✓	✓	?	?	?	?	?	?	?
	To explore and implement the use of sectoral agreements, consumer/producer panels and/or sectoral negotiations in order that the relevant businesses or sectors set their own resource efficiency plans or objectives for the supply the production site, and in respect of product waste	✓	✓	?	?	?	?	?	?	?

		SA/SEA Objectives								
Category	I&C Sector Plan Objectives	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water	Air Quality, Noise, Odour	Climate Change	Health	Civic engagement
	(to include waste prevention, increasing reuse and recycling, and increasing recycled content where feasible).									
	To ensure that the management of waste is guided by the waste hierarchy as a priority order (unless a life cycle assessment guides otherwise) as follows: • prevention; • preparing for reuse; • recycling (encompassing composting and anaerobic digestion); • other recovery, e.g. energy recovery; and • disposal.	✓	✓	?	?	?	?	?	?	0
	To ensure that waste management is carried out without endangering human health, without harming the environment and, in particular: • without risk to water, air, soil, plants or animals; • without causing a nuisance through noise or odours; and • without adversely affecting the countryside or places of special interest, including in respect of conservation status.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To make an overall net positive impact in Wales on areas of special conservation status, taken as a whole, and biodiversity in general through the more sustainable management of waste leading to reductions in greenhouse gas emissions that will help contribute to reducing the scale of climate change and its associated impact on native flora and fauna.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To meet obligations for Wales under European and UK waste legislation, including the Habitat Regulations, especially in relation to the impact of waste facilities on areas of special conservation status.	✓	✓	?	?	?	?	?	?	0
	To generate more 'green' jobs within the waste and resource management industry across a range of skill levels in Wales and to increase the number of high skilled, high value green jobs.	✓	✓	?	?	?	?	?	?	0
	To enable business in Wales to become more competitive in the world market through more efficient resource management ensuring that they are more resilient against future competing demands including, rising costs and security of supply of global material resources, thus saving	✓	✓	?	?	?	?	?	?	0

Category	I&C Sector Plan Objectives	SA/SEA Objectives								
		Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water	Air Quality, Noise, Odour	Climate Change	Health	Civic engagement
	money and maintaining or increasing profit.									
	To ensure that public and corporate procurement includes the integration of environmental and resource efficiency criteria in calls for tenders and contracts (in line with the Handbook on Environmental Public Procurement published by the European Commission on 29 October 2004).	✓	✓	?	?	?	?	?	?	0
	To ensure the initiation and promotion of research and development into resource efficiency, including achieving cleaner and less wasteful products and technologies, and the dissemination and use of the results of such research and development.	✓	✓	?	?	?	?	?	?	?
	To ensure that the management of waste will change in a way that contributes towards a more fair and just society through enabling all citizens of Wales to contribute to waste prevention, reuse and recycling irrespective of where they live, their health and ability, mobility or personal circumstances in order to: • Achieve their full human potential; • Enrich their communities; • Contribute towards the wellbeing of Wales; • Improve their local environment; and • Actively improve the quality of their life.	✓	✓	0	0	0	0	0	0	✓
	To deliver integrated and consistent behaviour change campaigns to secure resource efficiency at both the production and consumption stages, including campaigns that are specifically aimed at, and adapted to, small sized enterprises, including working through established business networks.	✓	✓	?	?	?	?	?	?	0
	To ensure all collection and management infrastructure for waste is capable of adapting to, and is resilient, in respect of the impacts of climate change, including the need to maintain business continuity during extreme weather and avoid public nuisance during routine operations. This will also need to include the need to take into account any areas of 'managed realignment' along the Welsh coastline when siting new waste facilities.	✓	✓	?	?	?	?	?	?	0
	To obtain more reliable, accurate and up-to-date data in relation to waste generation and waste management methods in order to monitor trends, progress in meeting targets and to help formulate	✓	✓	?	?	?	?	?	?	0

Category	I&C Sector Plan Objectives	SA/SEA Objectives								
		Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water	Air Quality, Noise, Odour	Climate Change	Health	Civic engagement
	better strategic plans.									
Waste Prevention (including reuse)	Meets the waste prevention targets (including the priority materials for waste prevention) described in Towards Zero Waste for the industrial and commercial sectors, namely; • *Industrial*: reduction of 1.4% every year to 2050 based on 2006/7 baseline. This equates to 26,546 tonnes per annum of industrial waste. • *Commercial:* reduction of 1.2% every year to 2050 based on 2006/7 baseline. This equates to 20,129 tonnes per annum of commercial waste.	✓	✓	?	?	?	?	?	?	?
Preparation for Reuse	To provide preparation for reuse and recycling services in a way that promotes sustainable development and offers the opportunity for lower overall whole system costs.	✓	✓	?	?	?	?	?	?	0
	To ensure that as far as possible all of the waste that cannot be prevented is prepared for reuse as a priority, and, if this is not possible, for all the remaining waste to be either recycled, composted or anaerobically digested.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To ensure adequate markets for reusable items collected by the waste management industry in Wales.	✓	✓	?	?	?	?	?	?	?
	To take measures, as appropriate, to promote the reuse of products and preparing for reuse activities, notably by encouraging the establishment and support of reuse and repair networks, together with the use of economic instruments, procurement criteria, quantitative objectives or other measures (including alternative business models).	✓	✓	✓	✓	✓	✓	✓	✓	0
	To develop waste collection systems which protect waste products or materials in a way that maximises their potential for preparation for reuse by social enterprises and other companies. This should include enhancing opportunities for architectural salvage / reclamation, including for items of cultural heritage.	✓	✓	?	?	?	?	?	?	0
	To ensure that preparation for reuse affords opportunities for job creation and training and offers extended opportunities for the social economy to be involved in the waste management infrastructure.	✓	✓	0	0	0	0	0	✓	✓

		SA/SEA Objectives								
Category	**I&C Sector Plan Objectives**	**Waste Management**	**Waste Infrastructure**	**Landscape, biodiversity & cultural heritage**	**Soil**	**Water**	**Air Quality, Noise, Odour**	**Climate Change**	**Health**	**Civic engagement**
	The 'preparing for reuse' targets for municipal waste collected by local authorities, and that preparing for reuse, recycling and other material recovery targets for construction and demolition waste in 'Towards Zero Waste' are met cost effectively.	✓	✓	?	?	?	?	?	?	0
Recycling	To achieve the waste recycling targets set in EU Directives and in Towards Zero Waste.	✓	?	✓	✓	✓	✓	✓	✓	?
	To ensure high quality recycling, ensure the development of separate collections of waste to meet the necessary quality standards for the relevant recycling sectors (with a high priority to closed loop recycling or 'upcycling'), and to ensure that separate collection is developed for at least the following: paper, metal, plastic and glass (as required by Article 11 of the Waste Framework Directive). To also encourage the development of separate collection systems to include the collection of food waste, wood and card in Wales.	✓	✓	?	?	?	?	?	?	0
	To ensure adequate markets for recyclate, compost and AD digestates produced by the waste management industry in Wales through encouraging manufacturers in Wales to use more secondary materials (recyclate) rather than primary raw materials.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To ensure the collection and delivery to reprocessors / end users of high quality recyclate meeting relevant end-of-waste criteria (or Quality Protocols) and that the recyclate is used in closed loop applications that maximise the reduction of ecological footprint and carbon footprint, with as much used as possible in Welsh manufacturing operations.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To ensure the source segregation of recyclable wastes by all businesses in Wales, with a focus on food, paper, card, wood, metal, plastic, glass, textiles, WEEE and batteries.	✓	?	✓	✓	✓	✓	✓	✓	0
	To achieve the separate collection of biowaste with a view to the composting of green waste and digestion of food waste, with a priority given to recycling the treated biowaste by returning it back to the soil, meeting relevant end-of-waste criteria or Quality Protocols.	✓	✓	?	?	?	?	?	?	0
	To send food waste to anaerobic digestion plants to generate valuable renewable energy and	✓	✓	?	?	?	?	✓	✓	0

Category	I&C Sector Plan Objectives	SA/SEA Objectives								
		Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water	Air Quality, Noise, Odour	Climate Change	Health	Civic engagement
	fertiliser.									
	To encourage businesses to recycle their wastes on site, where feasible, especially in respect of processing recyclable biowastes on site (for example food waste via anaerobic digestion to generate fertiliser and renewable energy).	✓	✓	✓	✓	✓	✓	✓	✓	0
	To ensure a focus on the reuse and recycling of packaging waste, including making packaging more recyclable and increasing recycled content.	✓	✓	?	?	?	?	?	?	0
	To ensure collection and sorting systems are flexible enough to cope with all likely future changes in waste composition.	✓	✓	0	0	0	0	0	0	0
	To ensure recycling operations are as sustainable as possible; this means a focus on local, closed loop systems where appropriate. Sending material to end markets which down-cycle the material should be avoided where possible.	✓	✓	?	?	?	?	?	?	0
	To ensure that the waste industry is developed to benefit Wales economically by retaining the value of Welsh recyclate/compost/AD digestate and the potential reprocessing of these materials in Wales wherever possible.	✓	✓	?	?	?	?	?	?	0
Other recovery (e.g. energy recovery) and Disposal	To ensure that source separated waste streams that cannot feasibly be recycled are recovered in an environmentally and economically beneficial way.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To ensure that the recovery of source separated waste streams only takes place where this is the preferred route for these waste streams taking into account the waste hierarchy and a life cycle approach.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To eliminate the landfilling of waste, with a particular focus on biodegradable waste and hazardous waste.	✓	✓	✓	✓	✓	✓	✓	✓	0
	To reduce significantly the amount of residual waste generated.	✓	?	✓	✓	✓	✓	✓	✓	0
	To meet targets and ceilings (including maximum levels) set for recycling, EfW and landfill in 'Towards Zero Waste' and the Sector Plans.	✓	?	?	?	?	?	?	?	0
	To ensure an adequate collection system for residual waste, including for hazardous waste.	✓	✓	?	?	?	?	?	?	0
	To encourage businesses to treat their own residual wastes on site.	✓	✓	?	?	?	?	?	?	0
	To deliver good carbon reduction outcomes from residual waste treatment plants (e.g. high energy efficiency EfW plants).	✓	✓	0	0	0	0	✓	✓	0
	To ensure access to an adequate network of	✓	✓	?	?	?	?	?	?	0

		SA/SEA Objectives								
Category	I&C Sector Plan Objectives	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water	Air Quality, Noise, Odour	Climate Change	Health	Civic engagement
	facilities for the treatment and disposal of hazardous waste.									

6.2 Screening of I&C Sector Plan Actions

6.2.1 The actions screening process aims to evaluate the need to appraise the sustainability of the I&C Sector Plan actions. The methodology applied followed the steps listed below.

6.2.2 Identification of the I&C Sector Plan actions

6.2.3 The I&C Sector Plan actions have also been grouped into the following categories of actions:

- Resource Efficiency Overarching Actions. These measures are classed as those which cover all aspects of business efficiency, in particular waste prevention and recycling.
- Waste Prevention (including reuse). These are measures taken before a substance, material or product has become waste, that reduce the quantities of waste, including through the re-use of products or the extension of lifespan of products the adverse impacts of generated waste on the environment and human health or the content of harmful substances in materials and products.
- Preparation for Reuse. “Preparing for reuse” means checking, cleaning or repairing recovery operations, by which products or components of products that have been collected as waste are prepared so that they can be reused without any other pre-processing. It is distinguished from reuse, which means any operation by which products or components that are not waste are used again for the same purpose for which they were conceived. Reuse is therefore counted as waste prevention under the waste hierarchy. For example, a donation of an item to a charity is “reuse”; if the same item had been put out for collection as waste, and was then subsequently reused – this is known as “preparing for reuse”.
- Recycling. This is any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.
- Other Recovery (e.g. energy from waste) and Disposal. ‘Recovery’ means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Article 12 of the WFD requires Member States to ensure

that, where recovery in accordance with Article 10(1) is not undertaken, waste undergoes safe disposal operations in compliance with Article 13 (protection of human health and the environment).

Setting up the screening reasons for SA action omission

6.2.4 For consistency, this screening assessment uses the reasons for omission of action used in the MSP1 SA actions 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;
- Future Plan SA: the action forms part of a future Plan which will be subject of SA; and
- TZW: the action was included in TZW and was already subject to SA.

6.2.5 This Section presents the results of the actions screening; the screening exercise classifies the I&C Sector 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 I&C Sector Actions screening.

Table 6.2: Results of the I&C Sector Plan Actions Screening

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
Resource Efficiency (Overarching Actions)			
Overarching EU Initiatives and Directives	Existing Measure	The action provides a signpost to existing legislation and directives rather than seeking to implement specific measures.	No
Overarching UK Regulations	Existing Measure	The action provides a signpost to existing legislation rather than seeking to implement specific measures.	No
Legislation, regulation and enforcement	Existing Measure	The action provides a signpost to existing legislation and law rather than seeking to implement specific measures.	No
Better Regulation	Existing Measure	The action provides a signpost to the existing regulatory system rather than seeking to implement specific measures. The Welsh Government will work with the UK Government to promote a consistent approach to better regulation across the UK.	No
Tackling illegal waste management	Existing Measure	The action provides a signpost to the existing regulatory system rather than seeking to implement specific measures. Welsh Government will work with Environment Agency Wales to ensure the “polluter pays” principle is adhered to through robust regulation and enforcement.	No
Export Controls	Existing Measure	The action provides a signpost to the existing waste regulation system. There are clear controls and restrictions on what waste can be exported. Welsh Government will work with Environment Agency Wales to prioritise combating the illegal trade in waste.	No
Regulate Waste Collection	Existing Measure	The action provides a signpost to the existing waste regulation system. All waste producers should use registered waste carriers as part of their duty of care. This will be enforced and regulated by the Environment Agency through the existing regulatory system.	No
Updating Waste Arisings and Management Data	Research	Welsh Government will update the I&C sector waste survey data by undertaking commissioning a new survey in 2013, with results to be published in 2014. Measures arising from new survey data may be considered in the future following more detailed investigation.	No
Waste Prevention (Including Reuse)			
Current Initiatives (funded support programmes such as WRAP Cymru and Eco-design Centre Wales)	Guidance & Education	To support the delivery of Towards Zero Waste and the associated sector plans, the Welsh Government funds a number of organisations to deliver specific waste prevention initiatives on its behalf. The main delivery organisations for industrial and commercial waste are WRAP Cymru and Eco-design Centre Wales. The Waste Prevention Programme SA and a report produced by Amec (Evaluation of a range of waste prevention initiatives for Industrial and Commercial wastes produced in Wales to support the Waste Prevention Programme) consider actions and initiatives for waste prevention. Therefore these actions are not considered further in this report.	No
Future Initiatives	Research	This is an action which sets out measures which may be considered in the future following more detailed investigation. Welsh Government will enhance the programme of support for SMEs in the retail and wholesale, and accommodation and food services sectors, along with office based services.	No

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
Preparation for Reuse			
Segregation and storage of waste by waste producers	Education and Guidance	Welsh Government to instigate a new campaign to encourage greater preparation for reuse via the production and dissemination of guidance using existing business support mechanisms	Yes
Support for preparing for reuse by the WEEE compliance schemes	Education and Guidance	The Welsh Government wishes to see WEEE collection schemes in Wales operating to maximise the preparation for reuse and reuse of WEEE. The Welsh Government will explore the scope for a greater level of reuse and preparation for reuse of WEEE in Wales.	Yes
Improved facilities for the collection of waste items for preparation for reuse from businesses	Research	This is an action which sets out measures which may be considered in the future following more detailed investigation. The Welsh Government has asked WRAP to investigate business models which promote the reuse of items from businesses; this may include the use of Household Waste Recycling Centres for the collection of these items. The list below outlines other related actions which are explained in the CIM Sector plan. • Increased action from local authorities on preparing for reuse. • Investigate mechanisms to establish enhanced reuse and repair networks • Enhancing markets for items that have been prepared for reuse	No
Recycling			
Increasing the recyclability of products and packaging	Research	The Welsh Government wishes to see manufacturers developing products which are more sustainable throughout their lifetime – seeking voluntary "extended producer responsibility". WRAP is already working with a number of manufacturers of packaging and products to investigate the development of more easily recyclable items.	Yes

