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Abstract

Through an exploration of UK municipal waste policy, this paper examines debates on Environmental Policy Integration (EPI) and governance. We argue that this policy arena has been characterised by modes of vertical integration which have failed to promote the horizontal integration required to move beyond the limits of anachronistic institutional structures and achieve the paradigm shift needed to make meaningful progress towards sustainability. Through this analysis we develop three critical arguments. First, that analysis of EPI requires attention to embedded paradigms, structures and dynamics at all levels of governing, emphasising the importance of incorporating sub-national levels of governing to EPI analyses. Second that both analysis of and arguments for EPI need to engage more fully with broader dynamics of governing, and recognise the co-existence of contradictory processes of integration. Finally, we sound a note of caution in relation to calls for EPI. In the messy, dynamic and multi-levelled reality in which EPI has to be implemented, such calls must recognise both sustainability and policy integration as iterative processes rather than as pre-determined blueprints.

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1. Introduction

Slow progress in addressing environmental concerns has revealed the inadequacy of policy frameworks which disaggregate and isolate environmental concerns. In this paper, we focus on the issue of UK municipal waste as one example of how shifts towards sustainability require new forms of engagement with institutions and other actors beyond those traditionally involved in a given policy sector. Reflecting the scale of the challenge presented across policy fields, the principle of Environmental Policy Integration (EPI) has had rapidly increasing political salience across Europe since the late 1990s, recorded and analysed in a growing body of academic literature (Hertin and Berkhout 2003; Lenschow 2002a; Liberatore 1997). This diverse literature has contributed much to the ongoing conceptual clarification of EPI and its relation to the pursuit of environmental policy objectives. However, analysis has focused on the integration of environmental objectives within and between existing policy sectors at international and national scales of governing. Relatively little attention has been given to the results of EPI processes at the 'sharp end' of implementation, the only context in which the benefits of EPI ultimately can be realised (Jordan 1999).

In this paper, we focus on local arenas of policy and practice to develop an analysis of EPI taking place in the specific field of UK municipal waste policy (MWP). We draw on research conducted between November 2003 and October 2005, which examined the changing UK waste policy landscape and the processes and practices of governing municipal waste in North-East England. The political saliency of waste has risen rapidly in the UK. Although municipal waste (all wastes for which local authorities have designated responsibility) represents only around 10% of the total waste generated in the UK each year (DEFRA 2006a), it attracts widespread political and public attention as an issue which is emblematic of environmental concern. The UK as a whole has performed relatively poorly on municipal waste management compared to European averages and best practice. For example in 2000-01, the UK recycled just 12% of its municipal waste, compared to 52% in Germany and 47% in the Netherlands (COSU 2002). In England, the North-East region has one of the highest levels of waste arising per household and the largest increase in regional waste arisings, as well as having amongst the lowest household recycling rates (DEFRA 2006b). Given this position, the impact of recent policy shifts are likely to be most challenging in this region. The research project involved the analysis of UK and regional waste policy documents and approximately

50 interviews with national, regional and local policy-makers; three detailed case-studies with local authorities in the region involving analysis of the development of municipal waste policy through documentary analysis, semi-structured interviews and workshops; and the study of six different 'waste practices', such as furniture re-use or kerbside box schemes.

In section 2, we begin by briefly reviewing the progress of EPI as a policy principle, and its associated academic literature. We argue that in order to understand the practice of EPI, it is necessary to draw on insights from literatures of governance. This approach provides a framework for analysing the progress of UK MWP in section 3, the empirical core of the article. This analysis is pursued in relation to a putative paradigm shift, from one shaped around seeing waste as a problem requiring disposal – the 'disposal' paradigm – towards one that sees 'waste as a resource'. We explore the dominant instruments of integration used to confront this changing waste agenda, and how they have impacted upon a fragmented institutional landscape of MWP at the local scale. Specifically, we consider how far they have meaningfully challenged the historical corralling of waste management as a technical, end-of-pipe service; and how far they have enabled progress towards the levels of institutional and policy integration required at local scales for progress towards a 'waste as resource' paradigm. This analysis provides a basis for critical engagement with conventional approaches to EPI in section 4. We discuss the implications of our analysis for understandings and assessment of EPI and for the conceptualisation and practice of environmental governance, in the light of the apparent disjuncture between calls for policy integration and the reality of a fragmented governing landscape and the multi-layered character of policy processes.

2. Exploring Environmental Policy Integration

At its most basic, EPI can be seen as an "operational principle to implement and institutionalise the idea of sustainable development" (Lenschow 2002b: 6). However, moving beyond abstracted definitions has proven difficult for policy makers, and for academics analysing their progress. In its most basic elements, EPI is open to contestation. Here, we briefly consider the history of the concept and analysis of its limitations, before moving on to other policy shifts towards integration which are critical for understanding the development of MWP in the UK – predominantly the Local Government Modernisation Agenda (LGMA) – and the shifting governance terrain within which policy integration takes place.

Locating environmental policy integration

The development of what is now recognisable as EPI can be traced back to 1972, when the Stockholm Conference developed the notion of 'eco-development', recognising the interdependence of ecological and developmental objectives (Lenschow 2002b). In 1987, The Brundtland Report (WCED 1987) effectively established the principle of EPI on a global scale as the basic policy implication of sustainable development, serving as a reference point in the subsequent development of EPI. Within the European Community, the first Environmental Action Plan (EAP), in 1973, stated that it is "necessary to evaluate the effects on the quality of life and the natural environment of any measure that is adopted or contemplated at national or Community level" (CEC 1973: 6), an articulation of the basic premise of EPI which was restated in subsequent EAPs (Lafferty and Hovden 2003). Through the 1990s, successive declarations brought EPI closer to the heart of EU policy, arguably culminating in the 1997 Amsterdam Treaty, which established sustainable development as one of the objectives of the EU. The Cardiff Summit sought to move EPI substantively from declaratory statements at the level of the European Commission into increased sectoral activity (Lenschow 2002b).

In this context, a substantial literature has developed which analyses the processes and progress of EPI. The historical progress of the principle has been traced (Lenschow 2002b; Liberatore 1997) and analysis has considered what makes EPI possible, what substantive progress has been made and why that progress has been so limited (Collier 1997; Hertin and Berkhout 2003; Lenschow 1997, 2002a; Liberatore 1997). In particular, researchers have sought to bring different analytical approaches to bear on understanding the political and institutional basis for the success or failure of EPI in the EU. Lafferty and Hovden (2003) seek to offer a framework for empirical evaluations of EPI, based on a differentiation of vertical EPI – taking place within established sectors – and horizontal EPI – the responsibility of a super-ordinate authority operating on a higher plane than the sectors. In so doing, they gain analytical clarity on what are key aspects of accepted framings of EPI. However, there appears to be little space in their framework for the detailed institutional analysis which has enabled other authors to understand the limitations to progress of EPI in European and national contexts. For example, Lenschow (1997) explores what underlies different rates of progress in apparently similar policy processes. Her close analysis identifies the barriers posed by historically embedded institutional structures as a key explanation. More broadly, in the volume edited by Lenschow (2002a), country-specific and EU policy studies together draw out the inescapable complexities of EPI as a process embedded in conceptual, institutional and actor-specific issues at both national and supranational levels of governing. Such analyses reveal the limits of assumptions about the power of changes in declaratory principles

to affect change in practice. Indeed, whilst there is ample evidence for the existence of EPI as a policy principle, progress towards meaningful implementation is generally found to be limited at both European and national levels (Jordan and Lenschow 2000; Lenschow 2002b; Weale and Williams 1993).

