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Waste Policy in Wales: the Case of Construction and Demolition Waste



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Andrew Flynn and
John Ryder



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ABSTRACT

The challenges of dealing with the total amount of waste that is produced, different waste streams and finding environmentally and socially acceptable disposal routes for waste is a pressing public policy issue. The creation of devolved administrations in Wales and Scotland and regional bodies in England has helped to create a patchwork of responsibilities and approaches to waste management that has potentially further complicated an already complex policy area. In this paper we argue that Wales and England have similar approaches to their waste management strategies. However there are differences in waste composition between the two countries. C&D waste is in relative terms more important in England than in Wales but in Wales its disposal is likely to have a more adverse environmental impact. These differences in the circumstances of C&D disposal and the structure of the construction industry are not well reflected in policy documents. Despite devolution Wales is hampered in being able to deliver on its policy commitments to a more sustainable waste management policy because many of the most important levers to stimulate action remain in the hands of the UK government.

Keywords: Wales, Waste Policy, Construction and Demolition Waste

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INTRODUCTION

The challenges of dealing with the total amount of waste that is produced, different waste streams and finding environmentally and socially acceptable disposal routes for waste is a pressing public policy issue. The creation of devolved administrations in Wales and Scotland and regional bodies in England has helped to create a patchwork of responsibilities and approaches to waste management that has potentially further complicated an already complex policy area. One of the key issues that arises is to what extent devolved administrations are capable of developing and implementing sustainable waste management strategies that are appropriate to their contexts. There are two questions to be considered here: do policy makers recognise the specific circumstances of their areas and do they have the necessary levers to deliver on their strategy? In order to tackle these issues in this paper we focus in particular on construction and demolition waste (C&D) in Wales and reflect on how waste composition and policy may differ from England.

Waste management in Wales has historically been characterised by an over-reliance on landfill as a disposal route. C&D waste¹ has often found its way into landfill sites. Whilst this may be in some cases the best practicable environmental option for the disposal of such waste it is nevertheless contributing to the rapid filling of a limited number of landfill sites in Wales. In 1998/99, C&D waste contributed about 15% of Wales' total waste. In this paper we examine whether the statistical importance of C&D waste in Wales is reflected in the Welsh Assembly Government's (WAG) approach to waste management and in other policy initiatives promoted in both England and Wales. We are concerned to explain why one of the

¹ (mostly bricks, concrete, hardcore, subsoil and topsoil but it can also include timber, metal, plastics and occasionally special waste materials)

most important waste streams does not receive an equivalent policy response.

Our paper is divided into three main sections. Below we point to the commitment of WAG to sustainable development and show how that is reflected in its waste policy. We also point out how WAGs vision is undermined because devolution has not provided it with key powers to fully pursue its agenda. The following section describes the structure of the construction industry and assesses how its dominated by SMEs may influence the production of C&D waste and also make it difficult to promote better environmental practices. The final section briefly reviews some of the key instruments to promote improved C&D waste management.

Waste in Wales: developing a sustainable waste strategy?

To understand the development of waste policy in Wales it is essential to appreciate the policy context of devolution and the Welsh Assembly Government commitment to promoting sustainable development. Unlike the Scottish Parliament, the Welsh Assembly has no primary legislative powers, and no power to vary taxes. Nevertheless, to describe it as a ‘glorified county council’ as some have done is to seriously underestimate its significance. The Assembly’s powers and policy remit is wide ranging. Moreover, under section 121 of the Government of Wales Act 1998, there is bestowed on the Assembly a responsibility for sustainable development that is unique for an elected body in Britain. The section states that “The Assembly shall make a scheme setting out how it proposes, in the exercise of its functions, to promote sustainable development.”

If the political and policy changes in Wales are matters of substance then they should be reflected in the development of waste management strategy. On two counts we should expect to see differences emerging between Wales and other parts of the UK:

1. Devolution should ensure that Welsh policy makers are sensitive to the circumstances surrounding waste management in Wales; and
2. The Assembly's commitment to promoting sustainable development should mean that its waste strategy is imbued with a philosophy of sustainability.