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
Mandatory provision of a separate collection service for paper, metal, plastic and glass	Existing measure	This action is considered under the CIM Sector Plan SA. Guidance on the separate collection requirement will be provided by the Welsh Government in due course.	No
Further interventions to secure greater recycling of industrial and commercial waste, especially for food and cardboard waste.	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government has conducted a study which considers instruments that could be used to facilitate businesses recycling their waste. The study examines a number of new interventions: • The extension of the revised Waste Framework Directive requirement for all waste collection companies to provide a separate collection service for paper, metal, plastic and glass by 1 January 2015 to include food, cardboard and wood. • A requirement placed on waste producers to keep recyclable materials separate at source to facilitate their collection and recycling to a high quality. • The introduction of landfill bans for specific recyclable materials using provisions under the Waste (Wales) Measure 2010). • The introduction of energy-from-waste bans for specific recyclable materials. • The provision of a Local Government tendered recyclate collection service. The Welsh Government is currently considering these options and will consult on some or all of them in 2013.	No
Supporting business to secure high quality recycling of business waste.	Education and Guidance	The Welsh Government will ask WRAP to identify and communicate best practice on the segregation and separate collection of high quality recyclable materials from businesses and the public sector. This will identify how high quality recyclable materials can most cost effectively be collected separately from businesses, and in a way that minimises contamination.	Yes
Increasing awareness and behaviour change towards business waste recycling.	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government, in conjunction with its delivery partners, will evaluate the need for an awareness raising and behaviour change campaign on the benefits of recycling.	No
Support and encourage 'recycling on the go' collection systems	Existing measure	This action is considered under the CIM Sector Plan SA. On Welsh Government's request WRAP has established a 'recycling on the go' initiative in Wales. 'Recycle on the go' is an initiative developed by DEFRA and WRAP in England that is designed to establish recycling bin schemes alongside general litter collection in places visited by the public.	No
Provision of a directory of recycling companies	Existing measure	The action provides a signpost to an existing measure. The Environment Agency provides an online directory of waste companies that collect and/or manage recyclate.	No
Recycling business support	Existing measure	This action is considered under the CIM Sector Plan SA. Support for recycling companies in Wales is provided through two main routes. General support is provided through the Welsh Government's Department of Business, Enterprise, Technology and Science (BETS) under its "Energy and Environment Sector" support programme, and more targeted support is provided through schemes run by the WRAP with Welsh Government funding support.	No
Allowing businesses to use household waste recycling centres(HWRCs) or Civic Amenity (CA) sites (for recyclate only)	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government is working with the Welsh Local Government Association to undertake an investigation to examine the potential to utilise these facilities to receive business waste for recycling and also become centres for receiving items for reuse and preparation for reuse from businesses.	No

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
Extending kerbside recycling services for business wastes	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government will ask WRAP to explore with local government in Wales the potential for enhanced trade waste recycling collection services to be introduced where the private waste management sector does not provide a sufficient service.	No
Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme	Market & Infrastructure	Constructing Excellence in Wales has received funding from the Welsh Government and Welsh European Funding Office to provide support to Welsh waste management organisations to achieve PAS 402 via the Green Compass Scheme. The Welsh Government wishes to see all waste management companies in Wales operating to PAS 402:2009 Waste Resource Management – Specification for performance reporting and waste producers using these companies.	Yes
Waste Protocols Project	Existing measure	This action provides a signpost to national criteria and protocols rather than seeking to implement specific measures. Welsh Government to take an active role in commenting on the development of the quality protocols	No
Development of markets for recyclates in Welsh manufacturing	Existing measure	This action is considered under the CIM Sector Plan SA. 'Towards Zero Waste' sets an objective that the waste industry in Wales maximises carbon and ecological footprint reduction via the most effective outlet for the dry recyclates and digested food waste. This requires investment in reprocessing infrastructure, including the use of the secondary raw material in Welsh manufacturing and agriculture (for AD digestate). Provision of a consistent, high quality recyclate and biowaste stream to supply these businesses will help create the environment for this investment in Wales.	No
Further interventions for other specific materials	Existing measure	This action is considered under the CIM Sector Plan SA. Welsh Government will commission detailed studies into options for increased recycling opportunities / mechanisms for paper, card, metals, glass and plastic.	No
Working with Welsh manufacturers to increase the amount of recycled content for the target materials	Existing measure	This action is considered under the CIM Sector Plan SA. WRAP provide support to manufacturing companies to assist them in increasing the recycled content of their products or packaging. WRAP is also researching barriers to the recycling and recyclability of key materials; aluminium, plastics and glass.	No
Promotion of agreements to incorporate recycled content into products and packaging	Existing measure	This action is considered under the CIM Sector Plan SA. Agreements to incorporate greater amounts of recycled content into products and packaging should create greater demand for Welsh recyclate. The Welsh Government will discuss this further with the other UK administrations.	No
Development of standards for the incorporation of recycled content into packaging and products	Existing measure	This action is considered under the FMSR Sector Plan SA. In order of overcome the perceived issue that recycled content may not be "fit for purpose" the Welsh Government will work (via WRAP) with other UK Governments and trade bodies to develop standards for the incorporation of recycled content into products and packaging where appropriate.	No
Demonstration of recycled content incorporation into products and packaging	Existing measure	This action is considered under the FMSR Sector Plan SA. WRAP have already developed a number of case studies illustrating the successful incorporation of recycled content into products and packaging formats. The Welsh Government will continue to support WRAP in the development of these case studies and good practice guidance to encourage businesses to use recycled content in their manufactured goods, thus developing markets for Welsh recyclate.	No
Recycled Content Procurement	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government will further stimulate demand for recyclate by investigating the development of a requirement for public bodies in Wales to procure products with high levels of recycled content. It will also ask WRAP to support	No

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
		public sector bodies in Wales to sustainably procure items with a high recycled content. The Welsh Government (via WRAP) will work with large organisations to do likewise for their own supply chains by facilitating responsibility deals where appropriate.	
Support Changes to the PRN system	Education & Guidance	There is a need to encourage more glass to go to closed loop re-melt applications and reduce the amount of glass going into aggregates over time. Following the consultation, the four UK Nations have agreed to that for glass a new target should be set that by 2017 glass recycling will be 64% by re-melt. This change would ensure that the increased amount of material recycled by this new target will achieve a better environmental outcome.	Yes
Other Recovery & Disposal			
Provision of guidance on deviations from the waste hierarchy	Existing measure	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government has produced guidance on the waste hierarchy and this will be updated periodically.	No
Land spreading of untreated food waste	Existing measure	This action is considered under the CIM Sector Plan SA. The Welsh Government will work with the food manufacturing industry via the Food Manufacturing, Services and Retail Sector Plan to encourage the AD of food waste as a more sustainable way of managing this waste, rather than land spreading it in an untreated fashion.	No
Sink disposal of food waste	Market & Infrastructure	This action is assessed in the CIM sector plan SA. The Welsh Government will work with the water companies to ensure the appropriate use of FWDUs for the disposal of food waste.	No
Energy recovery for 'difficult' wastes	Existing measure	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will encourage the development of appropriate energy from waste routes for separated combustible wastes that are difficult to recycle where this is the best environmental option as determined by life cycle thinking. Guidance on allowable deviations from the waste hierarchy has been published by the Welsh Government.	No
Addressing evidence gaps	Research	This is an action which sets out measures which may be considered in the future following more detailed investigation. The Collaborative Waste, Resources & Sustainable Consumption Evidence Programme is a new collaborative initiative between Departments for Environment, Food and Rural Affairs (Defra) and Energy & Climate Change (DECC), the Environment Agency for England and Wales, WRAP and the Welsh Government. This programme provides a platform for evidence-based policy-making, and for selecting and implementing the most appropriate interventions for use in the delivery of policies, on waste, resource management and sustainable consumption in England and Wales. It provides evidence to support the needs of the Government Defra, DECC; the Welsh Government; and associated delivery bodies, the Environment Agency for England and Wales and WRAP.	No
Support for the treatment of industrial and commercial residual waste	Existing measure	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will keep a watching brief on the market as it should provide the additional capacity as long as the planning system facilitates this and the plants actually are built and operated. The Welsh Government will also monitor gate fees for EfW, and will make comparisons with the cost of recycling. Should it become apparent that EfW costs start to undermine recycling, then appropriate action may need to be taken in order to ensure that the waste hierarchy is not breached.	No

Action	Action Type	Screening Summary	Included in I&C SA? Yes/ No
Achieving high efficiency for Energy from Waste facilities in Wales – the use of heat	Existing measure	This action is considered under the CIM Sector Plan SA. 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.	No
Consultation on the introduction of restrictions on the landfilling of certain wastes	Research	This is an action which sets out measures which may be considered in the future following more detailed investigation. The Welsh Government will consult on introducing a ban on the landfilling of biodegradable wastes and may, in due course, consult on detailed proposals for the introduction of landfill bans of other materials as well.	No
Remaining landfill needed	Existing measure	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government intends to consult early in 2012 on revisions to Planning Policy Wales (PPW) and TAN21 that will include clarification on the future approach to landfill in Wales in respect of land use planning.	No
Treatment of hazardous waste	Existing measure	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will monitor capacity provision for the management of hazardous waste as part of its commitment to the annual monitoring of waste infrastructure. Planning guidance for Wales already encourages the development of the necessary infrastructure in Wales to manage hazardous waste. If it becomes apparent in the future that Wales has inadequate capacity for hazardous waste then the Welsh Government will consider what interventions may be required.	No

6.3 Summary of findings

6.3.1 The actions screening shows that 37 of the 43 I&C Sector Plan actions are omitted for SA. This is due to the actions either having been previously considered in other waste sector plans, or because the actions are Existing Measures within TZW or other existing legislation, strategy, regulation, target and guidance.

6.3.2 In addition, no new actions were identified for Resource Efficiency (Overarching Actions), Waste Prevention (Including Reuse) or other recovery and disposal categories of actions as they have already been assessed in the SAs carried put for Waste Prevention Programme, CIM & FMSR Plans.

6.3.3 As presented in Table 6.2 above, the following 6 actions were assessed in this SA:

Table 6.3 Actions Assessed in this SA

Action	Description of the Actions
Resource Efficiency (Overarching Actions)	
No actions assessed in this category.	
Waste Prevention (Including Reuse)	
No actions assessed in this category.	
Preparation for Reuse	
Segregation and storage of waste by waste producers	Waste producers should consider the hierarchy when considering the disposal of their waste. Products (and/or components of products) should not become waste unless this is not appropriate or achievable. If products (and/or components of products) are to become waste, then preparation for reuse should then be considered. They should be stored in a manner that can facilitate this process i.e. stored where no further damage can occur for example, through weather or knocks.
Support for preparing for reuse by the WEEE compliance schemes	The Welsh Government wishes to see WEEE collection schemes in Wales operating to maximise the preparation for reuse and reuse of WEEE. For example, careful storage of large WEEE in many civic amenity sites needs to be undertaken to minimise damage to collected appliances. This should involve provision for the separation at the collection point of WEEE that can be prepared for reuse from other separately collected WEEE destined for recycling. Improved collection systems and associated preparation for reuse facilities would help operators of compliance schemes meet their obligations under the above Regulations. The Welsh Government will explore the scope for a greater level of reuse and preparation for reuse of WEEE in Wales.
Recycling	
Increasing the recyclability of products and packaging	Currently there are a large number of products and packaging formats on the market, some of which are difficult to recycle. This variety can make recycling more difficult not only in terms of separating different materials from each other, but also for members of the public to recognise and recycle appropriately. In addition, some of the products and packaging formats are not recyclable in their current form. A rationalisation of these materials (where appropriate) could simplify recycling systems. The Welsh Government wishes to see manufacturers developing products which are more sustainable throughout their lifetime – seeking voluntary "extended producer responsibility". WRAP is already working with a number of manufacturers of packaging and products to investigate the development of more easily recyclable items.
Supporting business to secure high quality recycling of business waste.	'Towards Zero Waste' emphasises the need for high quality collections of recyclate to achieve the required sustainable development outcomes. This is reinforced by the requirement of the Waste Framework Directive for member states to take measures to promote high quality recycling, and to achieve this via separate collections of waste where technically, environmentally and economically practicable (TEEP) and appropriate to meet the necessary quality standards for the relevant recycling sectors (Article 11(1, sub-paragraph 2)). Businesses, especially SMEs, will need to understand the requirements of the Waste Framework Directive and the policies, outcomes and targets laid out in Towards Zero Waste (and the sector plans) and the practical steps that they need to take. The Welsh Government will ask WRAP to identify and communicate best practice on the segregation and separate collection of high quality recyclable materials from businesses and the public sector. This will identify how high quality recyclable materials can most cost effectively be collected separately from businesses, and in a way that minimises contamination. The aim will be to try to achieve the same high quality outputs as obtained by the kerbside sort method that is preferred for the collection of recyclables from households. The Welsh Government will also ask WRAP to provide guidance to businesses on how to segregate biowastes.
Reporting on recycling performance by	PAS 402:2009 is a BSI published specification for waste management organisations to demonstrate their performance. Sponsored by Constructing Excellence in Wales with funding

Action	Description of the Actions
expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.	from Welsh Government the specification was developed with the waste management industry to provide guidelines for the reporting of performance. It requires waste resource management organisations to make an assessment of their performance and calculate their achieved landfill diversion and materials recovery rates against a defined methodology. The accredited Green Compass Scheme provides the inspection framework for PAS 402, enabling waste management organisations to obtain independent third party inspection to verify their performance data. Constructing Excellence in Wales has received funding from the Welsh Government and Welsh European Funding Office to provide support to Welsh waste management organisations to achieve PAS 402 via the Green Compass Scheme. The Welsh Government wishes to see all waste management companies in Wales operating to PAS 402:2009 Waste Resource Management – Specification for performance reporting and waste producers using these companies.
Support Changes to the PRN system.	In the case of glass, there is a market distortion that results in a large quantity of glass being used as an aggregate – an "open loop" recycling operation that has undesirable environmental outcomes (a low embedded energy material – stone – is being replaced by a high embedded energy material – glass). This does not comply with the closed loop objective laid down in Towards Zero Waste. Nor does it comply with the high quality recycling objective of the Waste Framework Directive. The market distortion results from the use of the Packaging Recovery Note (PRN), issued under the Producer Responsibility Obligations (Packaging Waste) Regulations 2007). The PRN system enables companies to pay for the recovery and recycling of an equivalent amount of packaging to that used in their production operations and so offset their obligations under the Regulations. It is currently possible to claim PRN revenue for recycling glass into aggregate making this end market a viable option of glass recyclate. The availability of this end market, its perceived low cost (because of the PRN subsidy) and less rigorous quality requirement of recycled glass used as an aggregate has meant that collection schemes have not been designed to produce a high quality closed loop glass recyclate stream. Around 30% of glass in the UK is recycled as aggregate and in Wales around 75% of the glass handled in accredited packaging reprocessors in Wales was recycled as aggregate. The amount of recovered container glass destined for uses other than re-melt, including aggregates, has more than doubled in the UK since 2005. To achieve the best environmental outcome, there is a need to encourage more glass to go to closed loop re-melt applications and reduce the amount of glass going into aggregates over time. At the end of 2011 the UK Government and Devolved Administrations consulted on next phase of packaging recycling targets for the proposed period 2013 – 2017. Following the consultation, the four UK Nations have agreed to that for glass a new target should be set that by 2017 glass recycling will be 64% by re-melt. This change would ensure that the increased amount of material recycled by this new target will achieve a better environmental outcome.
Other Recovery & Disposal	
No actions assessed in this category	

6.4 Assessment of Actions

6.4.1 The following table presents a summary of the SA of each of the category groups considered. 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 I&C Sector Plan for each category of actions. Full details of the assessment are presented in Appendix C.

Table 6.4 I&C Sector 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
Preparing for Reuse	✓✓	✓✓/×	✓	✓	✓	✓	✓	✓	✓
Recycling	✓✓	✓✓/×	✓/×	✓/×	✓/×	✓/×/	✓	✓	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

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Preparation for Reuse

6.4.2 Assessed actions for preparation for reuse;

- Segregation and Storage of waste by waste producers to facilitate preparation for reuse
- Support for preparing for reuse by the WEEE compliance schemes

6.4.3 The actions are considered to have a strong positive effect in relation to the waste management objective as it seeks to encourage 'preparation for reuse' of products (and/or components of products) that are to become waste by an increase in awareness through consideration of the waste hierarchy and separating products for reuse. Specifically, this would encompass redundant but working (or repairable) items of equipment that businesses put out for collection as waste which are prepared for reuse rather than being recycled or landfilled. This could include carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing. The actions also encourage the storage of these products in a manner that can facilitate this process (i.e. stored where no further damage can occur) e.g through weather or handling. In the long term, this could contribute an increase of sustainable waste management within the I&C sector.