A challenge facing both the pursuit of EPI and its analysis is a partiality of focus. Whether as a policy objective or as an object of academic enquiry, EPI is predominantly framed as an issue of centralised coordination, focusing on national or supra-national levels of governing, and on the processes and institutional structures that might enable policy integration at those scales. Generally neglected are the ongoing processes that take place sub-nationally as policies are translated to local contexts of final implementation. This is not to claim that sub-national levels of governing are completely absent from existing EPI analysis. For example, Jordan and Lenschow (2000) recognise that the multilevel nature of EPI extends to sub-national spheres, and Lenschow (2002c) pursues analysis of EU Regional and Cohesion Funds to regional levels of governing, and pays particular attention to the role of NGOs as relatively local actors informing the ongoing development of EU policy. Nevertheless, detailed analyses of policy integration processes as they pass to the local scales at which policies are ultimately implemented are almost absent.

This partiality of EPI analysis is in many ways unsurprising. It reflects conventional understandings of the policy process as something institutionally bounded and essentially hierarchical, with policy made by central institutions and passed down for implementation (Bulkeley et al. 2005; Owens 2004). However, it is in the processes by which a formal policy is translated to local implementation that the objectives of the policy are realised or defeated. As Lenschow points out, the win-win logic that can be recognised for EPI at a macro scale breaks down when it comes to implementation by sectoral agencies (Lenschow 2002d). Consequently, if an analyst follows EPI initiatives from a super-ordinate authority through pathways of implementation, EPI appears to dissipate into fragmented operational changes. Such a picture has empirical validity, but it misses crucial aspects of policy processes which defy hierarchical and linear characterisation. First, it neglects how environmental policies never pass unchanged to local implementation but go through successive interpretive processes. Policies are actively re-negotiated until the final step of being put into practice by workers or citizens. Second, and closely related, following presumed linear paths of policy implementation can blind analysis to the dynamic institutional circumstances into which policies must intervene. It is to this issue which we now turn.

Joining up? Policy integration and the dynamics of governance

In the field of MWP the absence of a sustained engagement with the sub-national dynamics of policy integration is critical, both because of the increasing demands being placed on local authorities with respect to integrating waste policy and because of the shifting nature of the landscape of governing in the UK. Literatures around the theme of governance offer to illuminate the complex, multi-scaled and dynamic processes into which EPI initiatives have to intervene, and so to appreciate the difficulties and importance of pursuing EPI processes across scales as well as across sectors.

In the UK, one of the key sites within which new forms of governance are emerging is the local state. Here, the desirability of policy integration, or at least of 'joined-up government', have been made explicit in the Local Government Modernisation Agenda (LGMA), instituted by the 1997 Labour administration. Subsequent years have witnessed a cascade of policy initiatives aimed at making local authorities, along with other state local service providers, more 'customer' focused, and also encouraging them to work more effectively in partnership with other agencies, to deliver on challenging policy issues:

> "`Joined-up problems', [local authorities] have been told, require `joined-up solutions' and so-called `cross-cutting issues' (community safety, sustainable development, social inclusion, and the like) cannot be allowed to fall into the fissures between traditional, functionally organised, services." (Cowell and Martin 2003: 160)

The drive for EPI certainly resonates with the political ambition to 'modernise' government and promote 'joined-up government' (Jordan 2002: 46). However, the extent to which such shifts create space for EPI is moot. As Cowell and Martin (2003) suggest, the extent to which LGMA has been successful in joining up policy is open for critical examination. In particular, they illustrate how the vertical integration of national to local policy processes within established policy sectors has militated against effective horizontal integration at the local level. As is illustrated by the LGMA, shifts in the nature of local governance therefore serve to open up possibilities for EPI, but equally may constrain its development and implementation. This points to the importance of analysis which engages with EPI in the context of broader changes in the nature of both the polity and processes of policy-making (Hajer 2003). The linear hierarchical model of policy implicit in dominant approaches to EPI neglects the extent to which the actors beyond the conventional boundaries of government are involved in the active re-negotiation of environmental policy. At each articulation of its development between successive levels of government a policy process may necessitate or be enhanced by creative partnership with

public institutions, commercial organisations, third sector bodies as well as communities and citizens.

It is the observed increase in just such cross-sectoral and inter-institutional involvement in governing processes that has been a significant motor of a rapidly growing literature addressing the notion of governance (Jessop 1997; Jordan 2001; Kooiman 2003; Macleod and Goodwin 1999; Pierre and Peters 2000; Rhodes 1996). As Cowell and Murdoch (1999: 654) argue, "to speak of governance rather than government implies a focus on a wide range of institutions, encompassing not just the formal agencies of the state but the whole raft of actors that can influence policy and its implementation at a variety of spatial scales." In analysing the networks of actors involved in contemporary governing, the governance literature opens up understanding of the complex institutional arrangements and dynamics into which initiatives such as those around EPI must intervene. On the one hand, these analyses imply that policy processes are opened to a wider range of stakeholders and participants, creating opportunities for more efficient, effective, equitable and legitimate forms of governance. On the other hand, moves to implement progressive policies have to contend with multiple and fragmented institutional arrangements, numerous agencies operating over different scales, with competing agendas and potentially conflicting policy goals.

Work within the governance literature has also explored the multi-layered character of contemporary governing, observing that the role and nature of the nation state is shifting. Traditional functions are distributed upwards to international and transnational organisations and institutions, and downwards, to regional and local structures, as well as outwards, to non-state actors. The apparently increasing distribution of state roles across scales of governance has been described as the emergence of multi-level governance, characterised by three key features: the sharing of decision-making competencies between actors and institutions operating at different levels of government; new forms of partnerships and networks which govern within, between, and across these levels; and a blurring of divides between different levels of government (Aalberts 2002; Hooghe and Marks 1996; Jordan 2001).

Literatures around themes of governance demonstrate that to understand and critically approach governing processes, it is necessary to follow them across spatial scales and through networks of actors, both within and outside conventional boundaries of government. Following EPI initiatives across different scales as it dissipates into complex actor networks and fragmented operational changes certainly presents profound empirical and analytical difficulties, but ultimately EPI only has worth if it changes the local practices from which environmental problems and opportunities emerge. Understanding the potential paths and obstacles for the

effectiveness of EPI consequently demands understanding of the cross-cutting dynamics and policy processes operating at every scale.