A key research question is, therefore, to what extent can we observe differences in waste policy and management between Wales and other parts of the UK? As Table 1 below shows there are subtle differences in the relative importance of different waste streams between the two countries. The volume of C&D waste is important in both countries but relatively more so in England.

Table 1 Waste production (1998-99) in Wales and England

Waste stream	England & Wales*	%	Rank	England*	%	Rank	Wales*	%	Rank
Industrial	51,920,000	12.5	4	46,931,000	11.9	4	4,989,000	21.5	3
Commercial	23,600,000	5.7	6	22,459,000	5.7	7	1,141,000	5	6
Municipal	28,320,000	6.9	5	26,990,000	6.9	6	1,330,000	5.7	5
C&D	70,800,000	17	3	67,515,000	17.2	3	3,285,000	14.1	4
Mines and Quarries	118,000,000	28.4	1	112,000,000	28.6	1	6,000,000	25.8	2
Sewage Sludge	28,320,000	6.9	5	27,915,000	7.2	5	405,000	1.7	7
Agricultural	94,400,000	22.6	2	88,325,000	22.5	2	6,075,000	26.2	1
TOTAL	415,360,000	100		392,135,000	100		23,225,000	100	

*Quantity produced (tonnes per annum)

Dredging waste has been excluded from the table because figures are available for England and Wales.

Source: <http://www.environmentagency.gov.uk/commondata/105385/>

Within this paper it is not possible to scrutinise all aspects of waste policy, and so in this section we briefly review the key principles underlying policy, and in the next section we concentrate on C&D waste. We have chosen to focus on C&D waste because in volume (and

potentially environmental) terms it is significant and raises quite specific management challenges.

Vision and ambition

The waste strategy for Wales, *Wise about Waste* (WAG 2002), is the first waste policy specifically for Wales. It draws upon the earlier and joint *England and Wales Waste Strategy 2000* (DEFRA 2000). From the outset the Welsh waste strategy recognises that “[w]aste is Wales’ biggest environmental problem” (WAG 2002, pv) and is “designed to move Wales from an over-reliance on landfill to a position where [by 2012] it will be a model for sustainable waste management” (WAG 2002, pvii). Such a commitment is all the more laudable as Wales is starting from such a poor base: it landfills around 4m tonnes of waste each year and only recycles 7% of municipal waste. The ambition, though, clearly fits with the Welsh commitment to sustainable development (see WAG 2002, para 1.4).

The *Waste Strategy 2000* also recognises the link between sustainability and waste and notes “if we are to deliver sustainable development it is crucial that we begin to tackle our growing mountain of waste” (DEFRA 2000, Foreword and para 2.3). Policy development is termed a “step change” towards “more sustainable waste management” (DEFRA 2000, Summary). Therefore in terms of the analysis of the waste problem and the policy approach there is much similarity between the overall direction being taken in England and Wales.

Principles and levers

The starting point for both the English and Welsh and Welsh analysis of waste management is that the current levels of disposal to landfill are unsustainable. This is because landfilling represents a waste of resources (i.e. materials), there is a gathering shortage of landfill space

for waste and landfill is a major source of methane (a greenhouse gas). Moreover, the EU Landfill directive sets ambitious targets for the reduction of biodegradable municipal waste sent to landfill and so will force a change in British waste management practices.

So how is greater value to be extracted from waste? There are two steps envisaged:

1. Decoupling, that is breaking the link between economic growth and waste production
2. Better materials management by putting waste to “good use – through substantial increases in re-use, recycling, composting, and recovery of energy” (DEFRA 2000, para 2.7).

How is change to be achieved? The *Waste Strategy 2000* identifies a number of levers for change (see Chapter 3) and these include: the Waste and Resources Action Programme (WRAP); producer responsibility (e.g. in relation to packaging and the End of Life Vehicles Directive); the Landfill Tax; the Aggregates Levy; Best Practice Programmes; and limiting landfill.