6.4.4 Implementing these actions should also promote an increased awareness and understanding of sustainable management and resource efficiency activities within I&C businesses. This in turn should generate behavioural change toward awareness of reuse and therefore reducing disposal waste and the level of waste requiring management. Reduced demand for resource and increased reuse items as a result of these actions will generate a number of benefits with respect to the minimisation of Wales' Ecological Footprint (EF).

6.4.5 In terms of waste infrastructure objective, the actions could help increase the number of infrastructure and facilities for sustainable waste management. This can be achieved by encouraging the development of waste collection systems which protect waste products in a way that maximises their potential for reuse. This in turn may encourage the deployment of alternatives waste technologies and R&D.

6.4.6 As businesses are encouraged to separate waste materials for reuse, there may be less recycled products 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 would be a negative effect in relation to employment opportunities. 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 actions in the longer term.

6.4.7 Less waste is disposed to landfill and this can be cost benefits for companies. The costs of sending waste to landfill are increasing, in particular the rising Landfill Tax (it is increasing by £8 per tonne per year from a present figure of £48 per tonne to £80 per tonne on April 2014). In addition to waste disposal and transport costs, there are further hidden costs such as the value of lost raw materials and the value-added cost from labour and energy. Minimising waste and reducing the volume of disposal waste may therefore generate cost savings related to the management of such waste.

6.4.8 The actions are expected to have a positive effect on objectives relating to landscape/biodiversity/cultural heritage, land take, soil, water, air quality/noise/odour, climate change and health due to the potential for the action to optimise materials use (i.e. by conserving limited resources and avoiding the extraction of resources for

production of new materials such as paper, card, food, chemicals and plastics), and reduce reliance on landfill/residual treatment. The actions could also contribute to an increased civic engagement in reuse activities. Manufacturers, wholesalers and retailers could influence the behaviours of their staff, visitors, customers and general public to help ensure that they are fully engaged in less wasteful behaviour by encouraging their involvement in reuse activities.

6.4.9 It is anticipated the effects of the actions will, on balance, result in long term benefits. 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. Some employment opportunities could potentially be supported by the actions in the longer term, particularly for the third sector to be involved in the waste management infrastructure.
- Promoting the sustainable and safe/healthy location and operation of new facilities destined to prepare waste for reuse. This includes avoiding areas at flood risk.
- The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing should be carried out in a manner that doesn't affect the natural and historic environment, water, soil, local air quality as well as the health and well-being of workers and local community (i.e. stored where no further damage can occur through weather or knocks).
- Consideration of operational waste issues through EIA of new I&C interventions/schemes.
- Ensure that qualifying I&C interventions/schemes minimise transport distance of reused items from/to premises for preparation for reuse, and promote energy efficiency and use of on site renewable energy where appropriate.

Recycling

Actions assessed for recycling;

- Increasing the recyclability of products and packaging
- Supporting business to secure high quality recycling of business waste.
- Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.
- Support Changes to the Packaging Recovery Note (PRN) System.

6.4.10 The actions are considered to have a strong positive effect in relation to waste management and waste infrastructure objectives as it should encourage recycling within the I&C sector by persuading businesses to use waste management companies accredited under the Green Compass Scheme and make best use of the PRN system. This action will also help raise awareness of I&C businesses and waste management organisations, which in turn should generate behavioural change toward recycling therefore reducing disposal waste.

6.4.11 Delivering high quality recycling can also make significant reductions in the amount of waste produced in the I&C sector. In particular, the closed loop recycling of quality materials from all waste streams is of fundamental importance and is a key aspect of the sustainable development led approach of Towards Zero Waste.

6.4.12 In terms of waste infrastructure, the actions will serve to encourage an increase in sustainable infrastructure and facilities, as the actions will promote the collection, check, recycling and disposal of waste in an environmentally sound fashion. By encouraging an increase in recycling, the actions will also help to promote market opportunities for recycling and substitute materials such as paper, cardboard, metals, glass and packing.

6.4.13 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. 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. Some employment opportunities could potentially be supported by the action in the longer term. Research[68] shows that implementing a 70% recycling rate by 2025 would potentially create new jobs in Wales in the order of

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

6.4.14 By recycling waste materials, less waste is disposed to landfill and this can be cost benefits for companies and other key actors. Modelling work commissioned by WRAP[69] indicates that increased recycling associated with investments in collection and treatment infrastructure will lead to a reduction in overall costs compared with continuing with current systems. This is due, for the most part, to avoided disposal savings – i.e. the reduction in residual waste requiring disposal. Savings also arise through the generation of additional revenue from increased capture of recyclates. Under the scenario where the 70% recycling targets in Towards Zero Waste are met, over £50m per annum of savings are made within the standard commercial and industrial waste services by 2025 compared to the costs in 2010, and increasing to over £60m per annum by 2050.

6.4.15 The actions are also expected to have a positive effect on objectives relating to landscape/biodiversity/cultural heritage, soil, water, air quality/noise/odour, climate change and health due to the potential for the actions to optimise materials use (i.e. by conserving limited resources, avoiding the production of virgin materials, such as plastics and minerals), and reduce reliance on landfill/residual treatment.

6.4.16 It is anticipated the effects of the actions will be in the medium/long term, offering, as an overall, benefits in the long term. However, there may also be some negative effects associated with these areas due to an increase in waste recycling infrastructure and the associated transport of waste to and from these facilities. Detailed assessment of the impacts associated with these sites will require consideration at project level. 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.

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

69 Economic Assessment of the Welsh Government's Collections, Infrastructure and Markets Sector Plan. WRAP (2011)

- Promoting the sustainable and safe/healthy location of new recycling facilities. This includes avoiding areas at flood risk.
- Consideration of operational waste issues through EIA of new I&C interventions/schemes.
- Promote best practice in waste storage for businesses and facilities.
- Ensure that qualifying I&C interventions/schemes minimise transport distance of recycled and reused products from/to premises and promote energy efficiency and use of on site renewable energy where appropriate.

Assumptions and Limitations

6.4.17 TZW sets out a strategic vision for the future management of waste until 2050. Therefore, the temporal scope or timeframe for the I&C Sector Plan actions is the same and focuses on the period up to 2050.

6.4.18 It is assumed that actions scoped out from this SA and linked to other waste sector plans will be subject to SA as part of the SA process of those sector plans.

6.4.19 The I&C Sector Plan does not provide a detailed plan for the provision of new waste infrastructure and management facilities and therefore transboundary and spatial/local effects from specific proposals cannot be considered. Those effects will have to be assessed at a local level through the planning application process and mechanisms such as Environmental Impact Assessment (EIA), Buildings Research Establishment Environmental Assessment Method (BREEAM), etc, and assess their compliance with local and regional development plans.

Conclusions

6.4.20 It is anticipated that the implementation of the I&C Sector Plan will have an overall positive effect. No significant adverse effects have been identified in the assessment of the I&C Sector Plan actions and as a result no mitigation measures are proposed for significant effects. However, a number of mitigation measures for lower magnitude effects have been identified. This aims to improve the performance of the Plan, and reduce uncertainties identified at this stage. 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 I&C Sector Plan together with other past, present or reasonably foreseeable actions. This includes:

- consideration of how the draft I&C Sector 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 I&C Sector Plan with other plans, programmes and projects

6.5.2 The cumulative effects of the draft I&C Sector Plan with other plans, programmes and projects are difficult to predict in detail at a strategic level, although it is possible to set

out a number of likely general effects that may occur. The cumulative effects on the waste management and waste infrastructure SA objectives are likely to be significantly positive when considered together with the other six sector plans to support TZW and 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 through initiatives such as those set out in the draft I&C Sector Plan.

6.5.3 The cumulative effects of the draft I&C Sector Plan with other plans, programmes and projects on the landscape, biodiversity and cultural heritage, soil, water, air quality/noise and odour and climate change SA objectives are likely to be positive at a strategic level due to the combined effects of the draft I&C plan and other plans and programmes in optimising materials use (i.e. by conserving limited resources and avoiding the production of virgin materials, such as plastics), and in reducing reliance on landfill/residual treatment.

6.5.4 There is however some potential for local adverse cumulative effects depending on the physical developments which may lead from the actions set out in the draft I&C Sector Plan with other developments on the ground, e.g. the cumulative effect of a waste infrastructure development with a housing or employment development may detract from the setting of a Listed Building or the landscape value of an Area of Outstanding Natural Beauty. The potential cumulative effects of such developments would be considered in more detail at local level through the planning application process.

6.5.5 The cumulative effects of the draft I&C Sector Plan with other plans, programmes and projects on the health SA objective is also difficult to predict. Although, at a strategic level, it is more likely that cumulative health effects will be positive.

Combined effect of individual effects of the draft I&C Sector Plan

6.5.6 Significant positive cumulative effects are predicted for the waste management SA objective as the primary focus of the actions and initiatives within the draft I&C Sector Plan is resource efficiency and waste minimisation. Implementing these 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. The emphasis of the draft I&C Sector Plan on preparing for reuse, recycling and landfill diversion encourages the development and delivery of infrastructure and facilities for sustainable waste management through a range of actions and initiatives, which a combination of these actions should have positive cumulative effects on the waste infrastructure SA objective.

6.5.7 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 such as minerals) 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 landfilling waste (i.e. leaching, soil contamination, emission, odours etc.). In addition, by encouraging resource efficiency, waste prevention, reuse, recycling and landfill

diversion, the draft I&C Sector 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.

6.5.8 The cumulative effects of the draft I&C Sector Plan on the health SA objective is likely to be positive since the promotion of resource efficiency, waste prevention, reuse/recycling and landfill diversion through the combination of actions will help to achieve higher levels of waste minimisation and a better management of waste e within I&C businesses (i.e. producers of chemicals, mineral products sector, paper/pulp/board manufacturing and combustion pants). 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/recycling 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).

6.5.9 Finally, the draft I&C Sector Plan could also have a cumulative positive effect on the civic engagement SA objective as through these actions, I&C businesses 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 recycling and help them make the right purchasing decisions to avoid waste.

Assumptions and Limitations

6.5.10 The I&C Sector 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[70].

6.5.11 The I&C Sector Plan contains actions linked to other TZW Sector Plans, such as the CIM Sector Plan, and the Public 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.

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

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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 draft I&C Sector 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 6.5 below.

Table 6.5 Description of the alternatives to the I&C Sector Plan

Actions	Option 1: Minimum intervention. No guarantee of meeting TZW targets within timeframe.	Option 2: Medium level intervention. Forecast to meet TZW targets.	Option 3: high level intervention. Forecast to exceed TZW targets within a shorter timeframe.
Preparing for Reuse			
Segregation and storage of waste by waste producers to facilitate preparation for reuse	Companies to be proactive in accessing on line guidance that's already available in respect of following the waste hierarchy	Welsh Government to instigate a new campaign to encourage greater preparation for reuse via the production and dissemination of guidance using existing business support mechanisms	One to one business support to achieve greater preparation for reuse levels
Support for preparing for reuse by the WEEE compliance schemes	Welsh Government to provide guidance and information on WEEE collection schemes in Wales with a view to encouraging I&C businesses to reuse a higher percentage of WEEE items.	Welsh Government to implement a strategy for ensuring I&C businesses achieve a greater level of reuse and preparation for reuse of WEEE items.	Welsh Government to set targets for the reuse and preparation for reuse of WEEE items.
Recycling			
Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.	Companies only to check Duty of Care practices of waste management company	The Welsh Government wishes to see all waste management companies in Wales operating to PAS 402:2009 Waste Resource Management – Specification for	Mandate the use of Green Compass companies

Actions	Option 1: Minimum intervention. No guarantee of meeting TZW targets within timeframe.	Option 2: Medium level intervention. Forecast to meet TZW targets.	Option 3: high level intervention. Forecast to exceed TZW targets within a shorter timeframe.
		performance reporting and waste producers using these companies.	
Supporting business to secure high quality recycling of business waste.	No additional support or guidance provided by Welsh Government.	Welsh Government will, via WRAP, will identify and communicate best practice guidance on the segregation and separate collection of high quality recyclable materials from businesses and the public sector.	Full programme of support and guidance to be delivered to I&C businesses by Welsh Government.
Increasing the recyclability of products and packaging	Welsh Government to cease pro-active engagement with manufacturers in relation to the development of more recyclable packaging.	Welsh Government, via WRAP, to continue working with manufacturers of packaging and products to investigate the development of more easily recyclable items.	Welsh Government to increase engagement with industry and manufacturers from current level to develop more easily recyclable items.
Support Changes to the PRN system.	No active encouragement to utilise the PRN system to recycle glass.	Welsh Government to encourage I&C businesses to recycle a higher percentage of glass through re-melting (64% required by 2017) by using the PRN system.	Full programme of support and guidance to be implemented to exceed the required targets for percentage of glass recycled through re-melting.

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 assessment of the MSP Sector Plan (Part 1). 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 I&C Sector Plan
↓	Option likely to have a less positive effect on the objective than that assessed for the draft I&C Sector Plan
↑↓	Option likely to have a mixed positive and negative effect on the objective than that assessed for the draft I&C Sector 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 6.6 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 than Option 2 which will guarantee meeting the TZW objectives within the timeframe; and
- Option 3 would be a slightly more beneficial option compared to Option 2. However, Option 3 would be more expensive to implement and it provides an insight into the maximum potential of the plan to achieve even better targets in a shorter timeframe through the availability of highest financial and resource investment, mandatory targets and eco-design to priority and other sectors, mandatory targets for resource efficiency and waste reduction through permits, and employment of business advisors to provide one to one support.

6.6.12 The assessment also indicates that:

- No significant differences between Options 1 and 2 have been identified for meeting the landscape, biodiversity and cultural heritage , soil, water, air quality, noise and odour, climate change, health and civic engagement objectives; Option 3 is likely to have more positive effects on these objectives than the other two options. Actions such as highest financial and resource investment, mandatory targets and environmental standards and support of full programme of business efficiency will enhance the positive effects of the other two Options within a shorter timeframe.