In the following analytical section we explore UK MWP as a case study of the progress of EPI across scales to the local level. To facilitate analysis of the integration of MWP, following Lafferty and Hovden (2003) we differentiate analysis of vertical integration from that of horizontal. However, our analytical position contests any straightforward scalar differentiation between horizontal and vertical integration. Our position, drawing on insights from studies of governance which recognise the multi-levelled and inter-institutional character of governing, sees the different planes of EPI co-existing across all scales of governing. Consequently, our analysis of horizontal integration considers governing relationships at different scales, but particularly at that of local authorities.

In our analysis of UK MWP, we use a deliberately loose understanding of EPI. We are looking simply for evidence of integration across policy sectors and between relevant actors at different scales of governing, but with a particular focus upon the municipal authorities which continue to carry responsibility for MWP. Consequently, we are not looking for attainment of any defined normative standard constituting EPI, but rather for relative progress of appropriate integration in moving towards sustainability. In the following analysis we characterise movement towards sustainability as movement from the 'disposal paradigm' of waste management to that of the 'waste as resource paradigm'. This latter paradigm can be characterised as consistent with now conventional principles of sustainable waste management, notably of the waste hierarchy.

Paradigms provide an ordering framework enabling an analytical hold on the complex and distributed processes at stake. As presented by Hall (1993), a policy paradigm is "the framework of ideas and standards that specifies not only the goals of policy and the kind of instruments that can be used to attain them, but also the very nature of the problems that need to be addressed" (279). The concept of policy paradigm, and the closely aligned concept of policy frames (Rein and Schön 1991) has been applied to analysis of EPI in different contexts, noticeably in analysis at the European level (Jachtenfuchs 1996, Lenschow and Zito 1998, Sedelmeier 2002).

However, there is a tendency to see policy paradigms as sets of ideas, or a specific cognitive framework, with consequences for institutional arrangements. As Jordan and Greenaway (1998) discuss, the classic meaning of paradigm inherited from the work of Thomas Kuhn (1970) and its established interpretations to the analysis of policy, can be difficult to apply to fields of policy which look more like assemblies of pragmatically and politically useful tools. We use the notion of paradigms broadly,

recognising the co-constitutive relation between ideas, institutional arrangements, and the very hardware of policy implementation – in the case of UK MWP including bin lorries and landfill sites. As emerges from the following discussion, the structures and cultures of institutions and the infrastructures of policy delivery do not simply flow from abstracted ideas of policy paradigms but are part of what shapes and reproduces those paradigms, with substantial implications for programmatic agendas such as EPI.

3. Municipal Waste Policy and the dynamics of policy integration

In this section, we argue that the modes of vertical integration which have promoted significant progress in the environmental performance of UK MWP have done little to overcome underlying limitations to horizontal integration at local levels of government. We begin by outlining the institutional and policy landscape of UK MWP and recent shifts towards sustainability. Based on the principles underlying those shifts, we detail the putative paradigm shift outlined above. This provides a framework which highlights the underlying needs for policy integration as well as indicating the basis of what might be recognised as sustainability in MWP. From there, we analyse the current pattering of policy integration and fragmentation. Finally, we analyse how dominant means of vertical integration have impacted upon municipal waste management practices and desirable patterns of horizontal integration.

The Municipal Waste Policy Framework in the UK

UK municipal waste is governed through institutional structures of labyrinthine complexity. Different local authorities are designated as one or more of a: waste collection authority (WCA); waste disposal authority (WDA); and waste planning authority (WPA). As the environmental protection body, the Environment Agency regulates waste management and disposal facilities. At national level, waste management is accountable to the Department of Environment, Food and Rural Affairs (DEFRA), whilst land use planning, including for waste infrastructure and facilities is under the Department for Communities and Local Government (DCLG). Responsibility for responding to EU waste directives is split between DEFRA and the Department of Trade and Industry (DTI), with the DTI leading on themes such as producer responsibility. A small constellation of regional governing bodies, particularly Regional Assemblies and the Government Offices for the regions, intervenes unevenly in the relationship between local and central government.

A range of concerns has driven municipal waste management up the political agenda (Bulkeley et al. 2005; Davoudi 2000). Amounts of municipal waste have increased by an average of 2% pa since the late 1990s in England (DEFRA 2006c), with significant cost implications (COSU 2002). At the same time, the UK's dominant disposal method, to landfill, has come under pressure as tightening environmental regulation has made landfill capacity increasingly scarce. More generally, the growing policy salience of environmental concern has influenced change in MWP. In this context, the 1990s saw a succession of UK policy statements setting aspirational goals for waste management, but such goals were repeatedly missed, with little evidence of substantial progress.[1]

In interviews with waste professionals at all levels of government and industry, a single driver has been identified repeatedly as most significant for precipitating a step change. European legislation, in particular the 1999 *Landfill Directive*,[2] has been the primary motive force behind the transformation of UK MWP. Under the terms of the Landfill Directive, the UK could be subject to fines of up to £180 million per year from 2020 (COSU 2002). The key targets the UK must reach to avoid international sanction are to reduce the amount of biodegradable municipal waste sent to landfill to 75% of the 1995 level produced by 2010; 50% by 2013; and 35% by 2020. The Directive provided the impetus for the UK to introduce the first statutorily binding targets for local authority waste management. *Waste Strategy 2000* (DETR 2000), which sets out the 'vision' for UK waste management to 2020, includes national targets to recycle or compost at least 25% of municipal waste by 2005, at least 30% by 2010, and at least 33% by 2015. Different statutory targets are set for local authorities according to existing performance, distributed such that, with each authority meeting its targets, the national targets will be met.

Tackling more directly the key requirements of the *Landfill Directive*, the Landfill Allowance Trading Scheme (LATS), introduced in April 2005, enables local authorities to trade permits to landfill biodegradable municipal waste, with the total number of permits reducing over time such that national obligations to divert biodegradable municipal waste from landfill under the Directive are met. These policy shifts have produced definite changes, most visible in statistics for recycling and composting which have risen from a rate of 6% of household waste in the mid-90s (DoE

[1] In 1990, the *Environment White Paper* (DoE 1990) set a target of 25% recycling by 2000. However, with the exception of the introduction of the Landfill Tax in 1996, few tangible changes were made to enable the target to be met. In 1995, *Making Waste Work* (DoE 1995) recognised that the recycling and composting rate stood at just 6%, and by 1999, *A Way With Waste* (DETR 1999) recognised that the 25% target would not be met.