A major challenge for WAG is that “it does not control some of the crucial levers required to make a fundamental change in the way waste is managed in Wales” (WAG 2002, para 1.7). For example, WAG cannot set tax levels so is unable to vary the level of landfill tax or the aggregates levy if it wished to do so and neither can it introduce or amend primary legislation. So WAG finds itself in a highly dependent situation as it recognises: “[f]or a number of the Assembly Government’s aspirations to be delivered, action has to be taken in conjunction with UK Government” (WAG 2002, para 1.7). The one set of relationships where WAG can exercise some authority is with regard to local government and so not surprisingly local authorities emerge as key partners in the Welsh strategy. Many of the

targets and actions are aimed at local government, which has also been given considerable additional funding to meet their responsibilities. For instance £79m is being provided by the Assembly for the period 2001/2-2004/5 principally to assist local government to meet the municipal waste minimisation, recycling, composting and reduction in landfill targets.

In this brief review of waste management policy in England and Wales we have been able to show that the Welsh commitment to producing a strategy that is informed by a commitment to sustainable development is one shared by England. Moreover, although both countries face similar waste management problems and issues, there are differences in the relative importance of different waste streams. The analysis of the waste problematic and policy prescription is, though, similar. However, despite devolution Wales remains highly dependent on the UK government for the successful realisation of its own policy. This is because most of the key levers to influence better waste management remain in the hands of central government. So what effect, if any, will this have on the approaches to C&D waste? Before we can answer this question we briefly outline the structure of the Welsh construction industry because it will be the key source of C&D waste.

The structure of the Welsh construction industry and its policy implications

The construction industry in Wales, like that for other parts of the UK, is marked by its dominance by SMEs (1-250 employees) (7916 firms in 2001) and many of these are micro firms (1-3 employees). The Welsh (i.e. those companies having a registered office and a primary trading office in Wales) construction industry as a whole is smaller than that of England in terms of maximum company size. It has no companies of the very large size (over 1200 employees) whereas England has 51 (0.03% of the total number of English companies). Wales has the same proportion of companies in the range 300-1199 employees

as England (0.1% of the totals). Registered office and trading office data, show that there are some 245 construction companies from outside Wales (i.e. from England, Scotland, Northern Ireland, the Republic of Ireland or the British Crown dependencies) which have a trading address in Wales (equivalent to 3% of the total of 7916 home Welsh companies) and of these 31 have a larger turnover than the largest home Welsh construction company. Assuming that these larger construction companies from outside Wales do actually undertake work in Wales rather than just having a nominal trading address in Wales, it is reasonable to conclude from this latter point that there is a UK-wide construction market, at least as far as the larger companies are concerned, rather than just a Welsh construction market open only to Welsh companies.

Two points are important to note here. First, that it has proved notoriously difficult to promote improved environmental practices amongst SMEs and so a sector dominated by such firms is likely to have a poor record in dealing with its wastes. Second, that market differentiation leads firms to engage in different types of construction projects and this may well effect the way in which they manage their waste. It is usual in the construction sector for the larger companies to seek to win work on the larger and more complex projects where there is less competition from the smaller companies and where their competitive advantage lies in their expertise and capitalisation. One of the effects of this is that Welsh companies operating in Wales are in effect constrained in the actual Welsh construction market (i.e. one that is open to competition from non-home Welsh companies) to either obtaining work as members of the larger companies' supply chains or bidding for smaller scale local projects.

The structural features of the construction industry, allied to the relative underperformance of the Welsh economy, help to explain much of why there are differences in the relative

importance of C&D waste in Wales and England and also of its use and disposal. The production of C&D waste in Wales lags behind that of all of the English regions. The North East produces the lowest amount of C&D waste, some 4.75m tonnes compared to that in Wales of 3.28m tonnes. At the other extreme the South East (excluding London) produces about 4 times as much C&D waste as Wales about 13.12m tonnes (Environment Agency 2000, p27). Table 2 below shows the use and disposal of C&D waste in Wales.

