ORCA – Online Research @ Cardiff

Conceptualising environmental governance in turbulent times: insights from Brexit and waste in the UK

Richard Cowell[a], Andrew Flynn[a] and Nick Hacking[a]

Address:
[a]School of Geography and Planning
Cardiff University
King Edward VII Avenue
Cardiff University CF10 3WA
UK

Email: cowellrj@cardiff.ac.uk, flynnac@cardiff.ac.uk, hackingn@cardiff.ac.uk

Corresponding author: Richard Cowell

Abstract

Institutional turbulence created by the UK's EU exit (Brexit) prompts a wider need to re-think whether our conceptualisations of governance in the environmental sphere sufficiently understand the dynamics of change. In this context, Boltanski and Thévenot's 'Orders of Worth' (OoW) framework, has particular merit. This conceptualises governance regimes as composed of compromises between plural and incommensurable orders of the public good, with innate potential for instability; especially - we would add - when the territoriality of governance is in flux. The OoW approach is applied to an analysis of waste governance debates in the UK following the 2016 EU referendum. Documentary and interview data show how present and prospective governance arrangements in the waste and resources sector are subject to rival justifications, with actors advancing different compromises between economic, industrial, civic and environmental orders, but that each is also attached to conceptions of the relevant governance scale (EU, UK, devolved nation). Our study shows the wider potential fragility of environmental reforms, arising from the secondary status of environmental concerns in compromises with dominant market, industrial and civic orders. The 'orders of worth' framework requires attention to the scales of political authority being mobilised in disputes, which add their own incommensurability.

Key words

environmental governance; policy turbulence, orders of worth; waste; Brexit; circular economy

INTRODUCTION

Turbulent political moments are tricky terrain for scholars of governance, in the environmental sector and more widely. In the short-term, high levels of uncertainty caused by dynamic, intersecting changes make understanding the situation, or predicting the future, immensely challenging. Analysts from political science and public management have begun to respond, by characterising the features of turbulence and assessing how organisations might cope (Ansell and Trondal 2018). More fundamentally, we argue that turbulent situations raise questions about whether prevailing theoretical paradigms offer adequate understanding of the nature of governance, understood here as ways of 'authoritatively allocating resources and exercising control and coordination' (Rhodes 1996, 653). Many perspectives tend to assume that governance arrangements acquire more or less coherent dominating forms, where change is mostly incremental. Resistance, though frequent and sometimes pervasive, is conceptualised as a pressure placed on those arrangements.

It is our contention – and the main contribution of this paper – that our understanding of environmental governance can benefit from the insights of 'post-foundational' theoretical lenses, more attuned to the potential instability of institutional arrangements. These lenses view society not as structured within some 'all-encompassing social order', but rather involving 'multiple agreements of highly varying extension, durability and substance ... all of which have the potential to fall into disagreement' (Annisette and Richardson, 2011, 231). Viewed thus, and particularly through the 'orders of worth' framework of new pragmatist sociologists Boltanski and Thévenot (2006), researchers are sensitised to the compromises and tensions inherent *within* the structure of governance arrangements. The potential for actors to challenge the appropriateness of governance arrangements is omnipresent, but can erupt during situations of intense dispute, and prove difficult to settle fully. Of particular interest to political geographers, however, we argue is a need to build questions of spatial scale more centrally into the approach.

Boltanski and Thévenot's framework seems eminently suitable for thinking about how events like Brexit may affect environmental governance. The UK's June 2016 referendum decision to leave the EU ('Brexit') sparked considerable anxiety about the fate of the environment (EDIE, 2016a; ENDS 2016a). EU membership has been widely acknowledged as a significant driver for improvement in UK environmental governance, helping to raise standards in many areas (Burns et al 2016). Was this now in jeopardy? With the prospect of ongoing turbulence in political and economic spheres, analysts face huge questions about the likely direction of UK environmental governance, post-Brexit, in both short and long term (Burns et al, 2019).

To assess the analytical merits of Boltanski and Thévenot's framework, we apply it to the analysis of debates around the future of waste policy in the UK, before and after the EU referendum. Dealing sustainably with waste and resources is a mounting environmental crisis (UNEP and ISWA, 2015) with clear geographical and political dimensions (Bulkeley et al 2005; 2007; Hacking and Flynn 2018), in which the EU has been a powerful actor. However,

waste researchers have rarely sought practitioners' and policy-makers' perspectives on conceptions of governance design or scale - both very much at stake with Brexit. Providing empirical evidence on this is thus the second contribution of the paper; thereby adding to emerging literatures on the contestation and construction of 'circular economies' (Kirchherr et al 2017; Gregson et al, 2015).

In the next section, we introduce problems of over-determination in governance research, then explain Boltanski and Thévenot's framework in more detail and discuss the need to integrate spatial dynamics. After outlining the context of the research in EU waste governance and Brexit, we explain the original empirical research on which the paper is based. This combines textual analysis of the waste sector press and expert interviews. We then set out our findings, providing key themes in the justifications given for prospective future, post-Brexit waste governance forms, highlighting the tensions between these themes and the challenges of constructing compromises. The final section of the paper draws together our main conclusions and makes wider observations on the fate of environmental reforms in turbulent times.

THE CONSTITUTION OF GOVERNANCE

Problems of Over-determination

One of the key challenges in environmental governance research is the tension between theorising fixity and fluidity in governance arrangements, and our ability to understand the effects of policy turbulence has not been helped by the tendency of many theoretical frameworks to 'over-determine' the scope (or lack of it) for change. Over-determination can arise where interests, power and ideology 'all too often constitute the start- and ending-point of social scientific views' (Blok, 2013, 502). Political economy theorists, for example, tend to see governance as a reflection of the form of capitalist economic development (Bulkeley 2005). This tendency to regard governance arrangements as acquiring a dominant form, held firmly in place by powerful actors, is shared by Foucault's concept of governmentality, which has been applied to the study of waste (e.g. Bulkeley et al, 2005; Davies, 2005; Hacking and Flynn, 2018) as well as other environmental sectors. Critics observe that Foucauldian accounts of society (along with those derived from Bourdieu) tend to 'reduce all social relationships to issues of power or interest' (Annisette and Richardson, 2011, 230) and collapse the evolution of state action into a binary of technique/action versus resistance (Hacking and Flynn, 2018).

Such reductionism has been challenged by alternative ontologies of change, emphasising evolution or learning (as reviewed in Geels 2010), but most retain a tacit inference that the objects of learning – here, governance arrangements – are themselves coherent, and improvement is unambiguous. They also share tendencies to obscure the messy compromises built into implementing devices themselves (see Riles, 2006) and their combination within governance arrangements. Consequently, we argue that changing governance forms is not

simply a matter of the shifting balance between neatly separated modes (after Treib et al 2005). Rather we suggest that governance is a more fractured, fragmented process, held together by a series of ongoing compromises between different elements. It is the composite nature of governance arrangements that can be brought sharply into question when controversies emerge, and which in turn contributes to turbulence.

<u>Plural and Incommensurable Bases of Legitimacy: Orders of Worth</u>

To take forward this perspective, Boltanski and Thévenot offer a number of useful insights for governance scholars regarding the construction of social order. In their key work, *On Justification* (2006), it is argued that researchers should focus on concrete situations where the coordination of activities break down or come into dispute, and 'order' needs to be re-established. For Boltanski and Thévenot, resolving disputes is not an isolated, aberrant activity: it is inherent in the maintenance of systems of rule.

