Effective Dialogue: Enhanced Public Engagement as a Legitimising Tool for Municipal Waste Management Decision-Making

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1   **Abstract**
2   The complexity of municipal waste management decision-making has increased in recent years,
3   accompanied by growing scrutiny from stakeholders, including local communities. This complexity
4   reflects a socio-technical framing of the risks and social impacts associated with selecting
5   technologies and sites for waste treatment and disposal facilities. Consequently there is growing
6   pressure on local authorities for stakeholders (including communities) to be given an early
7   opportunity to shape local waste policy in order to encourage swift planning, development and
8   acceptance of the technologies needed to meet statutory targets to divert waste from landfill. This
9   paper presents findings from a research project that explored the use of analytical-deliberative
10   processes as a legitimising tool for waste management decision-making. Adopting a mixed methods
11   approach, the study revealed that communicating the practical benefits of more inclusive forms of
12   engagement is proving difficult even though planning and policy delays are hindering development
13   and implementation of waste management infrastructure. Adopting analytical-deliberative
14   processes at a more strategic level will require local authorities and practitioners to demonstrate
15   how expert-citizen deliberations may foster progress in resolving controversial issues, through
16   change in individuals, communities and institutions. The findings suggest that a significant shift in
17   culture will be necessary for local authorities to realise the potential of more inclusive processes.
18   This calls for political actors and civic society to collaborate in institutionalising public involvement in
19   both strategic and local planning structures.
20
21   **Keywords**
22   Analytical-deliberative process, engagement, public involvement, waste management, waste
23   strategy, facility planning
24
25   **1.   Introduction**
26   Waste management has become increasingly complex for public authorities in industrialised
27   countries faced with the challenge of integrating new infrastructure into waste management
28   systems while reducing waste volumes and minimising landfill. Changing established waste
29   management practices in communities, alongside technical developments and environmental
30   protection, may require greater public engagement within the political, institutional and social
31   arenas in which decisions are made.
32
33   In Britain, the political context behind such change includes a trend towards regarding waste as a
34   resource and the need to meet progressive statutory targets, largely incorporated from EU
35   legislation, to reduce waste, increase recycling and reuse, and minimise waste residues (Defra 2007).
36   In practice, national campaigns such as WRAP's *Love Food Hate Waste* initiative have highlighted the
37   potential to reduce food waste by raising awareness among householders around the economic and
38   environmental benefits of waste reduction. Research into public participation and recycling
39   performance has demonstrated that recycling behaviour can improve, specifically in 'hard to reach
40   communities', through dialogue with householders to assess and respond to their needs, often by
41   offering infrastructure choices for recycling (Williams and Culleton 2009; Timlett and Williams 2008).
42   A recent waste policy review highlighted the Government's intention to work more closely with
43   business sectors, including waste management companies, and promised greater emphasis on waste
44   prevention and reuse within an overall contact of resource efficiency (Defra 2011).
45
46   A key challenge for many local authorities, and the focus of this paper, is the integration of waste
47   management technologies to treat residual waste (i.e. after recycling and composting) or recover
48   energy from waste (Tunesi 2010). The precise number and nature of residual waste management
49   facilities required locally will depend on decisions concerning the type of technology to be adopted
50   and its scale (Defra 2005a). If alternative technologies to landfill are to be integrated successfully in
51   the development of waste strategies and facility plans, local authorities will need to address the
52   social dimension in their problem-solving and decision-making processes in order to gain the

necessary public support. This is liable to require higher levels of citizen involvement not only to reflect the concerns and interests of local communities, but to extend the knowledge base used for decision-making.

Involving the public at different stages in policy development, using participatory and deliberative methods, is gaining momentum including the use of novel criteria weighting tools for involving citizens in the ranking of municipal solid waste facilities (De Fro and De Gisi 2010) and the use of participatory approaches that define 'public acceptable' lifecycle assessment (LCA) assumptions and sources of data for assessing site-specific aspects and the local impacts of waste facilities (Blengini et al. 2012). These innovative engagement strategies are addressing the fear, emotion and social stigma attached to waste with the aim to transform attitudes and practice. The Localism Act 2011 reaffirmed the Government's commitment to public engagement, giving communities a greater role in decision-making. Local authorities are now required to adopt more robust forms of engagement whereby stakeholder views, including those of local communities, are explicitly used in waste strategies and facility plans (House of Commons 2010; SITA 2010). Best practice guidance on public engagement suggests that stakeholders with a direct interest in the outcome of policy decisions, including the wider local community, should be given an opportunity to shape policy (Defra 2005b, 2005c; ODPM 2004) where there is still a chance to talk about alternatives, potential sites and community benefits and an opportunity exists to establish on-going communicative partnerships between public representatives, technical experts and local community groups (Cotton 2013).