Table 2 Use and disposal of C&D/inert waste in Wales

Fate	Quantity (000s tonnes)	Percentage
Recycled as aggregate and soil	747	23
C&D waste and soil re-used in landfill	421	13
Inert material recovered on exempt sites	1299	40
C&D waste and soil landfilled	818	24
Total estimated production	3285	100

Source: WAG, 2002, Part Two, p118

More detailed analysis of the figures on C&D waste provides a fuller picture of the Welsh context. When the fate of C&D waste is compared with that of the nine English planning regions it is apparent that only the Yorkshire and Humberside shares with Wales the unenviable position of having a higher proportion of C&D waste going for landfilling rather than recycling. Indeed, for every English region with the exception of the North West (where inert material covered on exempt sites is the most popular form of end use) recycling of aggregates and soil is the most common option, whereas in Wales it ranks third (DEFRA 2000, para 8.50). This is probably because of the relatively low cost of primary aggregates in

Wales and limited facilities for the processing and storage of construction and demolition waste.

What we have been able to show so far is the significance of C&D waste within the wastes produced in England and Wales. We have then gone on to show how the use and disposal of C&D waste is also spatially structured. What is rather surprising therefore is that strategy documents pay so little attention to C&D waste and of the spatial variation in its uses. The *Waste Strategy 2000* (DEFRA 2000, para 8.43) is typical in that it notes that C&D waste represents a significant proportion of total waste generation but largely limits its comments on C&D waste to a sanguine review of the potential of the construction industry to achieve greater efficiency in its use of materials, so minimising waste production (see for example, para 8.47). It is notable that there is considerably more guidance on the reuse of C&D waste in relation to the planning system than the waste management system.

Although the Welsh follow-up document *Wise about Waste* largely follows the London lead in encouraging industry to reduce its waste (see WAG 2002, paras 5.149-151) and relies heavily on a mix of voluntary measures (such as eco-design), economic incentives (the Aggregates Levy) and control measures (Minerals Planning Policy Wales), it does set its own targets. These are:

- By 2005 , to re-use or recycle at least 75% of C&D waste produced;
- By 2010, to re-use or recycle at least 85% of C&D waste produced (WAG 2002, para 5.153).

So what might be done to promote better management of C&D waste? And are the available levers likely to help WAG meet its ambitious targets? In the next section we review the mix of regulatory ‘sticks’ and fiscal and voluntary ‘carrots’ that apply to C&D waste.

Promoting better waste management: carrots and sticks

Regulatory measures

At the outset it is important to consider the nature of the EU waste legal framework, given the importance of its impact at the Member State level. The European Commission has identified a number of priority waste streams because they pose a potential threat to the environment. Inert and C&D waste is one of these. What is rather surprising therefore is that C&D waste is dealt with as part of the EUs general approach to waste management, perhaps most notably the Landfill Directive (99/31/EC) rather than as a specific waste stream like Packaging (which has its own directive 2000/53/EC).

The lack of specific regulation of C&D waste at the European level is mirrored at the UK level. Construction waste related legislation concentrates essentially on the diversion of waste from landfill, largely instigated by the EUs Landfill Directive, as well as on the use of secondary aggregates, with the aim of encouraging construction waste segregation, re-use and recycling.

Command and control has been the traditional method of environmental protection. The lack of measures targeted at C&D waste may be a significant omission if other measures to reduce and better manage C&D waste are also found wanting. The WAG does not have the power of being able to pass primary legislation and so it cannot close this regulatory gap on its own.

Taxes and market development

There are two main taxes to promote better waste management and resource productivity in the construction industry in the UK. Both the Landfill Tax, which was introduced in 1996, and the Aggregates Levy, which came into force in 2002, seek to ensure that material

recovery becomes the most competitive solution for waste management, and in turn enhance market opportunities for recyclates. The landfill tax has encouraged producers to look for alternative uses for construction waste and has contributed to the diversion of C&D waste from landfill. According to a recent UK Government study (Survey of Arisings and Use of Construction and Demolition Waste in England and Wales in 2001, www.planning.odpm.gov.uk/consdemo), almost half of the C&D wastes produced in England and Wales are re-used or recycled. Out of the total waste stream, more than 38 million tonnes was recycled as aggregate in 2001; compared to 22.7 million tonnes in 1999. Whilst these figures are laudable it is difficult to know how much they should be attributed to the landfill tax. The level of the tax for inert waste is far cheaper (£2) than for active waste (£13). At its current level, the tax would not seem to provide a big incentive to minimise C&D waste.