In conceptualising how disputes are resolved, Boltanski and Thévenot make processes of justification central. Instead of applying some determining meta-frameworks or assuming the power of key interests or ideologies, they contend that researchers should examine how actors present public defences of the appropriateness of particular way of resolving disputes, or critically denounce those they disagree with. However, actors do not make justifications with infinite flexibility (Honneth, 2010). To resolve situations of dispute, there is a plurality - but limited number - of conceptions of the public good that can legitimately be applied. Boltanski and Thévenot refer to these as 'Orders of Worth' (OoW). Table 1 summarises the OoW framework, and one can see how the orders of 'markets' (the pursuit of private economic interest), 'industrial' (the pursuit of instrumental effectiveness), and 'civic' (acting in the collective interest) have particular relevance to governance concerns. Furthermore, these OoW are incommensurable – i.e. not reducible to each other through some 'higher' system of values or common metric. Boltanski and Thévenot also insist that actors are not ciphers for a single, specific order but can draw strategically on a plurality of OoW either to defend or critique prevailing arrangements.

<Insert Table 1 near here>

These grammars of judgement are linked to modes of action (i.e. forms of engagement and coordination), hence this framework offers useful insights for understanding how governance arrangements are constructed and maintained. This takes us to Boltanski and Thévenot's concept of tests (see Table 1). In some situations, problems arising in a governing process are viewed as internal to a single, specific OoW. For example, a failure to meet waste recycling targets might spark disagreement as to the merits of different ways of meeting such targets; the discussion is located wholly within industrial OoW i.e. there is no dispute that means-ends efficiency provides the appropriate test. However, some situations attract more radical criticism, in that the appropriate OoW to be applied is itself challenged, e.g. whether publicly-set targets for recycling are consistent with the profit-making opportunities in materials markets (pitching market OoW against the civic). In such situations either one OoW

4

becomes dominant in the settling of the dispute or future governance arrangements are founded on a compromise between them. Through such a lens then, it can be seen that governance systems are not monolithic, but are often composite arrangements fashioned from the alignment of incommensurable principles and processes. Such compromises may temporarily tame order incommensurability (Centemeri, 2015) and attain some durability, but the failure to resolve the fundamental clash of principles leaves them vulnerable to criticism because of the OoW that have been sacrificed.

Importantly for environmental governance, analysts have considered whether environment or ecology provides the basis for another, distinct OoW(see Table 1) or inevitably combines with other moral attachments (Thévenot et al 2000; Blok 2013; Nyberg and Wright 2013; Centemeri 2015). The former may entail that ecological concerns become manifest in justifications rooted in the intrinsic value of wildlife and ecosystems (Blok 2013). If the latter, then the worth of the environment is ascertained and made visible by calculations of what is profitable (as in market OoW), what is efficient (industrial), popular (fame) or as a collective good to be managed by transparent, accountable public procedures (civic). Thirty years of debate about 'sustainable development' as some form of 'grand compromise' (Kates et al 2005, 19) should sensitise us to the ways in which the environment can be drawn into compromises with other social relations in very different ways. But recognition of the incommensurable OoW indicates why consensus around the meaning of sustainable development can be elusive. One might expect the same for any other environmental 'figure of resolution' (Myerson and Rydin 1996), like 'the circular economy'.

To date, most environmental applications of Boltanski and Thévenot's framework have used it for discourse analysis, to interpret the shifting dynamics of justification work between actors and over time (Patriotta et al 2011; Arts et al 2018) rather than tracing the construction or contestation of new governance arrangements (for an exception, see Nyberg and Wright, 2013). As O'Neill et al (2018) point out, OoW frameworks have been less used in examining legitimating logics for policy change.

A conceptual omission, however, is that Boltanski and Thévenot are silent on the spatial scale to which their moral worlds apply (Honneth 2010), tending to assume the nation state. Indeed, to date spatial concerns have rarely been central to applications of the OoW framework (though see Arts et al 2017). This is a significant issue, given that "problems of scale" are 'intrinsic to environmental governance' (Newig and Moss 2017, 473; Adger et al, 2003; Bulkeley 2005), with two issues being particularly relevant here. Although in this paper we are concerned primarily with scales of political authority (e.g. EU, nation state, region), care is required not to elide them with hierarchically-arranged spatial containers, since governance systems (e.g. for certain product markets) may not be spatially coterminous with political jurisdictions (Barry 2006). In addition, concerns about scale are not merely contextual or static, but claims about the appropriate scale are integral to contestation of the public good and a key component of any compromise. Following Walzer's famous proposition that 'community is itself a good - conceivably the most important good - that gets distributed' (Walzer 1983, 29), one might expect justificatory assertions of OoW to be

interconnected with claims about the legitimate spatial organisation of authority (Carter and Smith, 2008).

Sensitivity to space and scale is highly relevant to our overarching concerns with governance and turbulence. Pressures for re-scaling governance arrangements are themselves a source of cascading change with diverse and uncertain consequences (Ansell and Trondal 2018). In addition, the efficacy of governance arrangements may be particularly prone to dispute in situations where boundary issues are encountered (Kama 2015): either where governance arrangements are stretched across existing territorial boundaries, to encompass new spaces (think of EU accession countries); or because new boundary concerns emerge within notionally shared spaces (as with devolution [Cowell 2017]). In such situations, governance arrangements designed to operate consistently across a territory now confront dissimilar entities, affect different social and political communities, and generate 'uncertainties and anxieties about what may be possible or desirable' (Barry 2001, 52). The traction of different OoW in justifying the social order may shift as a result; unsettling the compromises embodied within governance arrangements.

To summarise the argument so far, Boltanski and Thévenot's OoW framework suggests a view of governance not constituted by shifts between discrete modes, each characterised by internal coherence (Treib et al 2005), but rather as compromises struck from incommensurable components. The result is 'at best a temporary resolution of competing social worlds', susceptible to 'continued criticism, adaptation and refinement' (Nyberg and Wright, 2013, 416). Whether critique proves destabilising to the status quo is also a spatial process, with Boltanski (2011) suggesting that it reflects the ability of those making the challenge to generalise their concerns to the wider public interest, and resist dismissal for being too personal or parochial. Such can be observed in UK-EU relations, as pro-leave advocates strove *inter alia* to represent EU membership as the narrow interest of elites, and (national/UK) sovereignty as the superordinate public interest. The resulting turbulence sets the context for this research.

RESEARCH CONTEXT AND METHODOLOGY

Brexit, the Environment and Waste

Brexit is clearly a highly disputed situation in which contending, incommensurable justifications of what should be done are very visible; so too the difficulties of compromise. In debates about the UK's future relationship with the European Union, calls to re-construct 'frictionless borders' to facilitate market integration entail acceptance of a high level of regulatory harmonisation between the UK and Europe. A dominant concern for market and industrial OoW thus configures the civic (i.e. the form and distribution of decision-making powers). These calls have been challenged by 'Leave' supporters defending Brexit in terms of civic OoW (the UK should 'take back control'), often linked to market orders (the espoused merits of free trade deals with the rest of the world, facilitated by exiting the EU).

The spatial reach of governance arrangements is thus an integral dimension of conflicts that link internal and external UK relations.

Environmental governance is caught up in this situation. Analysts have increasingly recognised the instabilities of the trade-offs struck in creating EU-level governance arrangements (Burns et al, 2019). Environmental problems create their own arguments for consistent cross-border action, and environmental qualities can be embodied in standards for marketable products that, to be tradable, need recognition in other territories. At the same time, effective environmental governance also requires contextual sensitivity and accountability to affected communities. Brexit threatens to unsettle previous compromises.

Within the broad environmental sphere, the policy domain of waste and resources warrants careful attention.[1] Forty years of EU action have helped transform the UK waste sector from landfill-based disposal towards greater recycling and tighter environmental controls, with EU-derived legislation governing waste definitions, targets for disposal routes (such as phasing out landfill), and regulations for specific waste vectors. Table 2 shows key legislative elements of this field. More broadly, the EU's actions have contributed to the reformulation of waste disposal from an end-of-the-pipe activity into a more multi-dimensional field of resources management based on the waste hierarchy principle, prioritising 'recycling' and 're-use'. This trend continued with the EU's 'circular economy package' of measures (EC2019). Here the EU is promoting further moves towards a 'cradle to cradle' eco-economic system, constructing 'closed loops' of materials in which more value from potential waste is extracted and re-enters the economy, with the package proposing *inter alia* stiffer targets for further landfill reductions, increases in recycling rates, and a raft of measures to foster better waste collection, re-use and prevention (EC, 2019).