The support for public engagement through legislation, politics and voluntary initiatives has led to a new mode of dialogue that alters traditional hierarchies of knowledge, thereby enabling scientists and society to play a central role in policy deliberations (Pieczka and Escobar 2013), and this is changing the nature of political decision-making over the governance of controversial technological developments (Chilvers and Burgess 2008). Dialogue as a mode of public engagement is gaining momentum in the UK's environmental planning arena, often associated with the need to achieve "lower costs, fewer delays and less uncertainty in the planning process" (DTI 2007: 259), while internationally it has been associated with the ability to produce "more technically competent and defensible decisions that reduce the risks for government" (Robinson and Nolan-Itu 2002: 5).

In the UK, innovative initiatives such as community advisory committees have led to collective agreement on new waste management services and facilities in Hampshire. Recommendations were arrived at by using consensus-based decision rules that encouraged participants to debate and challenge conflicting evidence or perspectives to find common ground (Petts 2006). More broadly, citizens' juries have been used to consider various questions related to health policy and provision and other local planning issues (Petts 2006; Aldred and Jacobs 2000). For instance, the creation of a citizen jury, a random selection of citizens mandated to evaluate a given set of policy options, has led to more collaborative appraisal of microbial water pollution from farming and livestock management practice in Devon (Fish *et al.* 2013). However, despite efforts to bring dialogue into the mainstream, most deliberative activities reported in the literature have tended to focus on understanding public perceptions and attitudes to more controversial science (e.g. stem cells and synthetic biology) rather than policy-making processes (Pieczka and Escobar 2012).

Research on public engagement with information on renewable energy developments suggests that it is common for planning officials to exclude community groups on the basis that they are not sufficiently acquainted with the planning process or incapable of processing information and raising "factually accurate" concerns of a planning nature (Parks and Theobald 2011: 55). In waste management, some local authorities struggle to engage the public over complex and potentially contentious decisions related to the selection and installation of waste management technologies due to markedly different risk perceptions of waste management technologies (Hacking and Flynn 2013). Research on public understanding of the environmental effects from energy from waste (EfW)