Table 6.6 – Assessment of the draft I&C Sector Plan

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft I&C)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
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 assessed. 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 the I&C businesses. Option 3 will be a more beneficial option compared to Option 2 for all categories of actions as beyond best practice behavioural changes is considered. This Option will include increased engagement with industry and manufacturers, full support and guidance programmes for businesses and targets for the reuse of WEEE items. These actions will support further waste minimisation and behavioural change, and thus 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.
Waste Infrastructure	↓	✓✓	↑	Option 1 has been assessed as having a less positive effect than Option 2 in meeting the waste infrastructure objective

Objective	Do Minimum Alternative	Preferred Option	Do Maximum Alternative	Commentary
	Option 1: Business as Usual (TWZ)	Option 2: Best Practice (draft I&C)	Option 3: Beyond Best Practice	
				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 for the provision of new infrastructure, best currently available technologies and consumption behaviours. The option mainly focus on encouraging companies to be proactive in accessing on line guidance that's already available and in using existing permitting practices. Option 3 will be a more beneficial option compared to Option 2 for all categories of actions since this scenario provides an insight into the maximum potential of the plan to achieve even better targets in a shorter timeframe, increased industry engagement, investment, mandatory targets and environmental standards and a full programme of business support. These stronger actions in turn encourage an increase in infrastructure and facilities for sustainable waste management and promote better training/retaining workforce. 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, as an overall, positive effects on

Objective	Do Minimum Alternative	Preferred Option	Do Maximum Alternative	Commentary
	Option 1: Business as Usual (TWZ)	Option 2: Best Practice (draft I&C)	Option 3: Beyond Best Practice	
Soil	?	✓	↑	these objectives due to the potential for specific interventions and TZW targets requirements to optimise materials use (i.e. by conserving limited resources and avoiding the production of virgin materials, such as minerals), and reduce reliance on landfill/residual treatment. Some negative effects may be generated as other waste infrastructure developments will be needed, although it is anticipated that both options will have long term benefits to the environment. The difference is that Option 1 may require more time than Option 2 to achieve these benefits and meet TZW targets. 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.
Water	?	✓	↑	
Air quality, noise and odour	?	✓	↑	

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft I&C)	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 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 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, on balance, it is expected that as a whole the actions will have a positive effect in relation to GHG emissions. The difference is that Option 1 may require more time than Option 2 to achieve these benefits and meet TZW targets. Option 3 will be a more beneficial option compared to the other two for all categories of actions since actions will enhance the positive effects of the other two Options within a shorter timeframe.
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 preparation for reuse /recycling and landfill diversion of waste, the options will help to achieve higher levels of waste minimisation and a better management of waste within I&C businesses (i.e. producers of chemicals, mineral products sector, paper/pulp/board manufacturing and combustion pants). This in turn will provide a safer and

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft I&C)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
				healthier working environment (for example by reducing air and noise pollution, odours and hazardous materials). In addition, both options are expected to have a positive health effect on social capital and community cohesion and environment through the anticipated increase in reuse/recycling rates, the reduction in movement of HGV waste vehicles 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). The difference is that Option 1 may require more time than Option 2 to achieve these benefits and meet TZW targets. The same applies for Option 3, being the effect more positive than the other two options. Actions such as implementation of mandatory targets and environmental standards and market initiatives will enhance the positive effects of the other two Options within a shorter timeframe.
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. I&C businesses could influence the behaviours of their staff, visitors, customers and general public to help ensure that they are fully engaged in waste reuse and recycling and help them make the right purchasing decisions to avoid waste. The difference is that Option 1 may require more time than Option 2 to achieve these benefits and meet TZW

Objective	Do Minimum Alternative Option 1: Business as Usual (TWZ)	Preferred Option Option 2: Best Practice (draft I&C)	Do Maximum Alternative Option 3: Beyond Best Practice	Commentary
				targets. The same applies for Option 3, being the effect more positive than the other two options. Actions such as implementation of mandatory targets and environmental standards will enhance the positive effects of the other two Options within a shorter timeframe.

Assumptions and Limitations

6.6.13 TZW has already considered the overall strategic alternatives for managing waste in Wales and therefore this assessment has not re-assessed these alternatives. The approach to the consideration of alternatives is based on developing I&C Sector Plan alternatives to meet the requirements of waste prevention, preparing for reuse, recycling, recovery and disposal set out in TZW.

6.6.14 TZW sets out a strategic vision for the future management of waste until 2050. The temporal scope or timeframe for the I&C Sector Plan alternatives therefore is the same and focuses on the period up to 2050.

6.6.15 The technical scope for the assessment of the alternatives covers the environmental topics and objectives used in the assessment for the draft I&C Sector Plan.

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 I&C Sector Plan. Some of the localised effects could be avoided or reduced at the design and construction stages of individual proposals/projects.

6.7.2 Mitigation measures may take the form of:

- Adding, deleting or refining measures;
- The presentation of new alternatives;
- Technical measures;
- Requirements for the undertaking of an Environment Impact Assessment on certain measures; and
- Proposals for changing other plans or programmes.

6.7.3 Although no significant negative effects were identified during the assessment, mitigation measures for lower magnitude effects are presented here. This aims to improve the performance of the Plan, and reduce uncertainties identified at this stage. Enhancement measures have also been identified in a number of instances in order to maximise the benefits of positive effects.

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

Effect on Local Employment

6.7.5 As the I&C businesses are encouraged to improve 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. 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.

Storage of products to be reused

6.7.6 Promotion of storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment, redundant stock, and protective clothing should be carried out in a manner that doesn't affect the natural and historic environment, water, soil, local air quality as well as the health and well-being of workers and local community (i.e. stored where no further accidental damage can occur).

Effects on air quality

6.7.7 There are likely to be long-term 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, in use of transport (for example to re-processors of raw materials and to place of use) and in reprocessing processes. Potential mitigation to ensure a net improvement would include the consideration of air quality (including GHG) issues through EIA of qualifying interventions and/or measures for reducing the need to transport reuse items and waste to prepare to be reused.

Collection, preparation for reuse and recycling facilities

6.7.8 The collection and treatment infrastructure for preparation for reuse and recycling could generate negative effects on historic and natural environment, soil and water resources and increased flood risk. Potential mitigation measures could include the promotion of sustainable and safe/healthy location of new collection, preparation for reuse and recycling facilities.

6.7.9 Table 6.7 below summarises the mitigation and enhancement measures proposed.

Table 6.7 Recommended Mitigation and Enhancement Measures

SA Topic	Recommended Mitigation and Enhancement Measures	Category of Actions to which this could be applied
Waste Management and Waste Infrastructure	Including 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.	Preparation for Reuse Recycling
	Promoting the sustainable and safe/healthy location of new facilities. This includes avoiding areas at flood risk.	Preparation for Reuse Recycling
	Consideration of waste issues through EIA of qualifying I&C interventions/schemes.	Preparation for Reuse Recycling

Landscape, Biodiversity and Cultural Heritage	The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing should be carried out in a manner that doesn't affect the natural and historic environment (i.e. stored where no further accidental damage can occur).	Preparation for Reuse
Soil	The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing should be carried out in a manner that doesn't affect the soil resource (i.e. stored where no damage from compaction or leaching can occur).	Preparation for Reuse Recycling
Water	The storage of products to be prepared for reuse such as electrical equipment, construction materials and redundant stock should be carried out in a manner that doesn't affect the water resource (i.e. stored where no pollution of water bodies can occur).	Preparation for Reuse
Air Quality, Noise and Odour	Ensuring that qualifying I&C interventions/schemes minimise transport distance of recycled, reused products and waste to be reused from/to premises.	Preparation for Reuse Recycling
Climate Change	Ensuring that qualifying I&C interventions/schemes minimise transport distance of reused items from/to premises for preparation for reuse and of recycled products.	Preparation for Reuse Recycling
	Promoting energy efficiency and the use of renewable energy technologies in qualifying I&C interventions/schemes.	Preparation for Reuse Recycling
Health	Establishment of health and safety standards for qualifying I&C preparation for reuse and recycling interventions/schemes where appropriate. E.g. reduce the requirement for manual handling operations.	Preparation for Reuse Recycling
	The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment, redundant stock, and protective clothing should be carried out in a manner that doesn't affect the health and well-being of workers and local community.	Preparation for Reuse

7 HEALTH IMPACT ASSESSMENT

7.1 Purpose of a Health Impact Assessment

7.1.1 The purpose of a 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 According to 'Health Impact Assessment: A Practical Guide[71]' an HIA is defined as;

"both a health protection and health promotion tool. In HIA, health is broadly defined to include assessment of both health hazards and health benefits of a proposal and the potential ways in which health and well-being can be both protected and promoted."

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.

[71]Harris, P. Harris-Roxas, B., Harris, E., & Kemp, L. 'Health Impact Assessment: A Practical Guide.' Sydney: Centre Health Equity Training, Research and Evaluation (CHETRE) 2007

7.3 Aims and Objectives of the I&C Sector 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 I&C Sector 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 I&C Sector Plan;
- Maximise the health opportunities of the draft I&C Sector 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 I&C Sector 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 I&C Sector 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; the Environment Agency; 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

Potential Health Pathways Associated with Waste
• 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. • 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.

<u>General population</u>

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
- Municipal Sector Plan Part 1 SA.

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 MSP1 (Table 4.2) 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, the I&C Sector Plan SA, links were made between the established overarching determinants for health, the sub-objectives of the I&C Sector 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

Unemployment	• In 2009 unemployment rate in Wales reached 7.5% • 200,000 (18.3%) working-age people had been receiving a key out-of-work benefit for two years or more. • Almost half of part-time workers in Wales earn less than £7 per hour • 80% of key out-of-work benefits are claimed due to ill-health in Wales • 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 • In Wales £7.5800,000 is paid in working age benefits each working day • Two thirds of the long term claimants in Wales are aged 54 or less • A person who has received Incapacity Benefit for 6 months has a 50% chance of remaining on that benefit 4 years later • Once incapacitated for 12 months the average duration of stay is around 8 years, and you are more likely to retire or die than to go back to work
Crime	• Jobless offenders are more likely to re-offend than those who gain work, and are 13 times more likely to have been in care • An offender in Wales can have a heroin addiction needing £150 a day. requiring an annual income of £70,000
Education	• 15% of all adults of working age in Wales reported having no qualifications;
Health	• Unemployed men in Wales are twice as likely to develop mental illness as working men. • Debt, mental health and drug and alcohol abuse are reported as key barriers to work by employment advisers in Wales • 5% of all hospital admissions in Wales are related to alcohol use • 50% of the areas with limiting long-term illness are located in the north of the Valleys. • Rate of premature death is 50% higher for men than for Women in Wales.

Housing	• Number of homeless families in temporary accommodation in Wales is three times that of 10 years ago. • Overcrowding in accommodation is four times as prevalent in rented accommodation as in owner-occupation
Social Cohesion	• In Wales half of heads of households aged between 25 and 54 in social rented housing are not in paid work compared to one in twelve of those in owner-occupation. • Three-quarters of social renters do not participate in any organisation compared to half of owner-occupiers. • In 2008 32% of children in Wales were living in Poverty • In Wales half of all children eligible for free school meals attend a fifth of the schools

Assessment of I&C Sector 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.

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 development of mitigation strategies.

7.7 Results of the HIA are presented in Appendix D and link the health impact, subsequent recommendation/ mitigation and associated evidence to each particular I&C Sector Plan action.

7.8 Health Impacts Assessment Summary

7.9 The Industrial & Commercial Sector Plan focuses on the key role that the sector plays in reducing key waste streams both produced from their own premises and generated further along the chain by the public. The plan focuses on waste prevention and segregation at source of both waste and products produced by the sectors.

7.10 The principal actions within the Industrial & Commercial Sector Plan were assessed for their Health Impacts. This included measures to encourage reuse before recycling or disposal, correct storage and segregation of waste allowing reuse, introducing closed loop resource management approach and the promotion of anaerobic digestion as a primary reuse of food waste.

7.11 The actions included market studies and incentives as well as reshaping measures. These measures seek to encourage and prepare businesses within the I&C sector to address issues related to restructuring their waste systems for reduction, separation and specific reuse.

7.12 All positive health impacts resulting from assessment of the Industrial & Commercial Sector Plan were confined to those actions which involved a proactive measure, for example the Welsh Government measure to ban on biodegradable waste and priority materials (wood, plastic, metals etc) to landfill.

7.13 Actions within the Industrial & Commercial Sector Plan which were either passive or non-specific were assessed as being either no action or uncertain and therefore their outcome could not be confirmed. This includes actions regarding consultation on restrictions of landfilling certain wastes, which looked at measures to be considered in the future. Such passive or non-specific actions were therefore assessed as having no health impact.

7.14 The waste sector is known as a hazardous industry for manual or semi-skilled staff, therefore where the Industrial & Commercial Sector Plan generates new jobs opportunities, there was a slight negative health impact from potential work incidents. This risk needs to be addressed and mitigated against, through management measures and training. However it must not be overlooked that new employment opportunities provide a clear potential positive heath impact on economy and employment.

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 I&C Sector 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 I&C Sector 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 Sector 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 I&C Sector Plan.

8.1.4 This assessment has been based upon preliminary information provided by Welsh Government on the scope of the I&C Sector Plan. The Scope and Objectives are presented in Section 2.

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. However 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).

8.2.2 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. 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.

8.2.3 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'.

8.2.4 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...'

8.2.5 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 screening assessment undertaken as part of Stage 1 of the HRA process to establish whether or not the likely impacts of the Waste Sector Plan is likely to have significant effects upon Natura 2000 sites. 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 Sector Plan may still require its own HRA assessment[72] and the HRA of the Sector Plan does 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;

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 I&C Sector Plan is directly connected with or necessary to the management of Natura 2000 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 Natura 2000 site has been designated.

8.5.3 The I&C Sector Plan is neither directly connected with, nor necessary for, the management of any Natura 2000 sites within the England. As such it is clear that further consideration of the plan by way of a HRA screening assessment is required.

Step 2: Description of the I&C Sector Plan

8.5.4 The I&C Sector Plan will provide policy interventions which will result in Wales meeting the aims and objectives of the Revised Waste Framework Directive and Towards Zero Waste for all of the Industrial and Commercial Sectors. It will focus on the following:

- the wastes produced directly by the sectors (with a focus on waste prevention, and segregation at source ready for separate collection of recyclate),
- the products produced by the sectors (as these need to generate less waste at end of life, they need to be more recyclable, they need to have a higher recycled content, and the producer needs to take more extended responsibility for its management at end of life).

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

8.5.5 The I&C Sector Plan focuses primarily on measures that aim to facilitate and support changes within the I&C industries in order to assist them in meeting the objectives and targets set for the Sector Plan.

8.5.6 An HRA[73] 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). A HRA screening assessment was carried out to ascertain whether TZW could have the potential to impact on Natura 2000 and Ramsar 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.

8.5.7 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. The assessment also found that there was some potential for adverse effects on European sites from the development of new waste management infrastructure such as high efficiency EfW plants which may be used to address difficult wastes such as wood and the use of anaerobic digestion (AD) for biodegradable wastes generated by the I&C sector. Such new infrastructure may also have a positive effect on European sites if the energy produced from these plants offsets energy production from conventional energy plants where emissions result in adverse effects on sites.

8.5.8 The promotion of more extensive recycling was recognised as having the potential to require more Materials Recycling Facilities (MRF) and Waste Transfer Stations (WTS) to sort and separate recyclable materials (though the number of these is dependant on the extent of source segregation). Careful siting of such sites will be required where they are located in proximity to Natura 2000 and Ramsar sites to avoid adverse effects. Increased levels of recycling should also result in a reduction in emissions from plants extracting and processing primary raw materials. This could have a positive effect on some Natura 2000 and Ramsar sites depending on the location of the facilities.

8.5.9 Given that the I&C Sector 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 I&C Sector Plan at a high level beyond that of the assessment undertaken previously for TZW HRA.

8.5.10 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

[73] 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)

illustrates the range of criteria likely to be used when refining potential locations for waste infrastructure facilities.

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)*

8.5.11 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 particular sites.

8.5.12 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 I&C Sector Plan. The impacts must therefore be viewed on a non-specific basis on all of the different designated habitats and species which form the Natura 2000 network. This includes impacts upon Natura 2000 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.

Other Plans and Programmes and In-Combination Effects

8.5.13 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 I&C sector Plan. Some of the effects (identified in Table 8.2)

may occur as a result of the I&C Sector 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
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)

8.5.14 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.

Likely Significant effects

8.5.15 The I&C Sector Plan does not contain any spatial elements or significant new information regarding waste infrastructure and does not provide a framework for proposals to achieve planning consent.

8.5.16 Notwithstanding the requirement for further assessment, it is highly likely that within the regulation and permitting of the development of projects to implement The I&C Sector 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 is required via the Water Framework Directive[74], the consideration of impacts on designated sites is covered under the Habitats

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

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) and where a rigorous assessment of alternatives had been undertaken and determined prior to the IROPI assessment.

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

8.5.18 Given the possibility of significant effects associated with the I&C Sector Plan, further, detailed assessment is necessary to satisfy the requirements of the Habitats Regulations. This detailed assessment is described as an 'Appropriate Assessment'.

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

8.5.20 The I&C Sector 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.

8.5.21 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.

8.5.22 Where possible over-arching mitigating statements should be incorporated within the I&C Sector Pan, for example:

- that development will not be located within any Natura 2000 site so that no direct habitat loss will occur;
- that wherever possible works will be avoided where there is a direct transmission pathway to Natura 2000 or Ramsar sites;
- that buffer zones will be provided between development zones and Natura 2000 and Ramsar 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 proximity to Natura 2000 or Ramsar sites, which are sensitive to those effects – e.g. where particular adverse impacts on the water environment are identified.

8.5.23 Through the HRA screening it has not been possible to categorically demonstrate that I&C Sector Plan will not have any likely significant effects upon Natura 2000 sites, the Natura 2000 network or Ramsar sites. Given the uncertainty of significant effects associated with, further, detailed assessment through Appropriate Assessment is considered necessary to satisfy the requirements of the Habitats Regulations.