<Insert Table 2 near here>

One can see how EU waste governance combines not just a variety of modes of governance (Treib et al, 2005) but – in seeking to steer change in a coherent, consistent fashion across Member States - entails a number of compromises between ecological, market and industrial OoW. Kama (2015) notes how efforts by the EU to construct circular economies for waste/resources (electronic waste in her research), simultaneously embraces the materials concerned within 'logics of hazard' (needing sound management, for environmental and social reasons) and economic 'logics of resource' (for revenue and wealth generating activity; Gregson et al, 2015). These logics are rendered complementary in policy terms by efforts to frame the boundaries for electronic waste circulation within the European single market, as the space within which risks can be managed and to which economic benefits of materials recycling will accrue: the promulgation of a particular governance scale is part of the fix (Boyle 2002; Bulkeley et al 2005). Enabling materials to circulate within a European space, across national borders, has allowed companies based in Member States to exploit wider

---

[1] We have not sought to be exhaustive in our treatment of waste and resources. There is no space, for example, to address nuclear materials.

market opportunities, for example exporting refuse-derived fuel from the UK to Energy from Waste (EfW) plants on mainland Europe (Kama, 2015).

However, making things suitable for economic and ecological circulation has side effects that leave the compromises of waste governance open to critique. As Flynn and Hacking (2019) observe, the standards required to build circular economic practices face tensions of legitimacy and accountability from the potential privatisation of public policy: i.e. that market orders are contaminating the civic. Representing material flows as a circular 'economy', rhetorically splicing ecological and market worlds, begs questions about whether the intended waste pathways actually prove economically remunerative to incumbent actors (Flynn and Hacking 2019).Consequently, even if different actors subscribe to the idea of a 'circular economy' (Velenturf, 2018), diverse perspectives may arise as to what constitutes adequate, physical circularity (e.g. is 're-use' of waste as fuel sufficient? [Kirchherr et al, 2017]), the space within which this circularity should be constructed, and the legitimacy of any 'leakage' of materials beyond it.

Brexit could significantly disrupt this governing architecture, raising questions about how compromises constructed over decades might now get remade, especially in the UK. A number of questions arise, which guide the research and analysis:

- In the wake of the EU referendum, what are the main justifications for how waste policy and governance arrangements should develop?
- What are the lines of tension between them?
- Can we observe which justifications might gain traction in the development of future governance arrangements?

Answers to these questions will be used to help develop our understanding of the (in)stability of environmental governance in turbulent times.

Methods

Methodologically, Boltanski and Thévenot advocate giving attention to the arguments that actors mobilise, in concrete situations, as they seek to justify and criticise courses of action for (re)creating social order. Here, Brexit is the concrete situation and the justifications of key actors in the waste sector as to how the UK should respond provide the main data.

Data were obtained from two sources: documents and interviews. The waste and environmental professional press was searched for articles mentioning 'waste management', 'resources', 'EU referendum' and 'Brexit', from 1st March 2015 to 28th February 2019.[2]

---

[2]The principle sources were the Chartered Institute of Waste Management Journal, EDIE.net, the ENDS Report, Businessgreen and Letsrecycle.com. The search terms generated the documentary data set as follows: all four combined = 3 results; 'resources' + 'waste management' + 'Brexit' (65 results); 'waste management' + 'Brexit' (277 results); 'waste management' + 'EU referendum' (47 results).

Where these articles referred to other reports, analyses or speeches, the original documents were brought into the analysis. 16 semi-structured interviews were conducted with senior figures in the waste and resources sector in the UK, from public, private and voluntary sectors, during March-April 2017, supplemented by a focus group (May 2017). Interview selection was guided by those voices prominent in the professional press articles. All interviews were recorded and transcribed.

Texts generated both by the documents and interviews were subject to thematic coding. To give effect to our conceptual framework, attention was given to the OoW invoked, in what actors felt *would* happen to waste and resources governance via Brexit, what they would *like* to see happen, and how the two intersected through processes of critique or reinforcement. Representations of the appropriate scale of governance were given equal analytical attention (Carter and Smith,2008), noting how they related to particular OoW. To maintain anonymity and confidentiality, interviewees are referenced here by an abbreviation giving the category of actor, the number the actor represents in that category, and the date of interview: e.g. 'Industry 2, 24.3.2017'.

FINDINGS

In this section we present an analysis of the dynamics of justification around Brexit and waste/resources governance. In general, 'civic', 'industrial' and 'market' OoW were mobilised most frequently, but often in relation to particular new or existing compromises e.g. invoking the efficient pursuit of current goals as the legitimate framework for revenue generation ('industrial' over 'market') or the reverse, that market realities should lead to a change of goals, stimulating a reconstruction of what 'efficiency' means. Unsurprisingly perhaps, given that Brexit conflicts are centrally about who is in control, civic orders of worth permeated the arguments, but they often also entailed justifications for bringing the territorialisation of public decision making into alignment with – or flagging the contradictions with - the spatial reach of markets or other OoW. In the account that follows, we draw out the main recurring patterns in the arguments made, and organise them around different spatial futures for waste governance: holding the European line; greater UK autarky; and devolution dynamics. From this it is clear that each major justification has countervailing critiques ranged against it.

Industrial OoW to the fore? Holding the European line

Many respondents saw justification in the UK remaining aligned to EU regulation; mobilising arguments integral to Brexit controversies as a whole, not just the waste and resources sector. Indeed, initially at least, short-term alignment was seen as almost inevitable, due to the assumed ongoing deference to EU decision-making in that period. In 2016-2017, it was unclear whether the UK would adopt and implement the EU's Circular Economy Package,

which was being deliberated at the same time as Brexit negotiations (Moore, 2017a); the UK government acceded to this in 2018. Industry respondents believed that the standards that govern waste exports will largely remain in place because the majority of pre-existing UK waste legislation is EU-derived, and securing short-term legislative continuity on leaving the EU was the expressed intention of the UK government, effected through the EU Withdrawal Act 2018.

Nevertheless, respondents recognised the need to position ideas for a future, post-Brexit period when the UK would have a freer hand (Sustainability Expert 2,16.03.2017), requiring a substantive, explicit case for EU alignment. A major argument was that EU standards and regulations pertaining to traded goods and materials, including waste, should continue to be highly influential (Moore 2016). Justifications tended to invoke industrial OoW, referencing the efficient operation of existing management systems gained by observing EU rules. Waste businesses raised concerns about possible market restrictions if standards in the UK began to differ (Legal Expert, 16.03.2017), threatening 'logjams in the system' if waste materials can no longer flow too or from the EU (Edie Newsroom, 2018). EU regulations allow Member States to move lower-grade material between them (but not beyond), raising upstream implications for processors of this material if export routes are denied.

Justifications for stability also focused on the clarity and institutional durability that EU alignment conferred, in the (then) absence of any waste strategy from the UK government, which meant that companies' current business case remains secure (Listed Company 2, 24.03.2017). Certainly, large parts of the waste sector had constructed infrastructures and business plans predicated on an EU-aligned future. The requirements of international agreements on trade in waste such as the Basel Convention were also assumed to underpin continuity (Industry 2, 24.3.2017;Sustainability Consultant 3, 22.3.2017).