[2] Council Directive 99/31/EC on the Landfill of Waste

1995) to 27% in 2005/06, according to preliminary figures (DEFRA 2006d). Whilst these figures remain poor compared to international best practice, they represent a substantial transformation of UK MWP over recent years.

In the light of the changing agenda surrounding MWP, national government has recognised something of the need for increased coordination at the local level. This is most visible in *Waste Strategy 2000*'s expectation that all local authorities would produce Municipal Waste Management Strategies, which were to "set out a strategic framework for the management of municipal waste" (DETR 2001: 6). Guidance on preparation of the strategies envisaged them as the basis of partnerships between local authorities oriented to "moving to a fully integrated waste management system", and that they would be "prepared within the context of the wider agenda for modernising local government" (DETR 2001: 5). The need for improved integration of MWP has been a continuing refrain, exemplified in a recent consultation on proposals to develop a "stronger, simpler and more integrated framework to deliver the significant expansion in new waste management facilities needed to meet EU obligations and national policy" (DEFRA 2005). As this new agenda for MWP begins to take hold, we suggest that there is evidence of a paradigm shift, from viewing waste as something to be disposed of towards an understanding of 'waste as resource', which has in turn shaped the nature and extent of EPI. It is to the nature of this paradigm shift that we now turn.

Shifting paradigms?

In the 1990s, UK MWP was overwhelmingly a matter of achieving the disposal of waste at the lowest cost whilst staying within the limits set by pollution and environmental protection legislation. For municipal waste, this can be characterised as a matter of local authorities arranging for the collection of waste from properties and transporting it to a local disposal point, usually a landfill site. Waste management was the end of a linear flow of materials, from extraction through processing, manufacture, use and finally to disposal (figure 1). This can be characterised as the *disposal* paradigm, under which a limited range of actors were involved – a local authority, a contractor or contractors for waste collection and disposal, and an environmental protection body (since the mid 1990s, the Environment Agency).

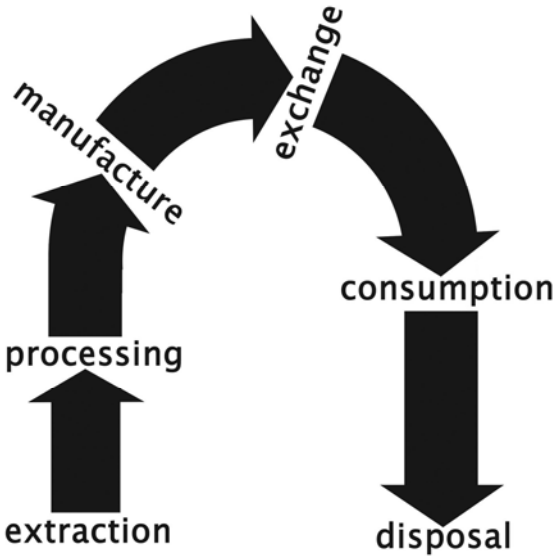

figure 1: materials flow under the disposal paradigm

With the UK disposing of 72% of its municipal waste to landfill in 2003/04 (DEFRA 2006c), it could be argued that this remains the dominant paradigm of MWP. However, the principles claimed as the basis of the current transformation of MWP could be interpreted as taking it in the direction of what might be termed the *waste as resource* paradigm, under which wastes are increasingly seen as resources. Practically, this is visible in the policy prioritisation of recycling and composting. Recycling recognises as resource that which was previously waste, introducing a cyclical, instead of linear, flow for those materials which are recycled. More profoundly, policy statements such as *Waste Strategy 2000* recognise central principles of sustainable resource management as providing the basis for the development of UK MWP. Most fundamental is the *waste hierarchy*, introduced to the policy arena by the 1975 EC *Waste Framework Directive,*[3] but which did not find its way into UK MWP until the 1990s (Davoudi 2000; DoE 1992; 1995). As presented in the UK's *Waste Strategy 2000*, (DETR 2000) the hierarchy represents the desirability of different approaches to waste management. At the top as first option is to reduce waste; then to reuse resources; then to recover value from waste (a step later conventionally differentiated into recycling and composting, and then energy recovery) with disposal (burning without energy recovery or landfilling) as the last resort. Along with other principles of sustainable resource management, such as the Proximity and Self Sufficiency

[3] Council Directive 75/442/EEC, subsequently amended by Council Directive 91/156/EEC and 91/962/EEC

Principles, commitment to the waste hierarchy has been reproduced in policy statements at all levels of UK government. Most local authority Municipal Waste Management Strategies explicitly espouse the principles, reflecting the expectations of national guidance on the strategies (DETR 2001).

Taken seriously, the waste hierarchy would enact the waste as resource paradigm, ensuring that the very minimum of resources are disposed of as waste. In contrast to the institutional simplicity of the disposal paradigm, the cyclical nature of the waste as resource paradigm (figure 2) demands much greater complexity of institutional structures to govern, regulate and operationalise it: reduction demands engagement with systems of production and retail, and with the decisions of businesses and consumers; re-use requires the development of a wide range of community and commercial bodies to facilitate the transfer of products from those who have no further use for them to those who do, and that cultural prejudices against second hand products are challenged; recycling requires that materials follow diverse paths to find material-specific markets and uses, and that householders have to be enrolled to sort wastes. As such, the waste as resource paradigm indicates the institutional, political and cultural issues at stake in pursuing the cycling of materials as advocated by Industrial Ecology (Ayres and Ayres 1996).

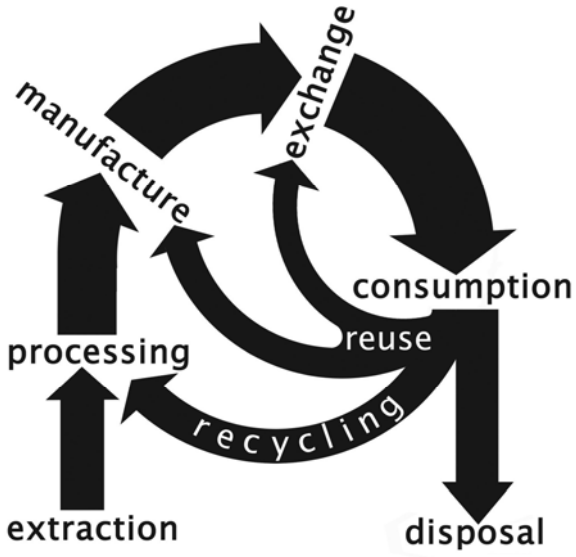

figure 2: materials flow under the waste as resource paradigm

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The waste as resource paradigm therefore demands unprecedented policy integration across multiple scales and arenas of governing and challenges conventional framings of MWP as an issue of public service and environmental regulation. Instead, waste is reframed as a strategic issue that is an integral part of economic policy and commercial regulation. Expressed as relatively abstract principles, the waste as resource paradigm already exists in the UK. But already it is plain that to supplant the disposal paradigm as the dominant framing of UK MWP takes more than a battle of ideas and principles. For a paradigm shift to take place, everything from national institutional structures to local and even household infrastructures have to be reshaped.