8.5.24 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.

8.5.25 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 I&C Sector Plan WAG, CCW and Environment Agency) to apply in full the key tests as stipulated by the Habitats Directive.

8.5.26 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 imperative reasons of overriding public interest (IROPI) is 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 information necessary to reach a definitive conclusion. Where projects 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 I&C Sector Plan contains actions linked to other TZW Sector Plans, such as the CIM Sector Plan, FMSR Sector Plan and Waste Prevention Programme. Potential effects of those actions have been or will be 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.

9.1.3 The development of future regional and local plans and programmes will have to take into consideration the targets and objectives set out in the I&C Sector Plan.

9.2 Monitoring

9.2.1 A monitoring strategy will be implemented to monitor potential effects of the implementation of the I&C Sector 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 I&C Sector Plan. Monitoring involves measuring indicators which establish a link between implementation of the I&C Sector Plan 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 I&C Sector Plan 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 I&C Sector Plan

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector 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 management.	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 packaging waste recovered in the UK • Indicator 12d:	• Environment Agency Wales • Environment Agency Waste Data http://www.environment-agency.gov.uk/research/library/data/ • www.wastedataflow.org • SoE Report, available at: www.statswales.wales.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 I&C Sector Plan	Potential Source of Information
				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 person per annum of municipal waste in Wales • Kilograms per person per annum of household waste	• 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;	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: Number of Green Dragon certified companies in Wales • Indicator 12b: Proportion of	• Environment Agency Waste Data http://www.environment-agency.gov.uk/research/library/data/ • www.wastedataflow.org • SoE Report, available at:: www.statswales.wales.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 I&C Sector Plan	Potential Source of Information
		in Wales • Resource efficiency - the ratio of carbon dioxide emissions to GVA at current prices • Percentage of electricity generated from renewable sources	• 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.	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 breeding birds in Wales • Long-term changes in the ranges of	• 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	• 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 developed on completion of Countryside Council for Wales (CCW) landscape	• Countryside Council for Wales (CCW) www.ccw.gov.uk and http://landmap.ccw.gov.uk/. • SoE Report, available at:: www.statswales.wales.gov.uk

[75] 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 I&C Sector Plan	Potential Source of Information
		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	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.	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 certified • Indicators of the status of ecosystem services[75] (e.g. inputs of nitrogen and phosphorus fertilisers, ocean	

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
				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 conservation • Carbon stock (tonnes per hectare) in the top 0-15cm of soil in Welsh broad habitats	• 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.	• 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 Wales • Land Use cover • Indicator 16b: The carbon stock and pH in the top 15cm of soil as recorded by Countryside Survey •	• SoE Report, available at:: www.statswales.wales.gov.uk • Countryside Council for Wales (CCW) www.ccw.gov.uk and http://landmap.ccw.gov.uk/
Water To protect and promote the	• Resource use – Wales' domestic material	• Percentage of river lengths of good, fair, poor or bad	• To promote sustainable flood risk management;	• Indicator 35a: River water quality - biological and	• SoE Report, available at:: www.statswales.wales.gov.uk

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
sustainable use of water resources	consumption •	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 • 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	and • To protect and enhance water quality and quantity in inland, coastal and maritime environments.	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 • Indicator 36b: Bathing water quality • Indicator 14b: Volume of water abstracted from the environment	• Environment Agency

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
		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			
Air quality, noise and odour To protect and enhance air quality in local, regional and national context	• Electricity from renewable sources - percentage of electricity 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 •	• Annual mean measured concentrations of heavy metals in the air as a percentage of objective 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	• 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	• Indicator 33b: Air concentrations of Heavy Metals • Indicator 33a: Trends in number of days when air 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	• SoE Report, available at:: www.statswales.wales.gov.uk • Environment Agency • AQMAs- Defra: http://aqma.defra.gov.uk/maps-wales.php?&la_id=445

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
		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	within communities; • To minimise odours arising from waste processing and its impact upon local communities.	Wales of ammonia • Indicator 33f: Level of emissions from Wales of nitrogen oxides • Indicator 33g: Level of emissions from Wales of fine particulates	
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 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 emissions of greenhouse gases in Wales, million tonnes of carbon dioxide equivalent • 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	• 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.	• Indicator 7a: Annual emissions of basket of greenhouse gases (by sector) • Indicator 30a: Percentage of people whose main mode of travel to work is a) walking b) cycling • Electricity from renewable sources • Energy from AD and EfW plants	• SoE Report, available at:: www.statswales.wales.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 I&C Sector Plan	Potential Source of Information
		risk of flooding			
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 • 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	• 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 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	• 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.	• 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 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	• SoE Report, available at:: www.statswales.wales.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 • Environment Agency (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 I&C Sector Plan	Potential Source of Information
		(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 • 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		• 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	
Civic engagement To increase civic	• Benefit dependency -the	• Percentage of rights of way which	• To raise awareness and	• Indicator 30a: Percentage of	• SoE Report, available at:: www.statswales.wales.gov.uk

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
engagement in sustainable waste practice	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 people of working age in work	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 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	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	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 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	• Welsh Government

Objective	Sustainable Development Indicators (TZW)	Baseline / Trend Indicators	Sub-objectives	Potential Indicators to Monitor the Effect of the I&C Sector Plan	Potential Source of Information
		(gender, year) NS • Households Below Average Income NS • Workless households - working age	educational centres.		

9.2.6 Review is a best practice component in policy making and therefore, it is recommended that future reviews of the I&C Sector Plan are accompanied by updated appraisals.

9.2.7 If adverse effects are found, the I&C Sector Plan will be reviewed to ensure that effective mitigation measures are identified and implemented. A mechanism to identify if a remedial action is needed may be established by Welsh Government.

9.2.8 Following consultation on the draft I&C Sector Plan and this SA Report, further guidance on developing aims and methods for monitoring will be undertaken to take into account responses received on the I&C Sector Plan and the SA, HRA and HIA. This will be outlined in the Post-adoption Statement that will be published with the adopted I&C Sector 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

SEA Requirement	SA Report Section
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
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 I&C Sector 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 for both the I&C Sector Plan and this SA Report is open until 20 June 2013.

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

- Are they likely to be significant effects associated with the actions in the I&C Sector Plan that we have not identified?
- Are there any mitigation and enhancement measures that could be included in the I&C Sector Plan to improve its sustainability?
- Are the monitoring measures set out sufficient to track significant effects that could be associated with the I&C Sector Plan?

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:

Jennet Holmes
Waste Strategy Branch
Welsh Government
3rd Floor South Wing
Cathays Park
Cardiff
CF10 3NQ
Email: wastestrategy@wales.gsi.gov.uk

10.2 Post-Adoption Statement

10.2.1 The findings of the consultation on the draft I&C Sector Plan and this SA Report will be consequently considered and incorporated to finalise the SA Report and the I&C Sector Plan. Once completed this task, Post-adoption Statements will be produced to accompany the I&C Sector Plan that will summarise how the SA process has influenced the drafting of the I&C Sector Plan and actions undertaken in this respect.

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12 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[76].

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

Indicator	A measure of variables over time, often used to measure achievement of 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[77].
Landspreading	Recovering waste by spreading on land primarily for agricultural benefit[78]. 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[79].
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

[77] http://www.wao.gov.uk/assets/englishdocuments/Environment_Agency_Wales_Waste_Management_agw_2004.pdf
[78] http://www.wao.gov.uk/assets/englishdocuments/Environment_Agency_Wales_Waste_Management_agw_2004.pdf
[79] http://www.nda.gov.uk/ukinventory/glossary/

(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

APPENDIX A – SCOPING REPORT CONSULTATION RESPONSES

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

Contents

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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 AND 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)
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)
POPULATION, HEALTH AND WELL-BEING
EU Directive 2002/49/EC relating to the assessment and management of environmental noise - The Environmental Noise Directive (EU, 2002)
TAN 11 - Noise (1997)

Policy/Plan/Programme Reviewed
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
HSE Literature (assorted)
The Quality of Food Strategy for Wales (2007)
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)
MATERIAL ASSETS
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

Policy/Plan/Programme Reviewed
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)
TAB 18 - Transport (2007)
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)
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 (79/409/EEC)
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 (Natural Habitats) Regulations 1994

Policy/Plan/Programme Reviewed
Conservation (Natural Habitats, &c) (Amendment) Regulations 2007
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)
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)
Shoreline Management Plans and Flood Risk Management Plans – Various produced by Environmental Agency and Coastal Partnerships (for SMPs).
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
Welsh Office Circular 61/96 Planning and the historic environment: historic buildings
Traffic Management in Historic Areas (CADW, 2003)
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)

Policy/Plan/Programme Reviewed
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 Waste Prevention Plan following October 2010 Scoping response

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 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.	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.
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 registration requirements may impact on the re-use of some waste streams

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
	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.	
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 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	The waste sector plans should seek to protect and enhance the historic environment in Wales including listed building and conservation areas while developing waste infrastructure

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
	(SoS) is responsible for approving them.	
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.
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	The waste sector plans must seek to promote initiatives and schemes that do not conflict with the objectives of the Regulations.

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
	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.	
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 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	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
	• 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 (Launched 7th Oct 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 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.	The waste sector plans should support the Plan.
WAG (2009) Farming Food and Countryside:	'Farming, Food & Countryside – Building a Secure Future' outlines the Welsh	The waste sector plans should take account of

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
Building a Secure Future Strategy.	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.	farming, food and land based production industry and should support the Strategy.
Welsh Government (2010) Food for Wales, Food from Wales 2010-2020 (currently subject to consultation)	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. 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.	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
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 • Principles and techniques • Planning considerations in waste issues • Unitary development plans • Development control • Types of waste	The waste sector plans should consider this guidance since this includes development of waste facilities and flood risk and 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	The waste sector plans should consider this guidance since it seems transport has been raised as an issue with energy from waste sites.

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
	Planning and Transport; • Location of Development; • Parking; • Design of Development; • Walking and Cycling; • Public Transport; • Planning for Transport Infrastructure; • Assessing Impacts and Managing Implementation.	
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 industry. It should be read with Minerals Planning Policy Wales which sets out the general policies for all mineral development.	The waste sector plans should take into account this guidance since they are relevant to waste management.
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	The waste sector plans should support this plan to protect and enhance groundwater and river quality in the inland, coastal and maritime environments

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
	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	
Shoreline Management Plans and Flood Risk Management Plans (various)	Strategic flood risk management, usually over 100 year period, usually reviewed every 5 years. Flood risk management options typically comprise 'do nothing' , 'withdrawal of maintenance' , 'hold the line', or 'managed retreat' of existing flood defences, depending on social, economic and environmental aspects.	Guide development of waste management infrastructure away from areas of future flood risk.
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.
Environment Agency Wales' Corporate Plan - Working Together for a Better Wales (2010-15)	This Corporate Plan sets out what Environment Agency will achieve by 2015 – working in partnership with the Welsh Assembly Government, business and communities to make Welsh environment cleaner and healthier. The main objectives of the plan are: • Act to reduce climate change and its consequences • Improve air, land and water • Working with people and communities to create better places • Working with business and	The waste sector plans should support the objectives of this 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
	other organisations to use resources wisely	
Natural Environment Framework (consultation complete Dec 2010, but final workstream documents not yet published)	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 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.	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;
WAG, 2008, The Welsh Soils Action Plan (consultation closed))	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).

APPENDIX C: SUSTAINABILITY ASSESSMENT OF THE I&C SECTOR PLAN

Industrial and Commercial Sector Plan – Assessment of Actions for Preparation for Reuse

Actions Assessment Matrix

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

Actions for Preparation for Reuse: Education and Guidance

- **Segregation and storage of waste by waste producers to facilitate preparation for reuse**
- **Support for preparing for reuse by the WEEE compliance schemes**

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 seek to encourage 'preparation for reuse' of products (and/or components of products) that are to become waste by an increase in awareness through consideration of the waste hierarchy and separating products for reuse. Specifically, this would encompass redundant but working (or repairable) items of equipment that businesses put out for collection as waste, and which are prepared for reuse rather than being recycled or landfilled. This could include carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing. The actions also encourage the storage of these products in a manner that can facilitate this process (i.e. stored where no further damage can occur, e.g. through weather or handling). In the long term, this could contribute an increase of

Actions for Preparation for Reuse: Education and Guidance • Segregation and storage of waste by waste producers to facilitate preparation for reuse • Support for preparing for reuse by the WEEE compliance schemes			
Objective	**Sub-objectives**	**Score**	**Commentary**
			sustainable waste management within the I&C sector. Implementing these actions should also promote an increase of awareness and understanding of I&C businesses of sustainable management and resource efficiency activities. In addition the actions should generate behavioural change toward awareness of reuse and therefore reducing disposal waste and the level of waste requiring management. Reduced demand for resource and increased reuse items as a result of the actions will generate a number of benefits with respect to the minimisation of Wales' Ecological Footprint (EF). For example, greenhouse gas (GHG) emissions associated with transportation and reprocessing of waste 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 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	✓✓/×	The actions could help increase the number of infrastructure and facilities for sustainable waste management by encouraging the development of waste collection systems which protect waste products or materials in a way that maximises their potential for reuse. This in turn may encourage the deployment of alternative waste technologies and R&D. As businesses are encouraged to separate waste materials for reuse, there may be less recycled products and residual waste which in turn may result in a reduction in the number of jobs within the sector, should staff

Actions for Preparation for Reuse: Education and Guidance • **Segregation and storage of waste by waste producers to facilitate preparation for reuse** • **Support for preparing for reuse by the WEEE compliance schemes**			
Objective	**Sub-objectives**	**Score**	**Commentary**
	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.		affected not be redeployed. This would be a negative effect in relation to employment opportunities. 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, particularly for the third sector to be involved in the waste management infrastructure. Less waste is disposed to landfill and this can be a cost benefit for companies. The costs of sending waste to landfill are increasing, in particular the rising Landfill Tax (it is increasing by £8 per tonne per year from a present figure of £48 per tonne to £80 per tonne on April 2014). In addition to waste disposal and transport costs, there are further hidden costs such as the value of lost raw materials and the value-added cost from labour and energy. Minimising waste and reducing the volume of disposal waste may therefore generate cost savings related to the management of such waste.
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	✓	The actions could have a long-term beneficial effect for the natural and historic environment; reuse helps conserve limited resources (i.e. minerals, water, wood, etc). It will also prevent loss of habitats (i.e. resource extraction). In addition, minimising the volume to landfill/residual treatment will reduce the need for new developments, therefore encouraging the protection of landscape, historical resources and biodiversity.

Actions for Preparation for Reuse: Education and Guidance • Segregation and storage of waste by waste producers to facilitate preparation for reuse • Support for preparing for reuse by the WEEE compliance schemes			
Objective	**Sub-objectives**	**Score**	**Commentary**
	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.		There may be also indirect positive effects in terms of reduced levels of fly-tipping from I&C businesses if items can instead be separated for reuse. In addition, reducing the volume and type of waste to landfill, including organic and hazardous waste from the commercial sector and electrical equipment, should also avoid adverse effects in relation to contamination of flora, fauna and habitats. The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing should be carried out in a manner that doesn't affect the natural and historic environment (i.e. stored where no further damage can occur, through weather or poor handling).
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	✓	The actions should have a long term beneficial and indirect effect for the soil environment. The reuse of I&C products (and/or components of products) will reduce the volume of waste going to landfill, reducing future land demand, thereby avoiding generation of landfill gas and leachate. As a result this will reduce the future risk of soil contamination, thereby helping to maintain natural soil functioning and associated ecosystem services.