If such justifications mobilised industrial OoW, compromises with other orders were defended, too. EU rules and goals were seen as defining the legitimate scope for profit (market OoW), and multinational waste and resources companies would be reluctant to allow Brexit to cede a competitive advantage to those companies working to higher standards (Sustainability Consultant 2, 16.3.2017; Legal Expert, 16.3.2017). Implicitly, such justifications upheld EU institutions as decision-making arenas, in terms of civic OoW. There is a bridge to the environment, too, in that EU legislation has been driven partly by goals of improving environmental protections (Kama 2015). Indeed, NGOs had been working at the European level, to make sure that 'certain red lines ... around environmental protection' were built into the EU's Circular Economy Package (NGO2, 15.03.2017). Importantly for such respondents, making compromises between industrial, market and ecological OoW had spatial requirements: creating meaningful circular economies required collaboration at EU level, 'not separation into, in effect, nation states all doing their own thing' (Local Government 1, 03.3.2017), because the mobility of wastes and resources in European space was deemed necessary to make markets work.

The frequent justification of ongoing UK-EU alignment also precipitated an intensification of narratives critical of the EU Circular Economy Package and the compromises inherent in EU governance regimes, with justifications for divergence tending to emphasise market OoW. Arguments were made that the increased recycling rates introduced by the Package are 'unachievable', poorly justified, or excessively costly (Industry 2, 24.3.17; Lobbyist, 17.03.2017; Think Tank, 10.03.2017). Criticisms were made that the Package fails to recognise the 'reality of the market' e.g. in terms of the limited marketability of low quality recyclates, in a world where oil-based plastics had become cheaper (Think Tank, 10.03.17). Policy had been driven too much by 'environmental agendas', when alternative approaches would better support economic competitiveness and productivity. In effect, ecological OoW should not be allowed to unduly contaminate markets. Critiques also attacked the logics of industrial OoW, especially that the use of simplistic weight-based targets by the EU distorted the rational distribution of effort i.e. any pursuit of efficiency and effectiveness was chasing the wrong goals.

While critiques invoking market OoW were pervasive, most sector actors dismissed suggestions that Brexit should be exploited as an opportunity for deregulation. This is significant, given that economic libertarians have long targeted EU legislation (Barry 2001), and were prominent voices in the 2016 referendum. Respondents were almost unanimous that the waste sector and their business models were wholly constituted by regulation: 'we rely entirely on red tape, and if you take it away there won't be a waste industry'; it is what creates the value added, hence 'there is no strong business case for deregulation' (Sustainability Consultant 1, 13.3.2017; Lobbyist, 17.3.2017). Furthermore, 'liberalisation may well lead to more criminal activity' (Interview, NGO2, 15.3.2017) i.e. leakage from an organised waste governance system.

Overall, our data show that civic OoW remain important for the waste sector, in that supporters and critics of EU alignment both advocated compromises in which government action sets the context for legitimate market opportunities, even if market OoW were invoked to disrupt present compromises. Similarly, critics of EU alignment did not necessarily challenge overarching narratives of circular economies. Within this framing, however, actors could advance very different ways in which economic value should be extracted from waste (Baddeley and Vergunst, 2016), linked to different perspectives on the spatial extent of legitimate circulation and which jurisdiction should have control.

Market Orders of Worth - reshored to the UK?

Many critiques of ongoing EU regulatory alignment went hand in hand with justifications for a new spatial ordering, especially articulations of the national benefits in retaining and exploiting more waste-derived resources within the UK. Brexit was presented positively, as an opportunity for 'fresh thinking' or 'home grown' policy solutions for waste in the UK: 'to re-set it on a more economic, or a firmer economic and scientific foundation than some of the European policy coming down the track' (Industry 2, 24.03.2017). The spatial organisation of

civic OoW were invoked, prioritising the UK as the appropriate level of political authority for new, better compromises between market and industrial OoW.

One can characterise these as 'reshoring' justifications, echoing discourses used elsewhere to describe the relocation of supply-chain elements within national borders (e.g. Margolis 2017).Such reshoring justifications often extolled self-sufficiency, with one business (Industry 2, 24.03.2017) being 'great advocates for … a sort of broader understanding that the country can be more self-sufficient in its resource management needs' through domestic resource recovery. This is amplified by expressions of risk and predicted intensification of 'national resource security' concerns, such that economic competitiveness (invoking market OoW) needs a high quality circular economy, but one that must operate (mostly) within national borders in order to secure access to the materials it needs (McGlone 2017; Messenger 2016; Lobbyist, 17.03.2017). Brexit amplifies these risks, to the extent that it may adversely affect waste-related trade with the EU, whether that is because of tariff, regulatory or policy shifts making trade more difficult, or shifting exchange rates (Industry 1, 15.03.2017). Outwith the EU, the UK is likely to experience reduced influence on EU regulations that govern the terms on which waste could be traded and exploited, potentially leading to the creation of new barriers (EAC 2018). To mitigate this, civic and market orders needed alignment at a UK scale as in this quote, invoking the language of 'Leave' campaigners:

> 'the UK Government must seize on an opportunity posed by Brexit to "take back control" and develop a more coherent set of waste policies which better serve UK business and households' (EDIE Newsroom 2017).

Although reshoring to the UK was presented as reinforcing circular economies (as seen by Velenturf 2018), actors applied these justifications to very different destinations to which potential wastes should circulate. For some, Brexit was an opportunity to more cost-effectively achieve goals 'higher' up the waste hierarchy, such as re-use, with concomitant moves towards local action (Howard and Galloway, 2017). However, waste industry actors also asserted the case for circular economies in which more nationally-bounded waste streams circulate into incineration and energy generation facilities. Domestic EfW was justified using industrial OoW: as a relatively convenient and cost-effective solution to avoiding landfill compared to upping recycling rates. EfW facilities were already expanding in the period from 2014 (McGlone 2018), and were presented as something that could and should increase further should post-Brexit trade governance constrain waste exports (McGlone 2017;Industry 1, 15.03.17). As others have noted, waste industry actors can interpret disputed situations and advance solutions in terms that place the viability of their infrastructures centre-stage (Boyle 2002; Corvellec et al 2013). Here we saw Brexit presented as an opportunity for fashioning new compromises that would underpin EfW.

These civic nationalist justifications faced their own challenges, and again market OoW were frequently invoked. Given the current global distribution of resource demand from

manufacturers, it is unclear how far re-shoring justifications will themselves affect the considerable flows of recyclates and waste-based resources from the UK to Asian manufacturing centres beyond the EU. Hence remarks like: 'globalisation is a reality for us … it's never been just about Europe, even though that's where a lot of the regulation comes from' (Industry 1, 24.03.2017). Justifications linked material and market realities to argue that the generally low-value, co-mingled recyclates that the UK produces have been highly reliant on global markets (Industry 1, 15.03.2017, Analyst, 10.03.2017; Gregson et al., 2015). However, global trade-based scenarios still require meeting materials standards, and these too have been shifting (Gregson et al., 2015) throughout the period of Brexit discussions. Action by a host of Asian countries, to drive up the standards of recyclates they import and avoid being dumped on, amplified the uncertainty surrounding future waste-related trade from the UK (Moore 2017b; McGlone 2019). Quite apart from Brexit, the assertion of industrial OoW by other nations – 'our production systems need clean material supplies' – have begun to curtail the market space of UK recyclates.

All of this puts pressure on intra-UK governance arrangements, and whether measures can be taken to improve recyclate quality. This, in turn, is an agenda that highlights governance fragmentation within the UK, and begs questions of how recourse to other OoW might be deployed to resolve disputes.

Civic Orders of Worth in the context of devolution

EU regulation sets parameters for waste policy that apply across Member States; a hierarchical arrangement designed to provide a consistent baseline for national action. This has proven highly salient to the environmental governance of the UK, as devolution to Northern Ireland, Scotland and Wales has given each territory significant autonomy in the environmental field, including waste, leading to policy divergence (Velenturf et al 2018), but within the framework set by the EU. The governments of Wales and Scotland have used their devolved powers to pursue ambitious goals for 'zero waste'. Corporate actors are also positive about the clarity of long-term direction the devolved governments of Scotland and Wales have created, in contrast with England (Industry 2, 24.03.17; Lobbyist, 17.03.17, Sustainability Consultant 1, 13.03.17, Legal Expert, 16.03.17). Wales is worthy of particular attention, in part because of its front-runner status in recycling. Wales has attained a national 57.6% household recycling rate (compared to England's 45.7%: DEFRA, 2019), proposed higher targets than those of the EU's Circular Economy Package (Welsh Government 1, 17.03.17; Welsh Government 2, 21.03.17), and delivered universal food waste collection. Wales is also analytically interesting, because the compromise of the Welsh devolution settlement exposes the difficulties of substantively and spatially unifying environmental governance.