[4] Council Directive 75/442/EEC, subsequently amended by Council Directive 91/156/EEC and 91/962/EEC

Apparently reflecting the implications of moving towards a new paradigm of waste management and adopting key principles of sustainable resource management, key government documents stress the desirability of cross-sectoral partnership for making progress in MWP. For example, in *Waste Strategy 2000* it is argued that:

> "To engineer this step change in the way we think about waste we must work in partnership – with businesses, local authorities, community groups and the public." (DETR 2000: 5)

Similarly, in published guidance on preparing Municipal Waste Management Strategies, the government states that:

> "Authorities also need to work in partnership with others concerned with waste management, for example waste planning authorities, community groups carrying out kerbside recycling and other projects, packaging compliance schemes on projects to expand kerbside collection of packaging waste, and reprocessors." (DETR 2001: 6)

Statements such as these recognise that the changing requirements of MWP rely on an expanding network of relationships with diverse partners. However, analysis of current UK MWP reveals profoundly limited progress towards policy integration for environmental objectives.

Policy integration and fragmentation

As discussed above, the progress achieved in UK MWP has been driven primarily by the requirements of EU legislation, which has been enacted as a matter of reshaping the activities of local authorities through the application of statutory targets by central government – both in the form of targets for recycling and composting and in the shape of allowances for the amount of biodegradable waste sent to landfill. In addition, the government has responded to the increasing costs of MWP by providing additional resources to local authorities. This has partly been through increased core funding, but many of the local authority initiatives which have enabled significant progress, especially against recycling and composting targets, have been funded by competitively allocated grants.

What is distinctive about this recent phase of vertical integration when examined in relation to EPI is the extent to which it moves beyond the historically established concern that waste is managed in accordance with pollution control regulation, to begin to embrace broader sustainability implications of materials use. The Directive served as a prompt for the UK government to implement vertical integration which has enabled positive advances in the broader sustainability of UK MWP, evidenced by improving figures for recycling and composting. At the same time, unhelpful horizontal divisions continue to persist at the level of local authorities.

These divisions lie in fragmented institutional structures inherited from the disposal paradigm. Perhaps most fundamental is a typical lack of coordination between the section of an authority responsible for waste management, and the section responsible for land-use planning, including planning for waste infrastructure. This split runs vertically through UK MWP, with land-use planning responsible to DCLG, a relationship largely mediated regionally by a regional Government Office, whilst waste management is responsible directly to DEFRA, a relationship in which the regional level has no real role. Central government has recognised this split (COSU 2002) and made attempts to confront it, such as under the provisions of Planning Policy Statement 10 in 2005. However, there is as yet limited evidence of these initiatives having substantial impact on practice.

The split between planning and management results in basic breakdowns of intra-institutional integration. This is perhaps most visible in the sequencing of the strategies local authorities are required to produce relating to waste. On the side of waste management, DEFRA requires the production of a Municipal Waste Management Strategy (MWMS). On the side of land use planning DCLG, (at the time ODPM) until recently required a Waste Local Plan or equivalent provision (WLP).[5] Logically, production of the two documents would run in concert with each other, with the strategic document (MWMS) shaping the planning document (WLP). However there is often limited integration of the two processes and it is not unusual for the planning process in an authority to have completed before the MWMS is produced. The time frames of management and of planning working practices are very different. Whilst waste management involves long-term contracts and relatively short decision-making procedures, more drawn out processes of plan-making, contestation and infrastructural development are central to the planning process. Such differences cannot simply be overcome by 'joining up' government departments.

Moreover, as the sustainable resource management agenda advances, it is likely that a greater number of smaller scale management facilities, such as Materials Recycling Facilities, will be needed, as well as large-scale facilities, requiring increasing coordination between planning and management. Increasing source separation of wastes has implications also for the micro-infrastructures of house and neighbourhood design, such as allowing the storage of separated materials in different housing types. Processes of granting planning consents are the most apparent way of ensuring developers take these requirements on board, requiring action by

[5] The WLP has been replaced by a requirement for an overall Local Development Frameworks under the provisions of Planning Policy Statement 12, 2004.

land use planners. Whilst not a universal feature of all local authorities, the typical lack of integration between waste management and land use planning is a fundamental gap in intra-authority horizontal integration for sustainable waste policy.

Staying within the bounds of single authorities, integration indicative of more advanced engagement with the sustainable resource management agenda would bring a broader range of sections of a local authority into the realm of waste policy. Waste has historically been seen in terms of an 'end-of-pipe' service, and institutionally embedded in a culture shaped around disposing of waste in as economically efficient a manner as is possible. This served to define waste as an operational issue, and to confine it institutionally to the 'service' rather than 'strategic' functions of local authorities. Sections of local authorities not currently directly involved in waste management, such as those with responsibility for Local Agenda 21 (LA21), public communication and for local enterprise, could bring a broader range of capacities and competencies to realising the sustainable resource agenda. Moreover, waste minimisation, reuse and recycling potentially offer significant local and regional economic development opportunities, whether through cost saving from minimising waste, or through developing re-use and recycling industries. As one respondent articulates, the institutional position of waste responsibility is of major significance for the framing of the policy issue and possible responses:

> If you look to see where waste rests as a function within a local authority….because if waste is within an area which is about culture, behaviour, about the image of the city, about business development, then it will be portrayed and it will be embedded in those policies. If it is in the bin wagon section, then it speaks for itself, and if it is in the bin wagon then it will be about the efficiency of bin wagons and wages, it is not going to be placing it into a different approach.
>
> (Local Authority LA21 officer)

However, there is rarely communication between waste management and economic development in local authorities, as illustrated by the following quote from a local authority Cabinet Member for the Environment:

> there is a bit of an issue about structures within the council, about where the different environment ones sit, because you have got the recycling and the waste management sit with [street service section], but the bigger environment centre and the Agenda 21 sit under [name] in planning, planning and environment is the title and then servicing. I have asked for that to be looked at basically because if I don't understand who does what, why and when, then members of the public won't either.
>
> (Local Councillor)

Some local authorities have developed and maintained creative and productive relationships between different relevant sections, but this has been due to the enthusiasm and commitment of individual officers and elected members. It is not a general picture, nor a form of horizontal integration given any steer from central government.

There are significant gains to be made for MWP through inter-authority integration, through effective joint working between local authorities. In two tier authorities (composed of a County authority and several component Districts), integration between Waste Collection Authorities (Districts) and Waste Disposal Authorities (Counties) is clearly essential to effective MWP. However, relations between Counties and their Districts are often strained:

> The districts are too small, we have a problem keeping them in line and they all want the collections at different times, different agendas and of course that doesn't make for a unified service.
>
> (County Environment Officer)

The difficulties of this relationship are indicated by the increasing direction through which national government is demanding effective joint working within two tier authorities.[6] Beyond the necessary collaboration of WCAs and WDAs, joint working between authorities potentially offers economies of scale, whether in setting up materials collection schemes or generating viable local resource recycling and reprocessing businesses. However, an insular political culture in many local authorities counts against pursuing joint working.