Actions for Preparation for Reuse: Education and Guidance • **Segregation and storage of waste by waste producers to facilitate preparation for reuse** • **Support for preparing for reuse by the WEEE compliance schemes**			
Objective	**Sub-objectives**	**Score**	**Commentary**
	Welsh soils.		The storage of products to be prepared for reuse should be carried out in a manner that doesn't affect the soil resources (i.e. through compaction or leaching).
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.	✓	Similarly, the actions should have a long-term beneficial indirect effect for the water environment. By encouraging the reuse of products, the action will help reduce the volume of waste going to landfill thereby avoiding the risk of pollution to groundwater, rivers and coastal environments due to surface water runoff and leaching. No clear link between the action and flood risk management has been identified, although it is assumed that some policies, guidance and contractual clauses will take into account future flood risk. The storage of products to be prepared for reuse should be carried out in a manner that doesn't affect water resources (e.g.. in areas of 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;	✓	The actions could generate long-term positive indirect effects in relation to air quality by encouraging a minimisation of emissions mainly due to a reduction in waste going to landfill. The actions may have an overall positive indirect effect on noise levels within communities, given an overall reduction in noise related to transport and waste

Actions for Preparation for Reuse: Education and Guidance • Segregation and storage of waste by waste producers to facilitate preparation for reuse • Support for preparing for reuse by the WEEE compliance schemes			
Objective	**Sub-objectives**	**Score**	**Commentary**
	• To minimise adverse impacts to noise levels within communities, to ; • To minimise odours arising from waste processing and its impact upon local communities.		treatment.
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.	✓	Promoting the reuse of I&C products (and/or components of products) through these actions will encourage a reduction of GHG emissions associated with transportation (to re-processors of raw materials, to place of use and to landfill) and reprocessing activities (for raw materials and recycling). This in turn will contribute to mitigate the effects of climate change. Where new waste infrastructure is required, it is recommended that facilities are located to minimise transportation distances of reused items from / to premises for preparation for reuse. In addition, facilities should promote energy efficiency and the use of on site renewable energy and energy from waste where appropriate.
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	✓	By the separation of items otherwise discarded as waste, this action will help I&C companies 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 and a

Actions for Preparation for Reuse: Education and Guidance • **Segregation and storage of waste by waste producers to facilitate preparation for reuse** • **Support for preparing for reuse by the WEEE compliance schemes**			
Objective	**Sub-objectives**	**Score**	**Commentary**
	issues to gain suitable and meaningful employment; • To provide safe and healthy working environments for employees within the waste and recycling industries		potential reduction in fly tipping). The storage of products to be prepared for reuse should be carried out in a manner that doesn't affect the health and well being of workers and communities (i.e. stored where no further damage can occur through weather or knocks). Avoiding the disposal of problematic or hazardous waste in landfill is also likely to prevent exposure of members of the public to hazards as a result of the nature of the material. For example, some chemicals are hazardous to human health since they contain substances that are carcinogenic, mutagenic or toxic to reproduction. Although waste will require transportation from generation source to 'bring sites' for reuse, it is anticipated that those will be offset by the reduction in emissions from waste transportation for disposal, e.g. air quality, odour, noise, dust. The overall effect will be positive. Indirect positive health benefits may arise at the individual or community level through the effects of behaviour change and community cohesion and through supporting the third sector in its reuse and marketing used products.
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,	✓	The actions could also contribute to an increased civic engagement in reuse activities. Through this action, energy generation, manufacturers, services, and other businesses/industries influence the behaviours of their staff, visitors, customers and general public to help ensure

Actions for Preparation for Reuse: Education and Guidance

- **Segregation and storage of waste by waste producers to facilitate preparation for reuse**
- **Support for preparing for reuse by the WEEE compliance schemes**

Objective	Sub-objectives	Score	Commentary
	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.		that they are fully engaged in less wasteful behaviour by encouraging their involvement in reuse activities.

Summary

The actions are considered to have a strong positive effect in relation to the waste management objective as it seeks to encourage 'preparation for reuse' of products (and/or components of products) that are to become waste by an increase in awareness through consideration of the waste hierarchy and separating products for reuse. Specifically, this would encompass redundant but working (or repairable) items of equipment that businesses put out for collection as waste which are prepared for reuse rather than being recycled or landfilled. This could include carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing. The actions also encourage the storage of these products in a manner that can facilitate this process (i.e. stored where no further damage can occur) e.g through weather or handling. In the long term, this could contribute an increase of sustainable waste management within the I&C sector.

Implementing these actions should also promote an increased awareness and understanding of sustainable management and resource efficiency activities within I&C businesses. This in turn should generate behavioural change toward awareness of reuse and therefore reducing disposal waste and the level of waste requiring management. Reduced demand for resource and increased reuse items as a result of these actions will generate a number of benefits with respect to the minimisation of Wales' Ecological Footprint (EF).

Actions for Preparation for Reuse: Education and Guidance

- **Segregation and storage of waste by waste producers to facilitate preparation for reuse**
- **Support for preparing for reuse by the WEEE compliance schemes**

Objective	Sub-objectives	Score	Commentary

In terms of waste infrastructure objective, the actions could help increase the number of infrastructure and facilities for sustainable waste management. This can be achieved by encouraging the development of waste collection systems which protect waste products in a way that maximises their potential for reuse. This in turn may encourage the deployment of alternatives waste technologies and R&D.

As businesses are encouraged to separate waste materials for reuse, there may be less recycled products 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 would be a negative effect in relation to employment opportunities. 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 actions in the longer term.

Less waste is disposed to landfill and this can be cost benefits for companies. The costs of sending waste to landfill are increasing, in particular the rising Landfill Tax (it is increasing by £8 per tonne per year from a present figure of £48 per tonne to £80 per tonne on April 2014). In addition to waste disposal and transport costs, there are further hidden costs such as the value of lost raw materials and the value-added cost from labour and energy. Minimising waste and reducing the volume of disposal waste may therefore generate cost savings related to the management of such waste.

The actions are expected to have a positive effect on objectives relating to landscape/biodiversity/cultural heritage, land take, soil, water, air quality/noise/odour, climate change and health due to the potential for the action to optimise materials use (i.e. by conserving limited resources and avoiding the extraction of resources for production of new materials such as paper, card, food, chemicals and plastics), and reduce reliance on landfill/residual treatment. The actions could also contribute to an increased civic engagement in reuse activities. Manufacturers, wholesalers and retailers could influence the behaviours of their staff, visitors, customers and general public to help ensure that they are fully engaged in less wasteful behaviour by encouraging their involvement in reuse activities.

It is anticipated the effects of the actions will, on balance, result in long term benefits. 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. Some employment opportunities could potentially be supported by the actions in the longer term, particularly for the third sector to be involved in the waste management infrastructure.
- Promoting the sustainable and safe/healthy location and operation of new facilities destined to prepare waste for reuse. This includes avoiding

Actions for Preparation for Reuse: Education and Guidance • Segregation and storage of waste by waste producers to facilitate preparation for reuse • Support for preparing for reuse by the WEEE compliance schemes			
Objective	**Sub-objectives**	**Score**	**Commentary**
	areas at flood risk. • The storage of products to be prepared for reuse such as carpets, office furniture, IT equipment, other electrical equipment (WEEE), redundant stock, and protective clothing should be carried out in a manner that doesn't affect the natural and historic environment, water, soil, local air quality as well as the health and well-being of workers and local community (i.e. stored where no further damage can occur through weather or knocks). • Consideration of operational waste issues through EIA of new I&C interventions/schemes. • Ensure that qualifying I&C interventions/schemes minimise transport distance of reused items from/to premises for preparation for reuse, and promote energy efficiency and use of on site renewable energy where appropriate.		

Summary of the Actions Assessments

Action Name	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water Resources	Air Quality	Climate Change	Health	Civic engagement
Actions for Preparation for Reuse: Education and Guidance									
Education and Guidance	✓✓	✓✓/×	✓	✓	✓	✓	✓	✓	✓

Industrial and Commercial Sector Plan – Waste Recycling

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 Recycling

- Increasing the recyclability of products and packaging
- Supporting business to secure high quality recycling of business waste.
- Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.
- Support Changes to the Packaging Recovery Note (PRN) System.

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 should encourage recycling within the I&C sector by persuading businesses to use waste management companies accredited under the Green Compass Scheme. This scheme ensures that waste management companies provide more accurate reports to customers on the management of their waste, especially in relation to levels of recycling. This is an important measure in assisting to meet the recycling targets and to give priority on more sustainable ways of consuming and producing. In addition, through changes to the PRN system, a higher percentage of glass will be recycled in a way more beneficial to the environment, i.e. less glass being reused as aggregate. These actions will also help raise awareness of I&C

Actions for Waste Recycling • Increasing the recyclability of products and packaging • Supporting business to secure high quality recycling of business waste. • Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme. • Support Changes to the Packaging Recovery Note (PRN) System.			
Objective	**Sub-objectives**	**Score**	**Commentary**
			businesses and waste management organisations, which in turn should generate behavioural change toward recycling therefore reducing disposal waste. 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 is of fundamental importance and is a key aspect of the sustainable development led approach of Towards Zero Waste. These actions will contribute to the reduction / minimisation of Wales's Ecological Footprint and progress 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;	✓✓/×	The action encourages an increase in sustainable infrastructure and facilities through the use of Green Compass companies by businesses, as this scheme will promotes the collection, check, recycling and disposal of waste in an environmentally sound fashion. The actions will collectively encourage an increase in recycling and will also help to promote market opportunities for recycling and substitute materials such as paper, cardboard, metals, glass and packing. 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

Actions for Waste Recycling • Increasing the recyclability of products and packaging • Supporting business to secure high quality recycling of business waste. • Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme. • Support Changes to the Packaging Recovery Note (PRN) System.			
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.		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. Some employment opportunities could potentially be supported by the action in the longer term. By recycling waste materials, less waste is disposed to landfill and this can be a cost benefit for companies and other key actors. Modelling work commissioned by WRAP[1] indicates that increased recycling associated with investments in collection and treatment infrastructure will lead to a reduction in overall costs compared with continuing with current systems. This is due, for the most part, to avoided disposal savings – i.e. the reduction in residual waste requiring disposal. Savings also arise through the generation of additional revenue from increased capture of recyclates. Under the scenario where the 70% recycling targets in Towards Zero Waste are met, over £50m per annum of savings are made within the standard commercial and industrial waste services by 2025 compared to the costs in 2010, and increasing to over £60m per annum by 2050.
Landscape, biodiversity and	• To protect designated landscapes:	✓/×	The actions could have a long-term beneficial effect for

1 Economic Assessment of the Welsh Government's Collections, Infrastructure and Markets Sector Plan. WRAP (2011)

Actions for Waste Recycling

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- Support Changes to the Packaging Recovery Note (PRN) System.

Objective	Sub-objectives	Score	Commentary
cultural heritage To protect and enhance urban and rural landscapes and resources, including ecological services and functions	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 natural and historic environment. Recycling helps conserve limited resources and avoid the production of virgin materials such as plastics and minerals. It will also prevent loss of habitats (i.e. resource extraction). There may be also indirect positive effects in terms of reduced levels of fly-tipping from I&C businesses if encouragement of recycling is also raised. In addition, reducing the type and volume of waste to landfill, including organic and hazardous waste from the commercial sector, should also avoid adverse effects in relation to contamination of flora, fauna and habitats. The collection and treatment infrastructure for recycling could generate negative effects on 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	✓/×	The actions should have a long term beneficial effect for the soil environment. On the one hand, encouraging recycling will reduce the volume of waste going to landfill, which in turn will minimise the capacity demand for landtake. On the other hand, increased recycling should offset land take associated with mineral extractions for mineral products (i.e. cement, lime, glass, ceramic, etc), tree growth for virgin paper production and

Actions for Waste Recycling

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- Support Changes to the Packaging Recovery Note (PRN) System.

Objective	Sub-objectives	Score	Commentary
	Welsh soils.		wood consumption for packing and furniture manufacture. 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 EIA level.
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 a long-term beneficial effect for the water environment. Encouraging a reduction in raw material use and extraction will reduce effects on water resources. In addition, encouraging the recycling of waste will help reduce the volume of waste going to landfill. Avoiding the construction and operation of residual waste facilities such as landfill, can result in preventing water pollution to groundwater, rivers and coastal environments.

Actions for Waste Recycling • Increasing the recyclability of products and packaging • Supporting business to secure high quality recycling of business waste. • Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme. • Support Changes to the Packaging Recovery Note (PRN) System.			
Objective	**Sub-objectives**	**Score**	**Commentary**
			The collection and treatment infrastructure for recycling could generate negative effects on water resources and flood risk. 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.
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 long-term 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 (for example, emission of methane by card and paper disposal to landfill due to organic waste decomposition under anaerobic conditions) and a possible reduction in use of transport. However, these benefits may be offset by some increase in emissions as a result of increased use of HGV's to collect bulky waste to be recycled and due to construction of recycling facilities. It is assumed that any such effects would not be of the same magnitude as those above mentioned. Proposed mitigation measures include; • Ensure that waste collection services minimise transportation journey times and distances; • Encourage proximity of new facilities to local settlements and promote sustainable transport

Actions for Waste Recycling • Increasing the recyclability of products and packaging • Supporting business to secure high quality recycling of business waste. • Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme. • Support Changes to the Packaging Recovery Note (PRN) System.			
Objective	**Sub-objectives**	**Score**	**Commentary**
			modes / practices amongst their employees. The actions may have an overall positive indirect effect on noise levels within communities, given an overall reduction in noise related to transport and waste treatment.
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.	✓	Promoting the recycling of I&C waste will reduce GHG emissions associated for example with transportation (to re-processors of raw materials, to place of use and to landfill) and reprocessing activities for raw materials. This in turn will contribute to mitigate the effects of climate change. The provision of improved and new recycling facilities and collection services that will arise through increased recycling will reduce the amount of waste going to landfill and uncontrolled emissions of methane from landfill.
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	✓	By promoting the recycling of I&C waste, the actions will help achieve higher levels of waste minimisation and a better management of waste within businesses and waste management organisations. This in turn will provide a safer and healthier working environment (for example by reducing air and noise pollution, odours and hazardous materials).

Actions for Waste Recycling

- Increasing the recyclability of products and packaging
- Supporting business to secure high quality recycling of business waste.
- Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.
- Support Changes to the Packaging Recovery Note (PRN) System.

Objective	Sub-objectives	Score	Commentary
	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.	0	The actions are likely to have very limited effect in terms of increasing broad civic engagement in waste practice as it focuses on waste management companies and I&C waste producers.

Summary

The actions are considered to have a strong positive effect in relation to waste management and waste infrastructure objectives as it should encourage recycling within the I&C sector by persuading businesses to use waste management companies accredited under the Green Compass Scheme and make best use of the PRN system. This action will also help raise awareness of I&C businesses and waste management organisations, which in turn should generate behavioural change toward recycling therefore reducing disposal waste.

Actions for Waste Recycling

- Increasing the recyclability of products and packaging
- Supporting business to secure high quality recycling of business waste.
- Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme.
- Support Changes to the Packaging Recovery Note (PRN) System.

Objective	Sub-objectives	Score	Commentary

Delivering high quality recycling can also make significant reductions in the amount of waste produced in the I&C sector. In particular, the closed loop recycling of quality materials from all waste streams is of fundamental importance and is a key aspect of the sustainable development led approach of Towards Zero Waste.

In terms of waste infrastructure, the actions will serve to encourage an increase in sustainable infrastructure and facilities, as the actions will promote the collection, check, recycling and disposal of waste in an environmentally sound fashion. By encouraging an increase in recycling, the actions will also help to promote market opportunities for recycling and substitute materials such as paper, cardboard, metals, glass and packing.

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. 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. Some employment opportunities could potentially be supported by the action in the longer term. Research[2] shows that implementing a 70% recycling rate by 2025 would potentially create new jobs in Wales in the order of

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

By recycling waste materials, less waste is disposed to landfill and this can be cost benefits for companies and other key actors. Modelling work commissioned by WRAP[3] indicates that increased recycling associated with investments in collection and treatment infrastructure will lead to a reduction in overall costs compared with continuing with current systems. This is due, for the most part, to avoided disposal savings – i.e. the reduction in residual waste requiring disposal. Savings also arise through the generation of additional revenue from increased capture of recyclates. Under the scenario where the 70% recycling targets in Towards Zero Waste are met, over £50m per annum of savings are made within the standard commercial and industrial waste services by 2025 compared to the costs in 2010, and increasing to over £60m per annum by 2050.