A key argument from Welsh government actors is that Brexit should not cause their waste governance much turbulence. Wales has set its own waste legislation on things like statutory recycling targets, thus affording a degree of insulation from any legislative fall-out of Brexit (NGO 1, 10.03.17; Welsh Government 2, 22.03.2017). Moreover, the pursuit of 'zero waste'

had won the arguments in Wales, that it is the right thing to do, and was supported politically (Welsh Government 2, 22.03.2017; Lobbyist, 17.03.2017). Upping recycling rates and thereby reducing collection costs, improving the quality of recyclates, increasing local industrial utilisation and thereby employment were all seen as an economically desirable set of aspirations (Welsh Government 2, 22.03.2017; NGO 1, 10.03.2017). What was articulated, then, was that civic OoW (in the form of elected, devolved government, consulting widely) had achieved legitimacy for its waste policies, which delivered a compromise between economic and environmental OoW with widely shared support *within* the nation.

Potential turbulence for waste governance in Wales came not directly from Brexit but from UK-level financial austerity, reducing funding at devolved and local government level (Analysts 10.03.17), and via the effects of Brexit on *Westminster* waste governance (Welsh Government 1, 21.03.17, NGO1, 10.03.17). This reflects the spatially-fragmented nature of political control over different aspects of the waste sector across the UK. Although the Welsh Government had substantial control over end-of-the-pipe functions in waste collection and disposal, moving towards more ambitious waste reduction and recycling goals necessarily required action at source, designing out wasteful and non-recyclable products, facilitating easier recovery, and stimulating demand for recyclates (Lobbyist, 17.03.2017). Responsibilities for standards applicable to potentially mobile, tradable goods and packaging fell primarily to Westminster, operating for the UK as a whole (Wales Local Government, 1, 16.03.2017). Thus, for Wales:

> 'the biggest limitation we have is the fact that we operate in a UK market, with multi-nationals selling stuff in all parts of the UK. Things like extended producer responsibility, or a deposit-return scheme, if we wanted packaging in Wales to have a particular barcode, that might be a bit of a challenge' (Welsh Government2, 22.03.2017)

What animated Welsh concerns was that post-2010 Westminster governments were perceived as disinterested in waste and more 'hands off' and open to deregulatory pressures than the more interventionist Welsh Governments (NGO1, 10.03.17; Welsh Local Government1, 16.03.2017; Lobbyist 17.03.2017); in effect, civic OoW were subservient to the market.

Welsh anxieties about post-Brexit waste governance were that their ambitious zero waste agenda could be threatened by the way that a UK government might exercise any new found autonomy and, moreover, that they would face challenges in generalising their concerns to shape UK policy as a whole. The devolved governments were felt to have little influence through the various routes for intergovernmental coordination within the UK (Burns et al 2018), certainly less influence than business, such that 'the industry will always win the lobbying with Westminster' (Welsh Local Government1, 16.03.17). The issue of (economic) scale also made it difficult for devolved governments to advance their own solutions at the UK level. Wales, Scotland and Northern Ireland represent a small proportion of UK wastes compared to England: (NGO 1, 10.03.2017), diminishing the leverage devolved governments can exert on commercial agendas and regulatory design (Carter and Smith 2008). In addition to this, UK Government ministers have issued warnings that divergence in environmental

standards post-Brexit should not disrupt their capacity to achieve 'the effective functioning of the UK internal market'; an accomplishment deemed vital to trade negotiations with other countries (EAC 2018; NGO 1 10.03.2017). By such weight of justification - articulating market OoW and elevating UK-level civic OoW as a corollary - new compromises could be promoted that constrain the traction of Welsh agendas.

DISCUSSION

The analysis above shows how environmental governance can be subject to turbulence, why it might possibly be especially prone to it, and why the constitution of governance arrangements is an integral component in these processes. At the interface between Brexit and waste and resources governance, our research found justifications being mobilised for alignment with a European space for waste governance, for a more autarkic UK position, and risks to the ambitious waste agendas of devolved governments, especially in Wales. Tied in with these positions are justifications based on giving more freedom to market processes and less (or less inappropriate) government intervention, and the reverse. This multiplicity of perspectives, with each set of justifications facing countervailing arguments, is itself an ingredient in fluid and hotly disputed policy situations, but the OoW framework takes us beyond more traditional ways of thinking, based on political economy or policy learning in a number of respects.

Firstly, one can see how governance stability is not a straightforward product of the balance of power between actors. Our waste sector research shows that Brexit does not have automatic consequences, derived from structural 'forces' but much may depend on how the situations it creates are exploited by different actors, as they articulate the case for particular fixes, drawing on different forms of legitimacy. Both pro- and anti-EU alignment justifications attracted a diverse set of actors, though NGOs tended to be more common advocates of the former, with industry actors, UK government ministers and right-of-centre think tanks more visible with the latter (see for example Baddeley and Vergunst, 2016; FCC 2017; Howard and Galloway 2017; Pennon 2017; Industry 2, 24.3.17).

Secondly, applying a post-foundational perspective like that of Boltanski and Thévenot alerts us to the plural and incommensurable legitimising bases for the creation of any new order (see also Adger et al 2003), and thus the difficulties of institutionalising new, stable compromises. Actors asserted different interpretations of the situation that required mending. For some it was the need to maintain governance arrangements based on industrial OoW seeking to maintain safe waste handling, deliver progressively on landfill avoidance and higher recycling targets, coupled with the efficient re-use of materials. For others, efficiency had a clear market, monetary dimension, which should trump efficiencies conceptualised in ecological, material terms. Actors often emphasised very different entities that they wished to be sustained in any new social order: be that certain infrastructure, like energy-from-waste plants; or certain policies, such as 'zero waste' in Wales. From this one can see that however policy gets re-stabilised, those actors adversely affected by compromises will be able to claim

that new arrangements fail to provide a wholly adequate test for dealing with waste and resources problems. This is the basis for future critique, which - to the extent that those critiques have efficacy - generates the prospects of ongoing instability.

Applying Boltanski and Thévenot's OoW framework reveals the conceptual limitations in the treatment of space and scale we introduced above. In engaging with Brexit, actors in the waste and resources sector not only emphasise particular conceptions of the common good (OoW) but also articulate different levels of political authority to which the relevant public good applies: devolved nation, UK or the European Union. As others have noted (Newig and Moss 2017), claims about appropriate scale can be asserted strategically, in this case to underpin the case for particular waste management pathways. Like the OoW, claims about scale have their own incommensurability: there is no metric that can specify how much additional power to devolved nations is worth a diminution in the scope to forge cohesive cross-UK policies. Our research also shows how multiple potential territorialisations of governance make 'civic' OoW a more complex, differentiated entity: which governance level should exercise decision-making procedures, across which territory(ies), and how, all come into question. In practice, actors could often be found combining assertions of levels of authority in conjunction with particular goals, presenting them as mutual reinforcing (e.g. 'hard Brexit' and reduced UK-EU alignment means more domestic EfW). However, the pursuit of justificatory synergy brings no guarantee of forging new stable arrangements. This is partly because the connections made between OoW and governance level can be subject to challenge, but also because of the spatially- and sectorally-fragmented nature of the waste governance regime, with dislocations between the scale of governance for trade, waste collection and disposal, and producer-focused action, that resist being territorialised within the same space.