It is in horizontal integration between local government and non-state actors that the emphasis on partnership working under the LGMA is most clear. Following the privatisation of most municipal waste operations through the 1990s, local authorities are now dependent on their waste contractor. The typical long term contracts between authorities and their contractor – 25 years is not unusual – means flexibility and an active 'partnership' relation is necessary to respond to a fast shifting waste management agenda. While a creative contractor can do much to help an authority realise recycling and composting targets, they rarely have much capacity or motivation to engage with reuse or reduction of waste. To pursue these priorities, a broader network of actors is required and this is reflected in the networks of partnerships, with voluntary and community groups, schools and local businesses, which the more creative local

[6] The 2004 Waste and Emissions Trading Act made the preparation of a Joint Municipal Waste Management Strategy a statutory requirement for two tier authorities, and strengthened the power of direction for Counties over their Districts' waste collection activities

authorities have established. However, for reasons discussed below, such activities are often sidelined in an authority's prioritisation of MWP issues.

Recent efforts to improve the sustainability of MWP through the governing instruments outlined above are therefore intervening in an embedded and deeply fragmented local institutional landscape. The next section explores these dynamics.

The dynamics of integration in UK MWP

In some respects, UK MWP could be evaluated as relatively integrated and reflecting a well advanced paradigm shift. In policy statements at the national level, upon which analyses of EPI typically concentrate, concern for integrating environmental sustainability is abundantly clear, not least in the adoption of the far reaching principles of the waste hierarchy along with those of proximity and self sufficiency. As the super-ordinate authority, UK national government has translated those commitments into powerful instruments, such as targets and grants, intended to vertically integrate local authorities to the programme. In recent years, these have been complemented with more radical measures to enhance horizontal integration at the national level through inter-departmental initiatives such as the Waste and Resources Action Programme, and attempts to integrate municipal waste planning and management.

However, possibilities for policy integration at the sub-national level which are necessary for realising a paradigm shift towards sustainable MWP have not been adequately explored. In finding paths for intervention through the fragmented institutional landscape around local MWP, the key instruments used to effect vertical integration in UK municipal waste policy have followed lines of least resistance. Indeed, the policies and instruments which have most changed local practice have done so by narrowly constraining local strategic decisions, substantially removing local discretion and discouraging creative thinking. In all of the local authorities with which we have worked, the challenges of meeting the statutory targets are so demanding that local policy attention has focused on the achievement of targets at the expense of the underlying principles of sustainability which the targets were designed to promote. Understandably, the fulfilment of statutory targets becomes the surrogate for demonstrating adequate performance within an authority, as indicated by the following quote:

> " [MWP] is not recognised within the authority as a crucial issue because at the moment we are hitting our recycling targets therefore we don't need to do anything. So the willingness of our economic development people to recognise, as a guide in principle, the need to de-couple production of economic growth from production of waste and consumption is not there."

(Local Authority LA21 Officer)

The domination of MWP by statutory targets has undoubtedly been the basis for the rapid improvements in recycling and composting achieved in recent years, forcing local authorities to pay serious attention to waste. However, it has also had negative side-effects. Increasing tonnages to meet targets by the most cost effective means have been the focus of policy interventions. Consequently, targets have been pursued predominantly through means which do little to challenge the narrow technical framing of waste management. Recycling and composting, the primary focus for policy interventions in MWP over recent years, are only the third option in the waste hierarchy, below reduction and reuse. Whilst involving greater complexity than simple disposal operations, recycling and composting still involve intervention only at the points in the materials cycle between disposal by the householder and the next point of the cycle (fig 2).

In addition to statutory targets, other instruments of vertical integration have further embedded this prioritisation and with it failed to challenge the fundamental framing of MWP. Central government competitive grant schemes have demonstrated clear preference for tried and tested means of improving local authority performance against targets, such as the roll-out of kerbside collection programmes, or the upgrading of civic amenity sites to optimise recycling returns, rather than funding more innovative programmes. The recent implementation of LATS increases the visible financial implications for a local authority of waste management performance against government targets and priorities. This seems likely to drive concern for waste management more to the heart of local authorities. Whilst this will undoubtedly be to the good for realisation of the central government priorities which determine reward grants, it is equally likely to discourage creative initiatives addressing the relatively immeasurable targets of reuse and minimisation; and to discourage partnership working between local authorities competing for substantial financial rewards.

As highlighted in discussion of the putative paradigm shift, to framing waste as a resource, making substantial progress towards sustainability in MWP requires unprecedented local integration between sections of a local authority, between public bodies, with commercial bodies, third sector organisations and ultimately with communities and citizens. In driving performance change through policy options which are most amenable to existing institutional structures and competencies, dominant policies and instruments have done little to engender such local horizontal integration. This analysis reflects broader characteristics of the UK's implementation of the LGMA. The instruments applied in MWP have been generally characteristic of the LGMA, exemplified by the translation of national targets to local authority level through the framework of Best Value, a

cornerstone of LGMA. In analysing the LGMA, Cowell and Martin (2003) found ample evidence of top down vertical integration in a range of different policy sectors, integrating local authority service provision to national priorities through targets and indicators. However, they argue, because this vertical integration from central government continues to take place overwhelmingly within traditional sectoral boundaries, it is bound to conflict with effective horizontal integration in local government (Cowell and Martin, 2003).

Dominant policies and instruments passed down to local authorities in MWP have therefore served to largely reproduce the political and institutional framing of municipal waste that developed under the disposal paradigm. Targets and priorities have been formulated in such a way as to make visible progress on sustainability in the ways which least challenge the structures inherited from the institutionalisation of the disposal paradigm, and accompanying distributions of power, responsibility and competence. Whilst achieving national targets has demanded new means of engaging with the public, for example to participate in source separation of materials, the operation of the targets has failed to challenge the existing corralling of waste management within local authorities as a technical, end-of-pipe service. Indeed, the limited overall powers of local authorities mean they have little scope to make substantial progress towards re-use and minimisation. The interventions in manufacturing processes, materials markets and pervasive cultural attitudes necessary to make significant progress on the upper levels of the waste hierarchy are largely beyond the powers of any UK local authority acting alone. Yet local authorities continue to carry the burden of responsibility for MWP, under a regime that does little to encourage authorities themselves to expand engagement with the waste agenda much beyond the service-oriented technical sections historically responsible for waste collection and disposal. Almost inevitably, initiatives, policies and targets have emerged from existing institutions which essentially enable those institutions to reproduce themselves in a form which is as little altered as possible.