The actions are also expected to have a positive effect on objectives relating to landscape/biodiversity/cultural heritage, soil, water, air quality/noise/odour,

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

3 Economic Assessment of the Welsh Government's Collections, Infrastructure and Markets Sector Plan. WRAP (2011)

Actions for Waste Recycling			
• Increasing the recyclability of products and packaging • Supporting business to secure high quality recycling of business waste. • Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme. • Support Changes to the Packaging Recovery Note (PRN) System.			
Objective	**Sub-objectives**	**Score**	**Commentary**
climate change and health due to the potential for the actions to optimise materials use (i.e. by conserving limited resources, avoiding the production of virgin materials, such as plastics and minerals), and reduce reliance on landfill/residual treatment. It is anticipated the effects of the actions will be in the medium/long term, offering, as an overall, benefits in the long term. However, there may also be some negative effects associated with these areas due to an increase in waste recycling infrastructure and the associated transport of waste to and from these facilities. Detailed assessment of the impacts associated with these sites will require consideration at project level. 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 operational waste issues through EIA of new I&C interventions/schemes. • Promote best practice in waste storage for businesses and facilities. • Ensure that qualifying I&C interventions/schemes minimise transport distance of recycled and reused products from/to premises and promote energy efficiency and use of on site renewable energy where appropriate.			

Summary of the Actions Assessments

Action Name	Waste Management	Waste Infrastructure	Landscape, biodiversity & cultural heritage	Soil	Water Resources	Air Quality	Climate Change	Health	Civic engagement
Waste Recycling	✓✓	✓✓/×	✓/×	✓/×	✓/×	✓/×	✓	✓	0

APPENDIX D: HEALTH IMPACT ASSESSMENT OF THE I&C SECTOR PLAN

Appendix D - Health Impact Assessment of the draft I&C Waste Sector Plan

NB:

Non-mandatory actions within the C&D Waste Sector Plan were assessed as being optional and, as such, their outcome is not confirmed. These are indicated by 'uncertain' in the table below.

Options	Actions	Health Impact	Recommendation	Evidence
Waste Prevention				
Current & Future Initiatives (funded support programmes such as WRAP Cymru and Eco-design Centre Wales)				
Option 1: Business as usual (or also proposed in the Sector Plan)	The Welsh Government funds a number of organisations to deliver specific waste prevention initiatives on its behalf.	No effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	Additional funding support for TZW initiatives e.g. Amex report Evaluation of a range of waste prevention initiatives for Industrial and Commercial wastes produced in Wales to support the Waste Prevention Programme. Welsh Government will enhance the programme of support for SMEs.	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/
Option 3: Beyond best practice - high level intervention.	Additional funding and support beyond initiatives described above.	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/
Preparation for Reuse				
Segregation and storage of waste by waste producers				
Option 1: Business as usual	Companies to be proactive in accessing on line guidance that's already available in respect of following the waste hierarchy	No effect		
Option 2: As proposed in the Sector Plan (best	Welsh Government to instigate a new campaign to encourage greater preparation for	Uncertain		

Options	Actions	Health Impact	Recommendation	Evidence
practice). Medium level intervention.	reuse via the production and dissemination of guidance using existing business support mechanisms			
Option 3: Beyond best practice - high level intervention.	One to one business support to achieve greater preparation for reuse levels	Positive health impact on the environment through the anticipated increase in recycling rates and the subsequent reduction in landfill.	WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the amount of sent to landfill "record-setters"[1,2]	http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Support for preparing for reuse by the WEEE compliance schemes				
Option 1: Business as usual	Welsh Government to provide guidance and information on WEEE collection schemes in Wales with a view to encouraging I&C businesses to reuse a higher percentage of WEEE items.	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	Welsh Government to implement a strategy for ensuring I&C businesses achieve a greater level of reuse and preparation for reuse of WEEE items.	Indirect positive health benefits at the individual or community level through positive effects of behaviour change.		
Option 3: Beyond best practice - high level intervention.	Welsh Government to set targets for the reuse and preparation for reuse of WEEE items.	Direct health benefit upon community cohesion through supporting the third sector in its reuse and marketing used products.		
Improved facilities for the collection of waste items for preparation for reuse from businesses				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	WRAP to investigate business models which promote the reuse of items from businesses including the use of Household Waste Recycling Centres for the collection of these items.	Indirect positive health benefits at the individual or community level through positive effects of behaviour changes.	Opportunity to generate employment/ occupational opportunities through new social enterprises based around reuse and reselling.	A strong correlation exists between health and well-being and employment.[3]

[1] http://www.ilsr.org/recycling/recordsetters/index.html
[2] http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_10-2-2009-10-36-36
[3] The impact of unemployment on health: a review of the evidence, R. L. Jin, C. P. Shah and T. J. Svoboda Canadian Medical Association Journal, Vol 153, Issue 5 529-540,

Options	Actions	Health Impact	Recommendation	Evidence
Option 3: Beyond best practice - high level intervention.	WRAP to investigate business models which promote the reuse of items from businesses including partnership working between local authorities, the social economy sector and the private sector	Positive Health Impact upon community cohesion through partnership working promotion of social enterprises and support towards the Third sector. Positive health impact on employment through an increase in semi-skilled jobs linked to the sustainability sector. Positive health impact upon the environment through a reduction in releases from waste processing facilities, incineration/ landfill. Reduction in exposure emissions from energy recovery.	Comprehensive sector wide engagement exercise is required to ensure the inclusion of small/ cottage industry businesses. Use recycling champions to encourage businesses and individuals to participate in community scaled recycling through community recycling networks. Opportunity for increased level of employment at semi-skilled level. Use the opportunity to establish links between sustainability and well-being. Reduce the requirement for manual handling operations.	The use of social pressure on individuals to encourage community recycling behaviour had been demonstrated as practically viable[2]. UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers[3,4] EC Food
Recycling				
Increasing the recyclability of products and packaging				
Option 1: Business as usual	Welsh Government to cease pro-active engagement with manufacturers in relation to the development of more recyclable packaging.	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	Welsh Government, via WRAP, to continue working with manufacturers of packaging and products to investigate the development of more easily recyclable items.	Uncertain		
Option 3: Beyond best practice - high level intervention.	Welsh Government to increase engagement with industry and manufacturers from current level to develop more easily recyclable items.	Positive health impact upon economy and employment through increased resourcing of recovered and sustainable materials sourced in the UK. Positive health impact upon economy and employment through the creation of new domestic sustainable products markets.	Setup framework to enable local suppliers to be registered with a green label. Help businesses to identify sustainable label materials and source them easily.	http://www.uniformreuse.co.uk/pdf/product_labelling_for_eol_management.pdf (Page 18) Existing labelling standards ISO 14020, ISO 14021, ISO 14024, Sustainable supply network management

Options	Actions	Health Impact	Recommendation	Evidence
				techniques (Young and Kielkiewicz-Young (2001))
Mandatory provision of a separate collection service for paper, metal, plastic and glass				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. Guidance on the separate collection requirement will be provided by the Welsh Government in due course. Implement the regulations to ensure that local authorities and waste companies set up separate collection schemes for paper, glass, metal and plastic from 1 January 2015 onwards.	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 "record-setters"[4] in C&D materials reduction and recovery[5]	http://www.constructingexcellence.org.uk/pdf/Wales/080304_CEEQUAL_presentation_North_Wales.pdf http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Option 3: Beyond best practice - high level intervention.	Implement the regulations to ensure that local authorities and waste companies set up separate collection schemes for paper, glass, metal and plastic from 1 January 2015 onwards.	Positive health impact on the 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 waste sent to landfill "record-setters"[6] in C&D materials reduction and recovery[7]	http://www.constructingexcellence.org.uk/pdf/Wales/080304_CEEQUAL_presentation_North_Wales.pdf http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Further interventions to secure greater recycling of industrial and commercial waste, especially for food and cardboard waste.				
Option 1: Business as	No further action taken	No Effect		

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

Options	Actions	Health Impact	Recommendation	Evidence
usual				
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government has conducted a study which considers instruments that could be used to facilitate businesses recycling their waste. The study examines a number of new options for interventions. • The extension of the revised Waste Framework Directive requirement for all waste collection companies to provide a separate collection service for paper, metal, plastic and glass by 1 January 2015 to include food, cardboard and wood. • A requirement placed on waste producers to keep recyclable materials separate at source to facilitate their collection and recycling to a high quality. • The introduction of landfill bans for specific recyclable materials using provisions under the Waste (Wales) Measure 2010). • The introduction of energy-from-waste bans for specific recyclable materials. • The provision of a Local Government tendered recyclate collection service. The Welsh Government is currently considering these options and will consult on some or all of them in 2013.	Uncertain	Depend on recommendations of the CIM Sector Plan SA.	
Option 3: Beyond best practice - high level intervention.	Requirement placed on waste producers to keep recyclable materials separate at source to facilitate collection. Introduce landfill bans for specific materials. Introduce energy-from-waste bans for specific materials.	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	http://www.constructingexcellence.org.uk/pdf/Wales/080304_CEEQUAL_presentation_North_Wales.pdf

Options	Actions	Health Impact	Recommendation	Evidence
			excavation waste sent to landfill "record-setters"[8] in C&D materials reduction and recovery[9]	http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Supporting business to secure high quality recycling of business waste.				
Option 1: Business as usual	No additional support or guidance provided by Welsh Government.	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	Welsh Government, via WRAP, will identify and communicate best practice guidance on the segregation and separate collection of high quality recyclable materials from businesses and the public sector.	Indirect positive health impact upon economy and employment through generation of new job opportunities from increase in recycling of business waste. Positive health impact in terms upon economy and employment, through cost of waste disposal saving to businesses and direct financial benefits through the resource efficiency of material reuse.	Plan communications strategies to take into low recycling rates in small businesses. Explore viability of using business recycling champions to encourage businesses to participate in community scaled recycling through community recycling networks. Develop infrastructure to support behavioural changes to ensure that it is easy for businesses to sort waste and can be demonstrated that waste is being properly reused to the business community. Increase awareness of where waste goes. Improve employment and business opportunities through creation of new re-use and materials management of markets.	Unemployed are more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[3].
Option 3: Beyond best practice - high level intervention.	Full programme of support and guidance to be delivered to I&C businesses by Welsh Government.	Indirect positive health impact upon economy and employment through generation of new job opportunities from increase in recycling of	Plan communications strategies to take into low recycling rates in small businesses.	Unemployed are more likely than employed people to visit

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

Options	Actions	Health Impact	Recommendation	Evidence
		business waste. Positive health impact in terms upon economy and employment, through cost of waste disposal saving to businesses and direct financial benefits through the resource efficiency of material reuse.	Explore viability of using business recycling champions to encourage businesses to participate in community scaled recycling through community recycling networks. Develop infrastructure to support behavioural changes ensuring that it is easy for businesses to sort waste and can be demonstrated to the business community that waste is being properly reused. Increase awareness of where waste goes. Improve employment and business opportunities through creation of new re-use and materials management of markets.	physicians, take medications or be admitted to general hospitals[3]. Strong, positive association between unemployment and adverse health outcomes[3].
Increasing awareness and behaviour change towards business waste recycling.				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government, in conjunction with its delivery partners, will evaluate the need for an awareness raising and behaviour change campaign on the benefits of recycling.	Indirect positive health impact upon economy and employment through generation of new job opportunities from increase in recycling of business waste. Positive health impact in terms upon economy and employment, through cost of waste disposal saving to businesses and direct financial benefits through the resource efficiency of material reuse.	Plan communications strategies to take into low recycling rates in small businesses. Explore viability of using recycling champions to encourage businesses to participate in community scaled recycling through community recycling networks[2].	Unemployed are more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[3].
Option 3: Beyond best practice - high level intervention.	Recycling and its benefits to be included in relevant Continuous Professional Development courses through recognised C&D sector trade associations. Work with CIWM to develop sector specific competency schemes.	Indirect positive health impact upon social capital and community cohesion through educated workforce, education having a larger benefit upon wider social cohesion and economy.	Plan communications strategies to take into low recycling rates in small businesses. Explore viability of using recycling champions to encourage	Unemployed are more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong,

Options	Actions	Health Impact	Recommendation	Evidence
			businesses to participate in community scaled recycling through community recycling networks[2].	positive association between unemployment and adverse health outcomes[3].
Support and encourage 'recycling on the go' collection systems				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	WRAP has established a 'recycling on the go' initiative in Wales. This is designed to establish recycling bin schemes alongside general litter collection in places visited by the public..	Positive direct health impact on social cohesion and the environment through a reduction in littering. Potentially positive health impact on employment.	Opportunity for increased level of employment at semi-skilled level.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[3].
Option 3: Beyond best practice – high level intervention.	WRAP to adopt and work with relevant businesses and public sector organisations to develop recycling on the go initiatives across Wales.	Positive indirect health impact on economy and employment through the transference of street cleansing tasks to job opportunities in the recycling and material reuse waste sector.	Opportunity for increased level of employment at semi-skilled level.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[3].
Provision of a directory of recycling companies				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The action provides a signpost to an existing measure. The Environment Agency provides an online directory of waste companies that collect and/or manage recyclate.	Outcome uncertain.		
Option 3: Beyond best practice - high level	No action taken	No Effect		

Options	Actions	Health Impact	Recommendation	Evidence
intervention.				
Recycling business support				
Option 1: Business as usual	No action taken.			
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. Support for recycling companies in Wales is provided through two main routes. General support is provided through the Welsh Government's Department of Business, Enterprise, Technology and Science (BETS) under its "Energy and Environment Sector" support programme, and more targeted support is provided through schemes run by the WRAP with Welsh Government funding support.	Positive health impact on employment through an increase in semi-skilled jobs linked to the sustainability sector. Positive health impact upon the environment through a reduction in releases from waste processing facilities, incineration/ landfill. Reduction in exposure emissions from energy recovery. Adverse health impact upon social capital as increased recycling rates attracts greater injury to recycling operatives. Positive health impact from reduced need for residual waste collection and handling.	Comprehensive sector wide engagement exercise is required to ensure the inclusion of small/ cottage industry businesses. Use recycling champions to encourage businesses and individuals to participate in community scaled recycling through community recycling networks. Opportunity for increased level of employment at semi-skilled level. Use the opportunity to establish links between recycling and broader sustainable behaviour and resource efficiency. Reduce the requirement for manual handling operations.	UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers[3,4] Unemployed are more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[3].
Option 3: Beyond best practice - high level intervention.	No action taken	No Effect		
Allowing businesses to use household waste recycling centres(HWRCs) or Civic Amenity (CA) sites (for recyclate only)				
Option 1: Business as usual	Existing ad hoc approach continues.	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government is working with the Welsh Local Government Association to undertake an investigation to examine the potential to utilise these facilities to receive business waste for recycling and also become centres for receiving items for	Uncertain		

Options	Actions	Health Impact	Recommendation	Evidence
	reuse and preparation for reuse from businesses. Local Authorities encouraged to allow all their CA sites to be used by businesses to deposit their recyclate. WRAP to provide advice to Local Authorities.			
Option 3: Beyond best practice - high level intervention.	Mandatory requirement for Local Authorities to allow all their CA sites to be used by businesses to deposit their recyclate.	Positive health impact on social capital and community cohesion and environment through the anticipated increase in recycling rates. Negative impact on the environment through increased emissions from vehicle movements around CA sites.	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 "record-setters"[10] in C&D materials reduction and recovery[11]	http://www.constructingexcellence.org.uk/pdf/Wales/080304_CEEQUAL_presentation_North_Wales.pdf http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html
Extending kerbside recycling services for business wastes				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government will ask WRAP to explore with local government in Wales the potential for enhanced trade waste recycling collection services to be introduced where the private waste management sector does not provide a sufficient service.	Positive health impact upon social capital and environment through the reduction of fly tipping. Negative health impact upon environment resulting from an increase in traffic movement around waste recycling centres. Negative health impact upon social capital through the increased risk of health and safety issues associated with handling of bulky business items and risk of overcapacity of household waste recycling centres.	New transfer stations to be located in existing industrial trading estates to reduce loss of amenity of neighbours. Pedestrian areas and vehicles need to be kept separate to avoid collisions with vehicles. HHWRC's operators must adhere to a strict H&S regime, with a 'zero harm' culture.[12][13][14]	UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers.[15] Unemployed more likely

[10] http://www.ilsr.org/recycling/recordsetters/index.html
[11] http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_10-2-2009-10-36-36
[12] http://www.wrap.org.uk/downloads/Bath_and_North_East_Somerset_Council.882dbdeb.8693.pdf
[13] http://www.wrap.org.uk/downloads/Lessons_learnt_-_how_to_set_up_a_trade_bring_site.0f30c510.8694.pdf
[14] http://www.wrap.org.uk/downloads/Setting_up_a_bring_site.4377be54.8724.pdf