A concern for public justifications needs also to address silences – appeals to the public good either not made or with little traction. One pattern was the relative silence on environmental OoW. Only relatively infrequently did interviewees present Brexit as situation that would assist greener solutions. For example, some companies saw post-Brexit trade restrictions as 'the ideal platform to overhaul recycling standards and infrastructure', achieving recyclates of greater purity, presenting the UK with 'a golden opportunity to make its economy more circular' (Edie Newsroom 2018). Instead, the data showed a pervasive tendency to present the environment in compromises with other OoW (market, industrial, polity). This secondary status for ecological OoW is perhaps unsurprising, given dominant concerns in the waste sector with resource efficiencies, governance and generating (economic) value, rather than the intrinsic value of nature. However, this subordinate presence within justifications should lead us to expect that environmental concerns will be heavily impacted by ongoing turbulence, because the environment is not a prime ordering principle but will be buffeted by compromises founded primarily on other OoW. Herein, our finding supports the concerns of many in the wider environmental sector, that Brexit is mainly a profound risk to more progressive action (Burns et al 2019). How this might unfold becomes apparent when we look at changing patterns of justification over time.

Previous researchers have shown the temporal dynamism in the use of justifications (e.g. Arts et al 2018). So do we, in line with our third research question, in assessing which justifications look like gaining greatest traction in future, by their institutionalisation into new governance arrangements. Assessment is tricky given the turbulent, unpredictable nature of the Brexit process. Nevertheless, there are patterns in the data and certain events within the Brexit process that may indicate what is likely to endure. These can be characterised as two threads, which intersect in ways that are potentially conflictual.

The first thread is centred on the UK government's publication of a waste and resources strategy for England in December 2018 (DEFRA 2018). The very publication of the strategy reflected the wider desires of the then environment minister – Michael Gove, a Brexit supporter – to present leaving the EU as an opportunity for improving UK environmental governance, dubbed a 'Green Brexit' (op. cit. p.113). Indeed, the strategy seeks to drive an array of measures to raise environmental goals and construct circular economies, but these are linked spatially to an emphasis on the nation, mobilising the reshoring justifications discussed above while largely erasing the EU context. This is evident from the title '*Our* waste, *our* resources' (emphasis added), and in the goals of the Strategy to 'promote UK-based recycling and export less waste to be processed abroad' (DEFRA 2018, p.9). However, the compromises constructed by the Strategy are susceptible to critique, especially within the civic OoW concerning intra- and extra-UK coordination. Pushes for 'national autarky' make little sense in Northern Ireland, where permeability of the Irish border has facilitated large-scale trade in waste heading north or south for treatment or disposal (Moore 2018). In waste, as in many other sectors, there is the risk that pushing notionally consistent, cross-UK compromises on post-Brexit governance will generate serious side-effects on the island of Ireland. Other critiques have erupted as a by-product of public outcry over plastic pollution, catalysed *inter alia* by high-profile TV coverage of global plastics contamination (an instance of the 'fame' OoW legitimising action). This has driven intra-UK political competition to act, but the idea that Scotland might introduce its own, distinct deposit-refund system for plastic bottles has elicited criticisms from business that collection systems should not differ across the UK(Ellison 2018), citing industrial and market OoW in arguing for the efficiency, competitiveness and simplicity of consistent arrangements.

If the first thread of justifications centres on stronger UK environmental regulation of waste centred on the UK government's waste strategy, their likely traction remains exposed to the turbulent effects of Brexit, especially 'No Deal' scenarios in which the UK leaves the EU without any meaningful agreement on future trade. In temporal terms, this issue attracted more attention from late 2018, as waste sector actors began amplifying the potential disruption that No Deal could cause to flows of refuse-derived fuel from the UK to continental EfW plants (3.6 million tonnes [RDF Industry Group 2018]), and justifying the need for more domestic disposal capacity, including EfW and – potentially - a return to landfill (McGlone 2017). 'No Deal' could introduce controls at the border, and tariffs, disrupting waste markets founded on frictionless mobility and creating storage requirements with attendant contamination, odour risks and possible illegality (Edie Newsroom 2019; Islam 2019; Pickstone 2019; RDF Industry Group 2018). Any increased landfilling has been

represented by government explicitly as an interim arrangement: a temporary compromise, making no claims to becoming a permanent solution. However, although the UK's departure from the EU on 31st January 2020 and institution of an eleven month transition period seemed to defer the prospects of 'No Deal', Ministers have been very clear in their approach to Brexit that the government 'will choose autonomy over regulatory alignment' with the EU (Pickstone 2020). If this transpires, thereby problematising exports, then infrastructure investments like EfW are highly likely to bulk large in the kind of 'Green Brexit' that emerges.

CONCLUSIONS

This paper has sought to make a number of contributions. First, we have sought to show how Boltanski and Thévenot's OoW framework can generate an understanding of governance processes that better grasps their constitution, and thus their potential instabilities. It conceptualises environmental governance not as different, discrete governance modes, in which the balance between them shifts, but as compromises between different legitimising bases for constructing social order, which embody the potential for critique, especially as their omissions and side-effects are exposed in situations of dispute. Instability arises not simply from familiar clashes between environment and economy, since the OoW framework shows how 'the economy' is itself a series of compromises between regulations for productive efficiency (industrial) and the scope for profit (market) (Thévenot 2001). This is evident in the way that different waste businesses engaged with Brexit, with materials clearly enmeshed in competing conceptions of social goods; compromises are thus not reducible to some simple market hegemony.

We have not sought to be predictive about the effects of Brexit. Nevertheless, our analysis of the waste sector has usefully revealed wider tendencies in environmental governance, and broader challenges for maintaining or restabilising environmental reforms. Our research found the environment to be a rather subordinate or secondary consideration in the justifications mobilised. Indeed, actors in the waste sector recognised that their justifications have limited traction in 'high politics' of Brexit: 'one of the key risks is that we accept that waste and material resource management policy requirements are never top of the list' (Industry 2, 24.03.2017).We thus offer the wider conclusion that, in turbulent times, environmental governance may be profoundly affected by compromises forged around market, civic or industrial OoW, proponents of which are better able to gain traction in the scramble for institutional repair. If environmental governance is especially vulnerable to policy turbulence, then there are challenges ahead if – as Ansell and Trondal (2018) suggest – turbulence is becoming the new normal. Some such challenges lie in NGO strategy: whereas multi-national waste businesses found it relatively straightforward to move between arenas to articulate the opportunities for them arising from, say, more reshoring to the UK, environmental NGOs – highly active at EU and devolved government levels – may face difficulties in accessing national (UK) arenas where new compromises are negotiated. Some challenges lie in the enduring difficulties of articulating ecological OoW as a prime

structuring principle for policy, given that constructing effective governance almost inevitably entails compromises with other orders.

A second important finding from our analysis is that the justifications that actors mobilised often articulated different scales for environmental governance and the distribution of political authority, highlighting the need to bring a spatial dimension to the OoW framework. Assertions supporting devolved, national and European-level authority could all be found in circulation. One might treat them as conflicts within the civic OoW, as discussed above, but other orders remain relevant in arbitrating how scalar disputes get resolved, for example assertions that creating consistent markets should frame Welsh sovereignty on issues like product standards. Like the main six OoW, claims about the relevant political scale are also incommensurable, 'in that there is no single metric that can easily weight their relative value and bring them into alignment' (Cowell 2017, 1255). Re-scaling decision-making is thus always likely to be an incomplete process (Bulkeley 2005), with interests left unmet, creating the basis for dissent and potential further challenge. What is true of waste governance is also true of Brexit more widely, which has exposed tensions in the European project.