With regard to the effectiveness of the Aggregates levy² and the new Aggregates Levy Sustainability Fund (ALSF) to address C&D waste management, again the results are mixed. There are isolated examples of C&D waste minimisation and recycling in projects such as Trent Valley GeoArchaeology study and the Archaeology South East study on Lydd quarry (www.english-heritage.org.uk). The levy has also opened some market opportunities for companies that can use recycling aggregates in their activities. For instance, RMC has reduced its operational cost by using recycled green glass as road building materials (<http://news.bbc.co.uk/1/hi/sci/tech/1907207.stm>)

However, a study for the Office of the Deputy Prime Minister (ODPM) has pointed out that there are limits to market development for C&D waste. One of the study's findings was that

² The Aggregate levy charges £1.60 for every ton of newly quarried materials such as sand and gravel. The chief aims of the levy are to internalise the external environmental costs of aggregate production; to encourage the use of alternative materials and development of new recycling processes; and to promote more efficient use of virgin aggregate.

the “scope for further recycling of C&D waste for use outside landfills and registered exempt sites appear to be limited by the fact that much of the C&D waste that was not being recycled as aggregate was not physically capable of forming aggregate, because it was wholly or largely made up of soil” (www.planning.odpm.gov.uk/consdemo, chapter 7).

Novel instruments for environmental protection appear to be meeting significant challenges in promoting better management of C&D waste. Once again the WAG find itself at a disadvantage in seeking to overcome any shortcomings as it has no powers over taxation.

Voluntary initiatives

At the industry level, there is a wide range of best practice cases which provides advice on aspects of the management of C&D waste including the reduction of construction waste, waste segregation and re-use as well as the use of secondary aggregates. For instance, the Building Research Establishment (BRE) has launched a construction waste material exchange scheme on the internet; the Construction Industry Research and Information Association (CIRIA) provides a database of construction-related recycling facilities in Great Britain that accept or sell materials and promotes localised recycling of materials. These kinds of initiatives provide incentives for construction companies to engage in recycling activities as there are clear cost savings to gain from reduced costs for waste disposal, reduced landfill taxes and transportation costs.

The Department of Trade and Industry launched in April 2000 a strategy for sustainable construction *Building a Better Quality of Life* that sets out some clear targets to improve the construction industry building practices. Resource efficiency is recognised as a fundamental element and the strategy underlines the importance of “designing for minimum waste” and

“re-using existing built assets” (www.property.gov.uk/services/construction/gccp/100700.pdf). The Office of Government Commerce has adopted an action plan, *Achieving Sustainability in Construction Procurement*, so that the public sector can become a leader and exemplar in green procurement in construction by promoting the use of materials with low environmental impact or made from renewable resources. All UK government departments have agreed to implement the action plan by March 2003. As government procurement accounts for 40% by value of the UK construction market, the public sector plays a key role in the promotion of resource productivity and waste minimisation. The specifying of recycled and reclaimed materials in tender documents will encourage the segregation and recovery of materials. The strategy was developed in partnership with industry bodies, and may have been unduly sympathetic to business interests as it places no direct requirements on clients or suppliers of building materials to use environmentally friendly materials or to improve their C&D waste management.

As Table 3 below shows there are a plethora of initiatives in place in England and Wales to tackle C&D wastes, from waste minimisation programmes to re-use and recycling guidance. Yet, current support programmes tend to operate independently of each other and there seems to be little co-ordination among stakeholders.