4. Conclusions – unpicking EPI

Despite significant improvements in certain indicators of sustainability in UK MWP, we have argued that progress towards sustainability has been profoundly limited, largely as a result of an overall failure of effective policy integration, not least at the level of local authorities. As abstract ideals and declaratory principles, a paradigm shift in which waste is meaningfully reframed as resource is well advanced. As demonstrated by rapidly rising levels of recycling, policy and practice in this arena has been significantly changed in recent years, substantially driven by concerns consistent with

environmental sustainability in UK MWP. However, our analysis reveals some of the limits to the realisation of a paradigm shift towards sustainability, lying in the details of localised institutional structures and infrastructures. The tools of transformation so far applied have been focused around a vertical, top-down integration which has failed to engender appropriate horizontal integration, particularly at the local level.

Our analysis of EPI in UK MWP leads us to a number of conclusions which challenge aspects of conventional analyses of EPI. First, it confirms our contention that comprehensive analysis of EPI must be multilevel, across all scales of government. A focus on international and national government institutions and policy statements is necessary, but not sufficient, for comprehensive analysis of the progress and potential of EPI. Super-ordinate levels of government of course have a fundamental role in setting out the policy context and instrumental framework for the integration of environmental objectives. However, the evaluation of EPI can only ultimately proceed through analysis of outcomes in the actions of service providers, businesses, households and individuals. The realisation of such outcomes depends on the appropriately integrated action of institutions, both state and non-state, and of policy processes, at all scales of government. Ultimately, it is how the policies and instruments of integration impact on the micro-scale processes, relations, routines and decisions of policy implementation which determines the outcomes of EPI. To ignore how deeply the institutional and practical obstacles to EPI run across all scales, to the very local, is to underestimate the magnitude of the challenges EPI presents.

Second, it is necessary to recognise that attempts to implement EPI do not take place in a static institutional context. Consequently, EPI cannot be conceived of simply as a matter of deriving a blueprint for a fixed institutional solution. Literature debating the extent of changing governance demonstrates the dynamic nature of processes of governing. This is exemplified in UK MWP by the assimilation of environmental objectives to the rationale and instruments of the LGMA, indicating that environmental policy integration has to be implemented not only within the constraints of embedded institutional structures and cultures, but also in the context of other dynamics of integration. Indeed, it is often at the local scale that contradictions and perverse outcomes emerge between dynamics of integration, as exemplified by the conflict in UK MWP between the modes of vertical integration deployed and the engendering of appropriate horizontal integration. EPI cannot be seen as a matter of simply getting institutional structures 'right'. Realising environmental objectives demands a complexity of policy response which means that contradictory dynamics of change and integration are inevitable. EPI is pursued in the context of existing and actively self-reproducing institutions, embedded structures,

cultures and practices, and cross cutting dynamics of institutional and policy change. Pursuing EPI is therefore an argumentative, iterative process, and critical analysis of its progress demands sensitivity to the dynamics of this process across scales and institutional contexts.

Finally, our analysis of UK MWP gives us pause for thought on the ease with which EPI is presented as an incontestable good. Of course, the essential principle of optimising policy for progress towards sustainability is incontestable. However, we suggest that calls for the pursuit of EPI need to be made with some caution. The normative rationales for enhancing policy integration usually rest on at least one of two arguments. The first is *effectiveness*, essentially that integration is needed to realise a given policy outcome on a cross-cutting issue. In the case of EPI, this argument is grounded on the premise that as the environment 'knows no boundaries', decision-making procedures also need to be more holistic. The second is *efficiency*, arguing that integration allows for co-ordination, hence reducing duplication and redundancies in policy systems. This is an assumption at the heart of those agendas seeking to 'modernise' government in the UK, but nonetheless with important ramifications for EPI.

Our analysis shows that these assumptions, and hence the normative drive for EPI, are contestable in practice. First, questions arise as to where EPI should logically 'stop'. In its most naïve versions, EPI could be read as a desire to integrate everything with everything else, but dismissing that option as fanciful still does little to make it clear where the boundaries of EPI might lie. One response would be to focus on those integration processes which are the most effective and the most efficient, but this assumes that the normative definition of what constitutes effectiveness can be agreed. In the case of UK MWP, the prioritisation of recycling and composting through statutory targets can be justified as the most effective and efficient option, but on the basis of a particular model of where MWP should be heading in the given institutional and policy context. Whether building the institutional capacities to make policies more effective can be efficient is a moot point. Second, and closely related, questions of legitimacy and accountability lie just below the surface of the EPI debate. The argument that there is a need for a super-ordinate body with the capacity, power and will to induce EPI clouds questions as to what vision of sustainability will be mobilised through such processes, and who will get a say in shaping those ideas. Equally, the sense that sustainability is a process, rather than a blueprint, gets lost among ideal-type discussions of the structures which will promote EPI. The need for a diversity of approaches to managing waste sustainably, and their emergence under the dominant mode of multilevel government (Bulkeley et al. forthcoming), suggests that a 'one size fits all' approach to EPI is neither desirable nor practicable.

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References

Aalberts T, 2002 *Multilevel Governance and the Future of Sovereignty: a constructivist perspective* (Free University of Amsterdam, Amsterdam)

Ayres R, Ayres L, 1996 *Industrial Ecology: Towards Closing the Materials Cycle* (Edward Elgar, London)

Bulkeley H, Watson M, Hudson R, forthcoming, "Modes of Governing Municipal Waste" *Environment and Planning A*

Bulkeley H, Watson M, Hudson R Weaver P, 2005, "Governing Municipal Waste: towards a new analytical framework" *Journal of Environmental Politics and Policy* **7**(1) 1–23

CEC, 1973 *Declaration of the Council of the European Communities and of the Representatives of the Governments of the Member States Meeting in the Council of 22 November 1973 on the Programme for Action of the European Community on the Environment (SEC (74) 70014)* Commission of European Communities (CEC, Luxembourg)

Collier U, 1997 Energy and Environment in the European Union (Ashgate, Aldershot)

COSU, 2002 *Waste not want not: a strategy for tackling the waste problem in England* (Cabinet Office Strategy Unit, London)

Cowell R, Martin J, 2003, "The joys of joining up: modes of integrating the local government modernization agenda" *Environment and Planning C – Government and Policy* **21** 159–179

Cowell R, Murdoch J, 1999, 'Land use and the limits to (regional) governance: Some lessons from planning for housing and minerals in England' *International Journal of Urban and Regional Research* **23** (4) 654–669

Davoudi S, 2000, "Planning for Waste Management: changing discourses and institutional relationships" *Progress in Planning* **53** 165–216

DEFRA, 2005 *Consultation on Sustainable Waste Management* Department for Environment Food and Rural Affairs www.defra.gov.uk/corporate/consult/wasteman-strat/index.htm