Our third contribution is to deepen understanding of the contested nature of 'circular economies'. We have provided new evidence on how key waste and resources sector actors perceive different technical-material conceptions of circularity and the form, scale and level of governance to which they should apply. Arguments for the merits of ongoing EU alignment, post-Brexit, as the best route for creating circular economies confront resurgent justifications for national, UK action, with many respondents positioning EfW as the best means of completing the circle. Adapting Blok (2013, 500), we can see how the, circular economy 'remains a fragile grammar, torn in-between (at least) worlds of market, industrial and green worth ... (f)or the purposes of public qualification, then, there simply *is* no stable way of assessing which formulations contribute to a sustainable environmental politics'. The governance difficulties deepen when one adds competing claims about the relevant spatial scale at which resource circulation is best promoted.

Finally, our paper also responds to calls within the de-Europeanisation literature for analysis of different sectoral experiences (Burns et al, 2019). We concur with Burns et al (2019), that patterns of de-Europeanisation are likely to be differentiated sectorally, and that the interactions between policy, politics and polity are relevant to explanation. Our research also underlines that the objects being governed, and the situations they create, are likely to make a difference. Brexit throws up into the air questions about the nature of the object concerned, its relevant worth, its transmutability, and the extent to which it should be seen as mobile – requiring trans-national governance – or territorially embedded within state space; questions which EU policy was designed to settle. In conceptualising future changes in European environmental governance, then, researchers should consider not just governance processes or scales but, after Walzer (1983, p.6), that debates about how to govern the distribution of social goods 'derive from different understandings of the social goods themselves'.

Acknowledgements

REFERENCES

Adger W N, Brown K, Fairbrass J, Jordan A, Paavola J, Rosendo S and Seyfang G (2003) 'Governance for sustainability: towards a 'thick' analysis of environmental decision making', *Environment and Planning A*, 35, 1095-1110.

Annisette M and Richardson A (2011) 'Justification and accounting: applying sociology of worth to accounting research', *Accounting, Auditing and Accountability Journal* 24(2), 229-249

Ansell C and Trondal J (2018) 'Governing turbulence: an organizational-institutional agenda', *Perspectives on Public Management and Governance* 1(1), 43-57

Arts I, Buijs A E and Verschoor G (2018) 'Regimes of justification: competing arguments and the construction of legitimacy in Dutch nature conservation practices', *Journal of Environmental Planning and Management* 61(5-6), 1070-1084

Baddeley, A. & Vergunst, T. (2016)*A Resourceful Future – Expanding the UK Economy*. Bristol: Eunomia.

Barry A (2001) *Political Machines: Governing a Technological Society*, New York: Athlone Press

Barry A (2006) 'Technological zones', *European Journal of Social Theory* 9(2), 239-253.

Blok A (2013) 'Pragmatic sociology as political ecology: on the many worths of nature(s)' *European Journal of Social Theory* 16(4), 492-510

Boltanski L (2011) *On Critique: A Sociology of Emancipation* (translated by Gregory Elliot), Cambridge: Polity Press.

Boltanski, L. and Thévenot, L. (2006) *On Justification: Economies of Worth*. Princeton, NJ: Princeton University Press.

Boyle M (2002) 'Cleaning up after the Celtic Tiger: scalar 'fixes' in the political ecology of Tiger economies', *Transactions I.B.G.* 27(2), 172-194

Bulkeley H (2005) 'Reconfiguring environmental governance: towards a politics of scales and networks', *Political Geography* 24, 875-902.

Bulkeley, H., Watson, M., Hudson, R. & Weaver, P. (2005)' Governing municipal waste: towards a new analytical framework', *Journal of Environmental Policy and Planning,* **7,** 1-23.

Bulkeley, H., Watson, M. Hudson, R. (2007)' Modes of governing municipal waste', *Environment and planning A*, *39*(11), pp.2733-2753.

Burns, C., Jordan, A., Gravey, V., Berny, N., Bulmer, S., Carter, N., Cowell, R., Dutton, J., Moore, B., Oberthür, S., Owens, S., Rayner, T., Scott, J. & Stewart, B. (2016) *The EU Referendum and the UK Environment: An Expert Review* https://www.brexitenvironment.co.uk/policy-briefs/ accessed 26.09.2019

Burns, C., Carter, N., Cowell, R., Eckersley, P., Farstad, F., Gravey, V., Jordan, A, Moore, B. and Reid, C., (2018) *Environmental policy in a devolved United Kingdom: Challenges and opportunities after Brexit,* Brexit and Environment, https://www.brexitenvironment.co.uk/resources/

Burns C, Gravey V, Jordan A and Zito A (2019) 'De-Europeanising or disengaging? EU environmental policy and Brexit?' *Environmental Politics* 28(2), 271-292

Carter C and Smith A (2008) 'Revitalizing public policy approaches to the EU: "territorial institutionalism", fisheries and wine', *Journal of European Public Policy* 15(2), 263-281.

Centemeri L (2015) 'Reframing problems of incommensurability in environmental conflicts through pragmatic sociology: from value pluralism to the plurality of modes of engagement with the environment', *Environmental Values* 24, 299-320

Corvellec H, Campos M and Zapata P (2013) 'Infrastructures, lock-in, and sustainable urban development: the case of waste incineration in the Göteborg Metropolitan Area', *Journal of Cleaner Production*, 50: 32-39.

Cowell R (2017) 'Decentralising energy governance? Wales, devolution and the politics of energy infrastructure decision-making', *Environment and Planning C: Politics and Space* 35(7), 1242-1263

Davies, A.R., (2005) 'Incineration politics and the geographies of waste governance: a burning issue for Ireland?' *Environment and Planning C: Government and Policy*, *23*(3), pp.375-397.

DEFRA (Department of Environment, Food and Rural Affairs) (2018) *Our Waste, Our Resources: A Strategy for England*, December

DEFRA (2019) *UK Statistics on Waste*. February, DEFRA. London.

EC (2019) Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the implementation of the Circular Economy Action Plan, COM/2019/190 final, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:190:FIN, accessed: 5.5.19

EDIE Newsroom (2016a) 'Brexit concerns mount for waste and water industries', *EDIE.net* 4th November, accessed 10th November 2016

EDIE Newsroom (2017) 'Report: Brexit offers escape hatch from £2bn EU waste policy costs', 1st March 2017.

EDIE Newsroom (2018) 'Could a "no deal" Brexit be a "golden opportunity" for the UK's green economy?' 19th October.

EDIE Newsroom (2019) 'Waste management crisis: officials warn of putrefying piles of rubbish after no-deal Brexit', 4th February

Ellison, A. (2018) British Retail Consortium, *BBC News*, 10pm, 28 March

ENDS Report (2016a) 'Brexit poses huge challenge for environmental sector', *ENDS Report* 497 July, 4.

Environmental Audit Committee (2018) Oral evidence: Session with the Secretary of State for DEFRA on Resources and Waste Strategy, HV 1835, 19th December, House of Commons

FCC (2017) *EU Waste diktat could cost Britain £2 billion*, Northampton: FCC Environment.

Flynn, A. and Hacking, N. (2019)' Setting standards for a circular economy: A challenge too far for neoliberal environmental governance?' *Journal of Cleaner Production*, *212*, 1256-1267.

Geels F (2010) 'Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective', *Research Policy* 39, 495-510.

Gregson N, Crang, M., Fuller, S. and Holmes, H., (2015) Interrogating the circular economy: the moral economy of resource recovery in the EU. *Economy and Society*, *44*(2), 218-243.

Hacking N and Flynn A (2018) 'Protesting against neoliberal and illiberal governmentalities: a comparative analysis of waste governance in the UK and China', *Political Geography* 63, 31-42

Honneth A (2010) 'Dissolution of the social: on the social theory of Luc Boltanksi and Laurent Thévenot', *Constellations* 17(3), 376-389

Howard, R. and Galloway, T.(2017) *Going Round in Circles: Developing a new approach to waste policy following Brexit*, London: Policy Exchange.

Islam F (2019) 'No deal Brexit "will see more waste going to landfill"', BBC 22nd August, https://www.bbc.co.uk/news/business-49440290, accessed 27.08.19

Kama, K. (2015) 'Circling the economy: resource-making and marketization in EU electronic waste policy', *Area,* 47**,** 16-23.