Table 3 C&D incentives and initiatives

Type of incentive	English and Welsh initiatives	Welsh initiatives
<p>Waste minimisation guidance</p>	<ul style="list-style-type: none"> - CIRIA, Construction Industry Research and Information Association - the Construction Confederation - DTI, Department of Trade and Industry Construction Best Practice Programme 	<ul style="list-style-type: none"> - Edexcel training courses (partnership between Environment Agency, Fforwm, Groundwork Wales, Penarth Management Consultants) - Business and Environment Challenge Scheme
<p>Waste recovery and recycling support</p>	<ul style="list-style-type: none"> - CIRIA reclaimed and recycled construction materials handbook - BRE internet Materials Information Exchange - Government’s Aggregates Information Service (AIS) - WRAP Waste as Resources Action Programme 	<ul style="list-style-type: none"> - Objective 1 and 2 Fund projects: the Centre for Research Into the Built Environment project - Arena Network waste exchange
<p>Transport efficiency</p>	<p>CIRIA recycling sites map (materials recovery and recycling)</p>	
<p>Planning Guidance</p>	<ul style="list-style-type: none"> - PPG45 for England only 	<ul style="list-style-type: none"> - Minerals Planning Policy Wales - Technical Advice Note TAN 21 on Waste

There is a crucial lack of integration and coherence between organisations, which undermines C&D waste management, recycling and re-use. For instance, the Waste as Resources Action Programme (WRAP) is working on the promotion of the use of recycled aggregates but does not have targeted programmes for C&D wastes and does not work in collaboration with other key organisation to achieve its aims. It is doubtful whether policy guidance and voluntary

agreements represent strong enough incentives to promote better resource and waste management and will succeed in motivating businesses to improve their practices.

Wales: lack of strategic guidance but innovative business support

There are few initiatives and programmes that take place at the Welsh level to address C&D waste management. This is not surprising as the Welsh waste strategy has given priority to household waste management which represents 6% of Wales total waste to the detriment of other waste streams. Although some C&D waste recycling targets have been set in the strategy, senior officials have recognised during an interview that specific arrangements to tackle C&D - which accounts for 15% of Wales total waste - have yet to be made.

So far, there is a basic lack of institutional infrastructure to address C&D waste as a specific issue. For instance, no sub-group has been established in the Waste Wales Forum to tackle that issue despite the recognition of the need for one in *Wise About Waste* (p68). Moreover, the Welsh Regional Waste Planning Groups tend to follow the WAG agenda and so they too have paid little attention to developing an infrastructure for C&D waste.

Although the Welsh strategy is weak on policy guidance for C&D waste, it should be noted that the Assembly Government have dedicated some Objective 1 and 2 Funds specifically to support the implementation of waste recycling and re-use activities in the construction sector. For instance, the Centre for Research in the Built Environment (CRIBE) seeks to raise awareness of best waste management practices in construction SMEs. In its quest to divert C&D waste from landfill and to promote markets for recyclates, the Assembly Government is looking at the way in which this kind of initiative could be mainstreamed throughout Wales.

The Assembly will publish a project report, which will provide guidance for building professionals, in May 2003.

Conclusions

In our review of C&D waste in Wales we have taken regular opportunities to compare the situation with England. Throughout we have sought to make five points. First, that Wales and England have similar approaches to their waste management strategies. The commitment to sustainable development that underlies the work of WAG is also echoed in the English approach to waste management. Beyond the rhetoric, though, there are subtle but significant differences between the two countries that could have significant implications for C&D waste management. Our second point is therefore that there are differences in waste composition between the two countries. Third, C&D waste is in relative terms more important in England than in Wales but in Wales its disposal is likely to have a more adverse impact on the environment. Fourth, these differences in the circumstances of C&D disposal are not well reflected in policy documents and neither do the documents pay attention to the structure of the construction industry which, dominated by SMEs, is not likely to be sympathetic to receiving environmental messages. Fifth, Wales is hampered in being able to deliver on its policy commitments to a more sustainable waste management policy because many of the most important levers to stimulate action remain in the hands of the UK government. Where WAG has invested heavily with its local government partners in raising the profile of waste management it has concentrated on household waste and marginalised C&D waste. Consequently the targets that the Assembly has set itself on the reuse and recycling of C&D waste may prove difficult to meet.

References

Department of the Environment Transport and the Regions (2000) *Waste Strategy 2000 England and Wales*, The Stationery Office.

Environment Agency (2000) *Strategic Waste Management Assessment 2000: Wales*.

Office of the Deputy Prime Minister www.planning.odpm.gov.uk/consdemo/

Welsh Assembly Government (2002) *Wise About Waste: The National Waste Strategy for Wales*, Parts One and Two, June.

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