1 incinerators, for example, suggests problems are encountered where applications include complex
2 science, particularly modelling dispersions of pollutants and predicting their effects on health
3 (Maynard and Smethurst 2009).
4
5 Public engagement in the application of policy currently lacks a clear rationale and methodological
6 plan for identifying and incorporating citizen perspectives early in the decision-making process
7 (Cotton and Devine-Wright 2012). This is largely associated with a legal and regulatory framework
8 for public engagement that is often vague on the role of the public, its influence on decision-making
9 (Cotton 2013) and appropriate mechanisms for incorporating public concerns into policy-making
10 (Pieczka and Escobar 2012).
11
12 This paper presents the findings of a research study that explored attitudes towards active forms of
13 public engagement as a means of legitimising waste management decisions. In the context of the
14 developments in public policy described above, an approach that has gained growing support, the
15 analytical-deliberative process is outlined in the following section. The problem-structuring
16 technique underlying the study, based on soft systems methodology, and the research methods
17 used will then be described. Finally, the results of the study are presented, organised around the key
18 components of an analytical-deliberative process, and conclusions drawn.
19
20 **2.   The analytical-deliberative process as a decision-making tool**
21 Political decision-making based on dialogue and communicative partnerships has attracted growing
22 interest in areas such as waste on the grounds that such an approach will motivate public
23 engagement, broaden the basis of knowledge and values that underpin decisions, produce new
24 possibilities for conflict resolution by taking account of the local context, realise common interests,
25 and increase the acceptance and legitimacy of decisions (Bull et al. 2010; Dialogue by Design 2008;
26 Environment Council 2007a, 2007b; Hyder Consulting 2007; Joss and Bellucci 2002; Petts 2008).
27
28 The analytical-deliberative process, defined here as an iterative communication process that
29 integrates public values and technical analysis of options in decision-making, has proven successful
30 in assessing options for patients on the NHS's kidney transplant organ donation list (Burgess *et al.*
31 2007), siting waste facilities in Germany (Schneider and Renn 1999) and creating water regulations in
32 the US (Stern and Fineberg 1996). Its main purpose has been to provide a forum for 'non-expert
33 citizens' to complement technical details on environmental risks and costs with public values, in
34 order for relevant authorities to draw conclusions and make recommendations for decision-making
35 (Albelson *et al*. 2003; Beierle 1999).
36
37 Analytical-deliberation thus creates opportunities to develop and refine practical policy options by
38 integrating technical analysis with relevant knowledge and values through deliberation and synthesis
39 in a process that brings together technical and scientific experts, policy officials, other stakeholders
40 and the general public in order to debate the best course of action. In the practical application of
41 analytical-deliberative approaches each element has a specific purpose. Deliberation focuses on
42 empowering participants, addressing knowledge and communication barriers that hinder non-expert
43 citizens' ability to engage effectively in the policy process. Analysis is instrumental to building
44 participants' competence, conveying scientific and technical issues in a way that is comprehensible
45 to non-expert citizens and expands their knowledge base (Burgess *et al.* 2007). Combining analysis
46 and deliberation is intended to deepen understanding and uncover new knowledge that feeds into,
47 and progresses, decision-making (Alario 2000, 1998; Stern and Fineberg 1996).
48
49 The premise for analytical-deliberation is that greater public involvement may prevent problems
50 that are liable to arise in policy decision-making processes. These include a lack of public knowledge
51 about environmental issues, inadequate consideration of public values and preferences, unexplored
52 opportunities to correct mistakes or find innovative solutions, public mistrust of experts and,

1 specifically, a prevailing culture of conflict around local authorities' resolve to protect the health of
2 local people and the environment (Beierle 1999).
3
4 Analytical-deliberative processes, as adopted in the USA (e.g. Charnley 2000; Stern and Fineberg
5 1996) and the UK (e.g. Chilvers 2007; Burgess *et al.* 2007), can be broadly structured in a series of
6 steps associated with decision-making. These are largely sequential, though some steps may occur
7 simultaneously and there may be a significant degree of exchange and iteration (Table 1).
8
9 Table 1: Stages of analytical-deliberative processes

Stage	Description
Problem-framing	Deliberation among a range of stakeholders to define the issues, which may be revisited throughout the process until a final decision is taken (Stern and Fineberg 1996; Webler and Tuler 1999).
Process design	Establishing procedures to combine analysis and deliberation sufficiently to inform decision-making. The process ought to be context-specific and respond to stakeholders' expectations of engagement (Crowfoot and Wollendeck 1990; Stern and Fineberg 1996).
Means of engagement	Deciding who participates, the relevant interests and values they bring to the table, and the roles that they play in the process are important. The tools and techniques used to engage participants ought to be suitable for the diversity of groups represented, reducing barriers to communication and encouraging learning (Crowfoot and Wollendeck 1990; Stern and Fineberg 1996).
Option definition, evaluation and data synthesis	Deciding how competing criteria from different groups is traded-off in decision-making. Information is gathered from experts and citizens to facilitate wide understanding of the problem, ensuring that the preferences of all stakeholders are considered in option evaluation. Usually the information has to be converted and conveyed between scientific and lay participants to optimise learning (Stern and Fineberg 1996; Webler and Tuler 1999).
Closure	Achieving closure is important for moving from one step to another, even if revisiting a previous step remains a possibility. Criteria or rules to promote closure are important so that the process is not extended beyond budgets or does not become inefficient. However, flexibility in closing discussion is needed to allow all stakeholders an opportunity to participate effectively (Stern and Fineberg 1996).