Kates R, Parris T and Leisorowitz A (2005) 'What is sustainable development', *Environment* 47 8-21

Kirchherr J, Reike D and Hekkert M (2017) 'Conceptualizing the circular economy: an analysis of 114 definitions', *Resources, Conservation and Recycling* 127, 221-232.

Margolis J (2017) 'Made in England: why some manufacturing is coming home from China', *Financial Times* 27th August, https://www.ft.com/content/141418ba-88b1-11e7-afd2-74b8ecd34d3b, accessed 29.08.19

McGlone C (2017)'How a no-deal Brexit could lead to mass landfilling of waste exports', ENDS 17th January

McGlone C (2018) 'English recycling rates fall as incineration levels continue to climb', *ENDS Magazine*, 12th December

McGlone C (2019) 'Plastic dumping law adds to exporter uncertainty', *ENDS Magazine* 13th May

Messenger, B.(2016) 'Brexit - How the Waste & Recycling Industry Reacted to the Referendum Result', *Waste Management World*, 24thJune.

Moore D (2016) Brexit would be bad for UK waste policy, survey finds. *CIWM Online Journal.*

Moore, D. (2017a) 'MEPs Vote To Restore Original Circular Economy Package Recycling Targets' *CIWM Journal*, 15th March.

Moore, D. (2017b) 'Chinese increase to 0.5% out-throw will be "extremely tough to meet"' CIWM Journal 29th March.

Moore D (2018) 'Impact of Brexit on RDF exports explored in new CIWM report', *CIWM Journal Online*, 14th November.

Myerson, G. and Rydin, Y. (1996) *The Language of Environment*, UCL Press: London.

Newig J and Moss T (2017) 'Scale in environmental governance: moving from concepts and cases to consolidation', *Journal of Environmental Policy and Planning* 19(5), 473-479

Nyberg D and Wright C (2013) 'Corporate corruption of the environment: sustainability as a process of compromise', *The British Journal of Sociology* 64(3), 405-424

O'Neill E, Devitt C, Lennon M, Duvall P, Astori L, Ford R and Hughes C (2018) 'The dynamics of justification in policy reform: insights from water policy debates in Ireland', *Environmental Communication*12:4, 451-461.

Patriotta, G., Gond, J, and Friederike Schultz, F. (2011)' Maintaining Legitimacy: Controversies, Orders of Worth, and Public Justifications', *Journal of Management* Studies 48(8): 1804-1836.

Pennon (2017) *Pennon backs Policy Exchange focus on post-Brexit, bespoke for Britain resource policy*. Exeter: Pennon Group.

Pickstone S (2019) 'What would a Brexit delay mean for the environment?' *ENDS Report*, 22nd March

Pickstone S (2020) 'Eustice: "sensible" deal with EU possible without green alignment', *ENDS Report* 17th February

RDF Industry Group (2018) *Waste Export: Briefing Note*, June

Riles, A. (2006) *Documents. Artifacts of Modern Knowledge*, University of Michigan Press.

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

Thévenot, L (2001) Organized complexity. Conventions of coordination and the composition of economic arrangements. *European Journal of Social Theory*4(4): 405-425.

Thévenot L, Moody M and Lafaye C (2000) 'Forms of valuing nature: arguments and modes of justification in French and American environmental disputes', in Lamont M and Thévenot L (eds) *Rethinking Comparative Sociology: Repertoires of Evaluation in France and the United States*, Cambridge: Cambridge University Press.

Treib O, Bähr H, and Falkner G (2005) 'Modes of governance: a note towards conceptual clarification', European Governance Papers, EUROGOV No. N-05-02, http://www.connex-network.org/eurogov/egp-newgove-N-05-02.pdf

UNEP and ISWA (2015) *Global Waste Management Outlook 2015*, UNEP DTIE: Osaka, Japan.

Velenturf A, Purnell P, Tregent M, Ferguson J and Holmes A (2018) 'Co-producing a vision and approach for the transition towards a Circular Economy: perspectives from government partners', *Sustainability* 10: 5 1401.

Walzer, M. (1983) *Spheres of Justice. A Defense of Pluralism and Equality*, Basic Books: US.

Table 1: Orders of Worth and waste dimensions

Order of worth	Higher Common Principle	Test	Waste sector example
Industrial	Effectiveness, performance	Rational, scientific analysis	Designing out waste
Market	The pursuit of private profit; competition	Contract; demand	Selling waste or resources for the best price
Civic	Collective good, civic duty	Transparent, public procedures	Making waste policy; approving facility applications
Fame	Public opinion is what matters	Popularity, audience recognition	TV personalities highlighting ocean contamination by plastics
Ecology	Intrinsic value of nature; human survival	Science plus environmental ethics	Eliminating landfill; phasing out plastics

Sources: Adapted from Boltanski and Thévenot 2006, with Cementeri 2015. The orders of worth 'Inspired' and 'Domestic' are part of Boltanski and Thévenot's framework but have not been reproduced here, for simplicity.

Table 2: Key Features of Selected EU/UN Legislation for UK Wastes Management Sector (by date)

Relevant Legislation / Regulation / Convention / Institution	Wastes Management Parameter
Waste Framework Directive 75/442/EEC	Introduce the waste hierarchy into European waste policy and emphasize the importance of **waste minimization,** the protection of the environment and human health.
Sewage Sludge Directive 86/278/EEC	Encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals and man.
Batteries Directive 91/157/EEC, Batteries Directive 2006/66/EC	Minimise the negative impact of batteries and accumulators and harmonise their market requirements.
Waste Shipment Regulations 259/93/EEC, Regulation (EC) No. 1013/2006 (UN's Basel Convention).	The Proximity Principle and shipments of hazardous waste.
Directives 94/62/EC &94/137/EEC **on Packaging and Packaging Waste,** Directive 2004/12/EC, Directive 2005/20/EC, Ecodesign Directive 2009/125/EC, Regulation (EC) No 219/2009, Commission Directive 2013/2/EU, Directive (EU) 2015/720	Reducing Upstream Waste
Integrated Pollution Prevention and Control (IPPC) EEC/96/61, Integrated Pollution Prevention and Control Directive (EC, 2008), Environmental Impact Directive 2011/92/EU	Using Impact Assessments to Mitigate the Impact of Future Waste Activity
Directive 96/59/EC, Regulation (EC) No 850/2004 on persistent organic pollutants	Safe disposal of Polychlorinated biphenyls (PCBs) and polychlorinated terphenyls (PCTs)s
UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)	Grants the public rights regarding access to information, public participation and access to justice.
Landfill Directive 99/31/EC	Avoiding Landfilling
The Protocol to the regional UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP) (2003), The global Stockholm Convention on POPs, Regulation (EC) No 850/2004 on persistent organic pollutants	Reducing the negative impact of Persistent Organic Pollutants (POPs)
End of Life Vehicles Directive 2000/53/EC	Increasing Recovery, Reuse and Recycling from Used Vehicles
Waste Incineration Directive (WID) 2000/76/EC, Industrial Emissions Directive 2010/75/EU, Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH) 1907/2006	Reducing Environmental and Human Health Risks from Waste Activity
Ozone Depleting Regulations 2037/2000	Reducing Ozone Depletion from Waste Activity
Referrals to the Court of Justice of the European Union (CJEU)	Enforcement
WEEE Directive 2002/96/EC, WEEE Directive 2012/19/EU	Recovery of waste electrical and electronic equipment (WEEE)
RoHS Directive 2002/95/EC, RoHS recast Directive 2011/65/EU	Restricting the use of hazardous substances in electrical and electronic equipment

Waste Framework Directive *2008/98/EC*	Recycling, reuse and/or reclamation. Conservation of natural resources. Promotion of energy efficiency via Energy-from-Waste (EfW). Reduce non-hazardous construction and demolition waste. Restricting hazardous waste shipment.