DEFRA, 2006a *Key Facts about: Waste and Recycling. Estimated total annual waste arisings, by sector* Department for Environment Food and Rural Affairs www.defra.gov.uk/environment/statistics/waste/kf/wrkf02.htm

DEFRA, 2006b *Municipal Waste Statistics – tables for November 2006 Statistics Release* Department for Environment Food and Rural Affairs www.defra.gov.uk/environment/statistics/wastats/archive/mwb200611.xls

DEFRA, 2006c *Review of England's Waste Strategy, Annexes* Department for Environment Food and Rural Affairs www.defra.gov.uk/corporate/consult/wastestratreview/annexes.pdf

DEFRA, 2006d *Municipal waste management statistics 2005/06* Department for Environment Food and Rural Affairs www.defra.gov.uk/news/2006/061116a.htm

DETR, 1999 *A Way With Waste* (Department of the Environment Transport and the Regions, London)

DETR, 2000 *Waste Strategy 2000 for England and Wales* (The Stationery Office, Norwich)

DETR, 2001 *Guidance on Municipal Waste Management Strategies* (Department for Environment, Transport and the Regions, London)

DoE, 1990 *This Common Inheritance: Britain's Environmental Strategy* (Department of the Environment, London)

DoE, 1992 *Waste Management Paper No 1: A review of options* (Department of the Environment, London)

DoE, 1995 *Making Waste Work: The UK strategy for England and Wales* (Department of the Environment, London)

Hajer M, 2003, "Policy without polity? Policy analysis and the institutional void" *Policy Sciences* **36**(2) 175-195

Hall P A,1993 "Policy paradigms, social learning, and the state The case of economic policymaking in Britain" *Comparative Politics* **25**(3) 275-96

Hey C, 2002, "Why does environmental policy integration fail? The case of environmental taxation for heavy goods vehicles", in *Environmental Policy Integration: Greening Sectoral Policies in Europe* Ed A Lenschow (Earthscan, London) pp 127-152

Hertin J, Berkhout F, 2003, "Analysing Institutional Strategies for Environmental Policy Integration: The Case of EU Enterprise Policy" *Journal of Environmental Policy and Planning* **5**(1) 39-56

Hooghe L, Marks G, 1996, "Contending models of governance in the European Union", in *Europe's Ambiguous Unity: conflict and consensus in the post-Maastricht eras* Eds A Cafruny and C Lankowski (Lynne Rienner Publishers, Boulder, Colorado) pp 21-44

Jachtenfuchs M, 1996 *International Policy-Making as a Learning Process? The European Union and the Greenhouse Effect* (Avebury, Aldershot)

Jessop B, 1997, "The governance of complexity and the complexity of governance: preliminary remarks on some problems and limits of economic guidance", in *Beyond Market and Hierarchy: interactive governance and social complexity* Eds A Amin and J Hausner (Edward Elgar, London) pp 95-128

Jordan A, 1999, "The implementation of EU environmental policy: a policy problem without a political solution?" *Environment and Planning C: Government and Policy* **17**(1) 69-90

Jordan A, 2000, "The politics of multilevel environmental governance: subsidiarity and environmental policy in the European Union" *Environment and Planning A* **32**(7) 1307-1324

Jordan A, 2001, "The European Union: an evolving system of multi-level governance or government?" *Policy and Politics* **29**(2) 193-208

Jordan A, 2002, "Efficient Hardware and Light Green Software: Environmental Policy Integration in the UK", in *Environmental Policy Integration: Greening Sectoral Policies in Europe* Ed A Lenschow (Earthscan, London) pp 35-56

Jordan A, Lenschow A, 2000, "Greening the European Union" *European Environment* **10**(3) 109–20

Jordan A, Greenaway J, 1998, "Shifting Agendas, Changing Regulatory Structures and the 'New' Politics of Environmental Pollution: British Coastal Water Policy, 1955–1995" *Public Administration* **76** 669–694

Kooiman J, 2003 *Governing as Governance* (Sage, London)

Kuhn T, 1970 *The structure of scientific revolutions* (University of Chicago Press, Chicago)

Lafferty W M, Hovden E, 2003, "Environmental policy integration: Towards an analytical framework" *Environmental Politics* **12**(3) 1–22

Lenschow A, 1997, "Variation in EC environmental policy integration: agency push within complex institutional structures" *Journal Of European Public Policy* **4**(1) 109–27

Lenschow A, Ed, 2002a *Environmental Policy Integration: Greening Sectoral Policies in Europe* (Earthscan, London)

Lenschow A, 2002b, "Greening the European Union: An Introduction", in *Environmental Policy Integration: Greening Sectoral Policies in Europe* Ed A Lenschow (Earthscan, London) pp 3–21

Lenschow A, 2002c, "Dynamics in a Multilevel Polity: Greening the EU Regional and Cohesion Funds", in *Environmental Policy Integration: Greening Sectoral Policies in Europe* Eds A Lenschow (Earthscan, London) pp 193–215

Lenschow A, 2002d, "Conclusion: What are the Bottlenecks and Where are the Opportunities for Greening the EU?" in *Environmental Policy Integration: Greening Sectoral Policies in Europe* Eds A Lenschow (Earthscan, London) pp 219–233

Lenschow A, Zito A, 1998, "Blurring or shifting of policy frames?: institutionalization of the economic–environmental policy linkage in the European Community" *Governance* **11**(4) 415–41

Liberatore A, 1997, "The Integration of Sustainable Development Objectives into EU policy-making: Barriers and Prospects", in *The Politics of Sustainable Development* Eds S Baker, M Kousis, D Richardson and S Young (London, Routledge) pp 107–26

Macleod G, Goodwin M, 1999, "Space, scale and state strategy: rethinking urban and regional governance" *Progress in Human Geography* **23**(4) 503–527

Owens S, 2004, "Siting, sustainable development and social priorities" *Journal of Risk Assessment* **7**(2) 101-114

Pierre J, Peters G, 2000 *Governance, Politics and the State* (Basingstoke, Macmillan)

Rein M, Schön D A, 1991, "Frame-reflective policy discourse", in *Social Sciences and Modern States. National Experiences and Theoretical Crossroads*, Eds P Wagner, C H Weiss, B Wittrock and H Wollmann (Cambridge University Press, Cambridge) pp 262-89

Rhodes R, 1996, "The new governance: governing without government" *Political Studies* (XLIV) 652-667

Sedelmeier U, 2002 "Sectoral dynamics of EU enlargement: advocacy, access and alliances in a composite policy" *Journal Of European Public Policy* **9** (4) 627-649

WCED, 1987 *Our Common Future* (Oxford University Press, Oxford)

Weale A, Williams A, 1993, "Between Economy and Ecology? The Single Market and the Integration of Environmental Policy" *A Green Dimension for the European Community: Political Issues and Processes* Ed. D Judge (Frank Cass, London) pp45-64