10
11 Analytical-deliberation is an open and transparent process that reflects a gradual movement
12 towards community co-production of solutions and is more likely to result in policies being
13 considered fair and the decision process legitimate (Apostolakis and Pickett 1998; Bovaird and
14 Downe 2008; McDaniels *et al.* 1999; Petts 2008; Renn *et al.* 1995). A concern with traditional
15 consultation processes is the institutional and regulatory framing of the waste problem, which overly
16 relies on technical knowledge, expertise and analytical approaches (Chilvers 2007). The latter limits
17 citizen participation to commenting on short-listed options or on already drafted proposals, and are
18 insufficient for capturing the values and concerns of the community if used in isolation, and may
19 constrain the development of innovative solutions. By contrast, the collaborative approach inherent
20 in analytical-deliberative processes ensures that social as well as technical issues are addressed
21 because local knowledge and experience is fed into the policy process, contributing to problem-
22 framing and the development and evaluation of solutions.
23
24 Analytical-deliberative processes utilise a mix of traditional and innovative forms of engagement
25 (e.g. Petts 2008; West of England Partnership 2009) whereby feedback from deliberative events is

utilised in more traditional consultation processes (e.g. online surveys and public meetings). This enables public engagement practitioners to assess the extent to which the views expressed in small group discussions are representative of the wider community. Combining methods in this way effectively enhances democracy in decision-making by capturing a wider range of perspectives, allowing participants to witness (and challenge) positions taken - whether for or against the policy or technology - early on in the process.

Lessons can be learned from past use of analytical-deliberative processes. Experience in developing regulatory rules for domestic water treatment in the USA suggests that a more evidence-driven process is desirable if the number of stakeholders and wider community groups pertaining to the issue is small, the evidence base around technological risk is well-established, and there is a degree of 'good faith' in resolving the issue through negotiation (Stern and Fineberg 1996). Experience in decisions concerning the siting of waste facilities in Germany (Schneider and Renn 1999) suggests that if local residents are directly involved in identifying criteria for site selection, understanding the site selection process and applying multi-criteria assessment methods to site identification, they may make effective contributions to the consideration of trade-offs that have to be made.

Key challenges include selecting representatives of the community and finding effective ways of providing new and often complex information to local citizens, recognising that on-going, focussed communication and training is needed for individuals to engage meaningfully and develop their own perspectives on the issues so as to better understand and connect with the policy process (Thomas *et al.* 2009; Petts 2004; Renn 1999). Some practitioners suggest that an effective approach to recruiting representatives of interest groups for deliberative events is to focus on the overall concerns of a stakeholder group rather than the position it takes on a particular problem (e.g. Dialogue by Design 2008; Petts 2008). This allows decision makers to address local (and regional) issues that affect a wide cross-section of the community rather than a small faction. However, the selection of interest groups needs to be done in consultation with affected parties and relevant authorities in order that it is not perceived as an attempt by an authority to establish communication channels only with those who support its position.

The factors required for effective implementation of analytical-deliberative processes, however, are context-specific and demand further investigation, as do the contextual factors that make deliberative or participatory approaches desirable (Benneworth 2009; Bull *et al.* 2010; Petts 2006). Practitioners in the field note the importance of space (i.e. design of the setting), place (i.e. physical location) and time as key contextual factors shaping public engagement (Chilvers 2009). Moreover, the context may change as engagement occurs, making flexibility in collaborative relations during the decision-making process important (Benneworth 2009). An assessment of processes and outcomes of public involvement (and the link between them) is necessary if practitioners are to gain better understanding of the nature, extent, and synthesis of analysis and deliberation required in different decision contexts (Chilvers 2007). In developing this understanding, the suitability of deliberative approaches to the decision context, their integration with analytical systems and tools, and the need to negotiate the level and mode of participation within institutional settings (including possible constraints such as resource and information requirements) need to be examined.

3.   Methodology
The research was designed to explore how industry experts, policy makers and citizens frame waste management issues, specifically with regard to waste strategy and facility planning, and how their values, ethics and judgements underpin different opinions of (and attitudes toward) early public involvement in decision-making. Questions relating to perception, interests and the decision context were addressed in order to gain an understanding of the different perspectives of interest groups usually represented in decision-making, with particular emphasis on social conventions, politics and power and the prevailing culture within waste management decision-making.