Options	Actions	Health Impact	Recommendation	Evidence
		Positive health impact from reduced need for residual waste collection and handling. Potential negative health impact upon economy through the risk that there is a projected increase in workplace accidents.		than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes.[16]
Option 3: Beyond best practice - high level intervention.	No action taken	No Effect		
Reporting on recycling performance by expanding the network of Waste Management Organisations inspected to PAS402:2009 via Green Compass Scheme				
Option 1: Business as usual	Companies only to check Duty of Care practices of waste management company	Uncertain		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The Welsh Government wishes to see all waste management companies in Wales operating to PAS 402:2009 Waste Resource Management – Specification for performance reporting and waste producers using these companies.	Positive impact for community cohesion. Positive health impact on employment. Negative health impact on Social capital through failure of scheme due to lack of incentive. Negative impact on community cohesions and economy capital where SME's or community schemes are unable to resource PAS 402:2009 requirements.	Opportunity for increased level of employment at semi-skilled level. PAS 402:2009 requirements result in opportunities for greater employment within the product reuse/ recycling. Enforcement of the PAS 402:2009 standard could prevent existing community recycling schemes from continuing.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[11].
Option 3: Beyond best practice - high level intervention.	Mandate the use of Green Compass companies	Positive health impact on social capital and community cohesion and environment through the anticipated increase in recycling rates. Negative impact on the environment through	WRAP (Waste & Resources Action Programme) voluntary agreement through which organisations set targets to reduce the amount of waste sent to landfill.[17]	http://www.wrap.org.uk/local_authorities/support_funding/trade_waste_recycling/publications/guidance_notes/index.html

[15] Recycling and Health the Evidence - Health of Workers in the Recycling Industry, 2009

[16] The impact of unemployment on health: a review of the evidence, R. L. Jin, C. P. Shah and T. J. Svoboda Canadian Medical Association Journal, Vol 153, Issue 5 529-540,

[17] http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_10-2-2009-10-36-36

Options	Actions	Health Impact	Recommendation	Evidence
		increased emissions from vehicle movements around CA sites.		
Development of markets for recyclates in Welsh manufacturing				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. Send recyclate to closed loop applications whenever possible. Recyclate sent to lower value markets, when it is not suitable for closed loop applications rather than simply inadequate collections / infrastructure.	Positive health impact upon the environment through a reduction in releases from waste processing facilities, incineration/ landfill. Reduction in exposure emissions from energy recovery.	Use the opportunity to establish links between sustainability and well-being. Reduce the requirement for manual handling operations. Opportunity for increased level of employment at semi-skilled level.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes [3].
Option 3: Beyond best practice - high level intervention.	Investment in reprocessing infrastructure in order to focus on developing closed loop recycling within Wales. Provision of a consistent, high quality recyclate and biowaste stream to supply these businesses will help create the environment for this investment in Wales.	Positive Health Impact upon community cohesion through support towards the Third sector. Positive health impact on employment through an increase in semi-skilled jobs linked to the sustainability sector. Positive health impact upon the environment through a reduction in releases from waste processing facilities, incineration/ landfill. Reduction in exposure emissions from energy recovery.	Comprehensive sector wide engagement exercise is required to ensure the inclusion of small/ cottage industry businesses. Use recycling champions to encourage businesses and individuals to participate in community scaled recycling through community recycling networks. Opportunity for increased level of employment at semi-skilled level. Use the opportunity to establish links between sustainability and healthly behaviour. Reduce the requirement for manual handling operations.	UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers[3,4] EC Food Regulations require all food contact materials should be manufactured using good manufacturing practice & may not transfer their constituents to food in quantities that could endanger human health or cause unacceptable changes in the composition or deterioration of food.[5]

Options	Actions	Health Impact	Recommendation	Evidence
				UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers[3,4].
Further interventions for other specific materials				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government will commission a detailed investigation into where and why enough cardboard is not being collected for recycling in Wales. The study will determine where cardboard collected for recycling is being reprocessed and what the barriers are to recycling this material in Wales.	Impact uncertain		
Option 3: Beyond best practice - high level intervention.	If appropriate, the investigation will also examine the case for intervention by the Welsh Government.	Impact uncertain		
Working with Welsh manufacturers to increase the amount of recycled content for the target materials				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. WRAP provide support to manufacturing companies to assist them in increasing the recycled content of their products or packaging. WRAP is also researching barriers to the recycling and recyclability of key materials; aluminium, plastics and glass. Welsh Government to review the success of the 10% recycled content target for building	Uncertain		

Options	Actions	Health Impact	Recommendation	Evidence
	materials and products promoted or supported by the WG or WGSBs.			
Option 3: Beyond best practice - high level intervention.	Target for recycled content of products and materials used in Government funded projects is increased.	Uncertain		
Development of standards for the incorporation of recycled content into packaging and products				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	FMSR Sector Plan. In order of overcome the perceived issue that recycled content may not be "fit for purpose" the Welsh Government will work (via WRAP) with other UK Governments and trade bodies to develop standards for the incorporation of recycled content into products and packaging where appropriate.	Positive health impact from increase in recycling levels providing new jobs in the sustainability sector. Potential positive impact on health through improved air quality. Risk that the projected increase in the recycling industry could result in an increase in workplace accidents.	Opportunity to expand the resource efficiency waste sector through increasing recycled content. Opportunity to draw links between improved air quality and recycling. Improve safety within the recycling industry.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes [3]. Reduction in releases from waste processing facilities, incineration/ landfill. Reduction in exposure emissions from energy. UK waste industry reported between 4,100 to 4,300 accidents per year, with overall accident rates at four times the national average; around 2,500 per 100,000 workers[18].

[18] Recycling and Health the Evidence - Health of Workers in the Recycling Industry, 2009

Options	Actions	Health Impact	Recommendation	Evidence
				Refuse collection is the highest risk activity in the waste industry[19]
Option 3: Beyond best practice - high level intervention.	No action taken			
Demonstration of recycled content incorporation into products and packaging				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	FMSR WRAP have already developed a number of case studies illustrating the successful incorporation of recycled content into products and packaging formats. The Welsh Government will continue to support WRAP in the development of these case studies and good practice guidance to encourage businesses to use recycled content in their manufactured goods, thus developing markets for Welsh recyclate.	No direct or indirect health impact identified.		
Option 3: Beyond best practice - high level intervention.	No action taken			
Recycled Content Procurement				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government will further stimulate demand for recyclate by investigating the development of a requirement for public bodies in Wales to procure products with high levels of recycled content. It will also ask WRAP to support public sector bodies in Wales to sustainably	Uncertain		

[19] Update to mapping health and safety standards in the UK waste industry, HSE, 2009

Options	Actions	Health Impact	Recommendation	Evidence
	procure items with a high recycled content. The Welsh Government (via WRAP) will work with large organisations to do likewise for their own supply chains by facilitating responsibility deals.			
Option 3: Beyond best practice - high level intervention.	Target for recycled content of products and materials used in Government funded projects is increased.	Uncertain		
Support Changes to the PRN system				
Option 1: Business as usual	No active encouragement to utilise the PRN system to recycle glass.			
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	Welsh Government to encourage I&C businesses to recycle a higher percentage of glass through re-melting (64% required by 2017) by using the PRN system.			
Option 3: Beyond best practice - high level intervention.	Full programme of support and guidance to be implemented to exceed the required targets for percentage of glass recycled through re-melting.			
Other recovery and disposal				
Provision of guidance on deviations from the waste hierarchy				
Option 1: Business as usual	No guidance produced.	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government has produced guidance on the waste hierarchy and this will be updated periodically. Waste hierarchy guidance is produced and promoted across all sectors,	Uncertain		
Option 3: Beyond best practice - high level	Introduce legislation to mandate the use of the guidance, with reporting on compliance also required.	Positive health impact upon economy and employment through increased resource efficiency.	Setup comprehensive database and targets to encourage businesses to be competitive in reducing waste.	http://www.epa.gov/epawaste/conserve/rrr/imr/cdm/success.htm

Options	Actions	Health Impact	Recommendation	Evidence
intervention.		Negative health impact on social capital and crime through the potential increase in incidents of fly tipping. Negative health impact upon economy and employment through enforcement and financial penalties of small/ less prepared companies who failed to fall inside their maximum waste compliance limits.		
Land spreading of untreated food waste				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. The Welsh Government will work with the food manufacturing industry via the Food Manufacturing, Services and Retail Sector Plan to encourage the AD of food waste as a more sustainable way of managing this waste, rather than land spreading it in an untreated fashion.	Positive health impact from benefit of new AD facilities providing new jobs in the sustainability sector. Potential negative health impact from odour nuisance arising from process breakdown and transportation of waste.	Opportunity to establish AD facilities in rural areas with currently few employment opportunities. Location of AD facilities shall be sensitive to potential odour issues and may be required to be in isolated/ rural areas.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[20]. Potential risk of odour complaints due the escape of ammonia from faulty AD facilities can arise due to[21].
Option 3: Beyond best practice - high level intervention.	Ceasing landspreading of food waste in preference of AD	Positive health impact from benefit of new AD facilities providing new jobs in the sustainability sector. Potential negative health impact from odour nuisance arising from process breakdown and transportation of waste.	Opportunity to establish AD facilities in rural areas with currently few employment opportunities. Location of AD facilities shall be sensitive to potential odour issues and may be required to be in isolated/ rural areas.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment

[20] The impact of unemployment on health: a review of the evidence, R. L. Jin, C. P. Shah and T. J. Svoboda Canadian Medical Association Journal, Vol 153, Issue 5 529-540,
[21] http://democracy.breckland.gov.uk/Published/C00000124/M00001901/AI00007633/$ReportAnaerobicdigesterAttleborough09247.docA.ps.pdf

Options	Actions	Health Impact	Recommendation	Evidence
				and adverse health outcomes[22]. Potential risk of odour complaints due the escape of ammonia from faulty AD facilities can arise due to[23].
Sink disposal of food waste				
Option 1: Business as usual	No further action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The Welsh Government will work with the water companies to ensure the appropriate use of FWDUs for the disposal of food waste.	Uncertain		
Option 3: Beyond best practice - high level intervention.	No action taken			
Energy from waste for "difficult" Wastes				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will encourage the development of appropriate energy from waste routes for separated combustible wastes that are difficult to recycle where this is the best environmental option as determined by life cycle thinking. Guidance on allowable deviations from the waste hierarchy has been published by the Welsh Government.	Uncertain		
Option 3: Beyond best	Mandatory requirement on certain	Negative impact on environment through	Pre-sort waste to exclude waste	

[22] The impact of unemployment on health: a review of the evidence, R. L. Jin, C. P. Shah and T. J. Svoboda Canadian Medical Association Journal, Vol 153, Issue 5 529-540,
[23] http://democracy.breckland.gov.uk/Published/C00000124/M00001901/AI00007633/$ReportAnaerobicdigesterAttleborough09247.docA.ps.pdf

Options	Actions	Health Impact	Recommendation	Evidence
practice - high level intervention.	sectors to divert all suitable non-recyclable materials from landfill to energy from waste	increased emissions to air from combustion of inappropriate residue waste.	with high potential of toxic emissions.	
Addressing evidence gaps				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This is an action which sets out measures which may be considered in the future following more detailed investigation. The Collaborative Waste, Resources & Sustainable Consumption Evidence Programme is a new collaborative initiative between Departments for Environment, Food and Rural Affairs (Defra) and Energy & Climate Change (DECC), the Environment Agency for England and Wales, WRAP and the Welsh Government. This programme provides a platform for evidence-based policy-making, and for selecting and implementing the most appropriate interventions for use in the delivery of policies, on waste, resource management and sustainable consumption in England and Wales. It provides evidence to support the needs of the Government Defra, DECC; the Welsh Government; and associated delivery bodies, the Environment Agency for England and Wales and WRAP.	Uncertain		
Option 3: Beyond best practice - high level intervention.	Programme to include monitoring the balance of differing technologies across the waste and resources market, economics of the waste industry, shifts in trends and their consequences, to highlight emerging risks to the environment.	Uncertain		
Support for the treatment of industrial and commercial residual waste				
Option 1: Business as	No action taken	No Effect		

Options	Actions	Health Impact	Recommendation	Evidence
usual				
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will keep a watching brief on the market as it should provide the additional capacity as long as the planning system facilitates this and the plants actually are built and operated. The Welsh Government will also monitor gate fees for EfW, and will make comparisons with the cost of recycling.	Uncertain impact		
Option 3: Beyond best practice - high level intervention.	Appropriate action to be taken in order to ensure that the waste hierarchy is not breached, where EfW costs start to undermine recycling.	Direct health benefit upon community cohesion through supporting the third sector in its reuse and marketing used products. Greater value of recyclates could generate new employment opportunities, generating of social enterprises and new employment opportunities. Potential positive impact on health through improved air quality.	Opportunity to generate employment/ occupational opportunities through new social enterprises based around reuse and reselling. Improve safety within the recycling industry.	Unemployed more likely than employed people to visit physicians, take medications or be admitted to general hospitals. Strong, positive association between unemployment and adverse health outcomes[24]. Reduction in releases from waste processing facilities, incineration/ landfill ultimately reduces exposure to their pollutants.
Achieving high efficiency for Energy from Waste facilities in Wales – the use of heat				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This action is considered under the CIM Sector Plan SA. 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			

[24] The impact of unemployment on health: a review of the evidence, R. L. Jin, C. P. Shah and T. J. Svoboda Canadian Medical Association Journal, Vol 153, Issue 5 529-540,

Options	Actions	Health Impact	Recommendation	Evidence
	the planned revision of TAN21 (Planning and Waste) and supplementary guidance. Welsh Government to support the development of appropriate energy from waste routes for separated wastes where this is the best practicable environmental option.			
Option 3: Beyond best practice - high level intervention.	Mandatory requirement on the sector to divert all suitable non-recyclable materials from landfill to energy from waste	Negative impact on environment through increased emissions to air from combustion of inappropriate residue waste.	Pre-sort waste to exclude waste with high potential of toxic emissions.	
Consultation on the introduction of restrictions on the landfilling of certain wastes				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	This is an action which sets out measures which may be considered in the future following more detailed investigation. The Welsh Government will consult on introducing a ban on the landfilling of biodegradable wastes and may, in due course, consult on detailed proposals for the introduction of landfill bans of other materials as well. Welsh Government to keep issue of restriction of certain wastes to landfill under review.	Uncertain		
Option 3: Beyond best practice - high level intervention.	Welsh Government implements ban on biodegradable waste and priority materials (wood, plastic, metals etc) to landfill.	Negative health impact upon environment and social capital resulting from loss of amenity as a result of increase in fly-tipping. Positive impact on employment and economy through the promotion of new employment opportunities in the recycling and waste sectors.	Infrastructural investment and incentives required to improve on-site source segregation and reduced benefit of fly-tipping.	
Remaining landfill needed				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best	The action provides a signpost to other guidance rather than seeking to implement	Uncertain		

Options	Actions	Health Impact	Recommendation	Evidence
practice). Medium level intervention.	specific measures. The Welsh Government intends to consult early in 2012 on revisions to Planning Policy Wales (PPW) and TAN21 that will include clarification on the future approach to landfill in Wales in respect of land use planning.			
Option 3: Beyond best practice - high level intervention.	More stringent permitting requirements for landspreading.	Potentially a positive health impact through reduced odour nuisance.	Explore legislation against landspreading of foodwaste from the perspective of nuisance and its detrimental impact upon local amenity.	c.f. Odour nuisance from composting of shellfish waste; Odour nuisance from landspreading of sewage sludge.
Treatment of hazardous waste				
Option 1: Business as usual	No action taken	No Effect		
Option 2: As proposed in the Sector Plan (best practice). Medium level intervention.	The action provides a signpost to other guidance rather than seeking to implement specific measures. The Welsh Government will monitor capacity provision for the management of hazardous waste as part of its commitment to the annual monitoring of waste infrastructure. Planning guidance for Wales already encourages the development of the necessary infrastructure in Wales to manage hazardous waste. If it becomes apparent in the future that Wales has inadequate capacity for hazardous waste then the Welsh Government will consider what interventions may be required.	Uncertain		
Option 3: Beyond best practice - high level intervention.	No action taken			