1

3.1   Analytical approach

A problem-structuring technique based on soft systems methodology (Checkland 1999, 1981) was used to explore multiple perspectives of the waste management problem and identify the traditions and culture that affect the potential for social and institutional change. Soft systems methodology (SSM) is typically used in the analysis of complex situations in which there are divergent views about how problems are to be defined and addressed, usually within a social context. The approach to SSM was 'problem-oriented'; emphasis is placed on exploring a problem fully in order to capture different stakeholder views (whether convergent or divergent) in such an approach, before moving on to identify opportunities for, and barriers to, taking action.

The framework for analysing and interpreting the research data was based on SSM's mode of analysis and focused on participants' interests and vision for change (the intervention), the socio-technical context (the issues), the prevailing culture and political variables that convey the feasibility and desirability of change (Checkland 1999; Checkland and Scholes 1999). A rigorous and systematic approach for interrogating the data captured these contextualised issues and identified action points (Table 1). Interrogating the data in this way provided a basis for exploring both divergent and similar views, whether supported by science or based on individual experience or judgement.

Table 1: A framework for analysis based on SSM

| Context for analysis		Questions for interrogating the data
The issues	Problem definition captures a wide range of issues, reflective of the variety of perspectives taken	What requirements, needs and desires are raised concerning current/future waste management policy and practice? What factors influence or impact the way waste management matters are decided? What conflicts exist as a result of the issues expressed by different stakeholder groups?
Prevailing culture	Problem definition carries an implicit judgement of the values underlying stakeholders' actions	What historical perceptions (not necessarily misgivings) exist around waste management practice, policy and solutions? What are the opinions and perceptions of groups on achieving current/future goals for waste management (national and international)? What dynamics/issues exist in the relationship between experts and citizens on waste management issues? Are there conflicts regarding the motivation for stakeholder actions in terms of cultural norms and emotions?
Politics	Problem definition carries an implicit judgement of the ethical position taken and the disposition of power in decision-making	What are the characteristics of the political situation that lead to desirable and culturally feasible action? What are the opinions and beliefs of individuals regarding changes in power-based structures? i.e. - destructive 'power play' in pursuit of self- interest - accommodating different interests in pursuit of balance and harmony. What conflicts exist as a result of power expressed by different groups at each stage of decision-making?
The intervention	Action that is desirable and culturally acceptable is identified, based on negotiated values of different stakeholders	What are the characteristics of the problem that affect how public involvement is perceived by groups? What are the opinions and attitudes of groups regarding public involvement, given the position/stance of those involved, their particular history and points of view? What methods of achieving citizen involvement, including opinions and perceptions of groups, are both desirable and acceptable?

As a social learning tool, SSM assumes that, to be meaningful, a planning response will assume a pattern of interaction among participants whereby the process of reflecting on and identifying

1 responses to the problem of waste management and public involvement is ultimately driven by what
2 is recognised to be a sound waste strategy and communication approach. An important element
3 involves reflecting upon power relations in decision-making, observed from reported tensions and
4 interactions between groups (e.g. elected officials and officers, experts and citizens). In this research
5 the focus was on how competing forms of knowledge, expressed by different groups, gain authority
6 and influence decision-making. Specific attention was given to judgements that guide the actions of
7 stakeholders (Checkland and Poulter 2006; Checkland and Scholes 1999). The knowledge drawn
8 upon (whether technical or based on moral choices or cultural norms) and its significance in
9 decision-making were important in exploring the disposition of power.
10
3.2   Methods
12 A mixed methods approach was adopted for collecting data, bringing together theoretical context
13 and empirical observation (Kelle 2001) and based on a transformative design in which research
14 methods are combined to utilise one form of data to create another (i.e. qualitative into quantitative
15 data) (Bryman 2006; Onwuegbuzie and Teddlie 2003; Caracelli and Green 1993). The intention was
16 to enable key insights around emerging themes concerning early public involvement to be identified,
17 including values that shaped participants' perceptions, attitudes and preferences. The collection and
18 analysis of data was systematic, capturing in a contextualised form (i.e. political, social, technical
19 etc.) the main structures and viewpoints of the waste problem, the processes involved, and key
20 waste management issues (Figure 1).
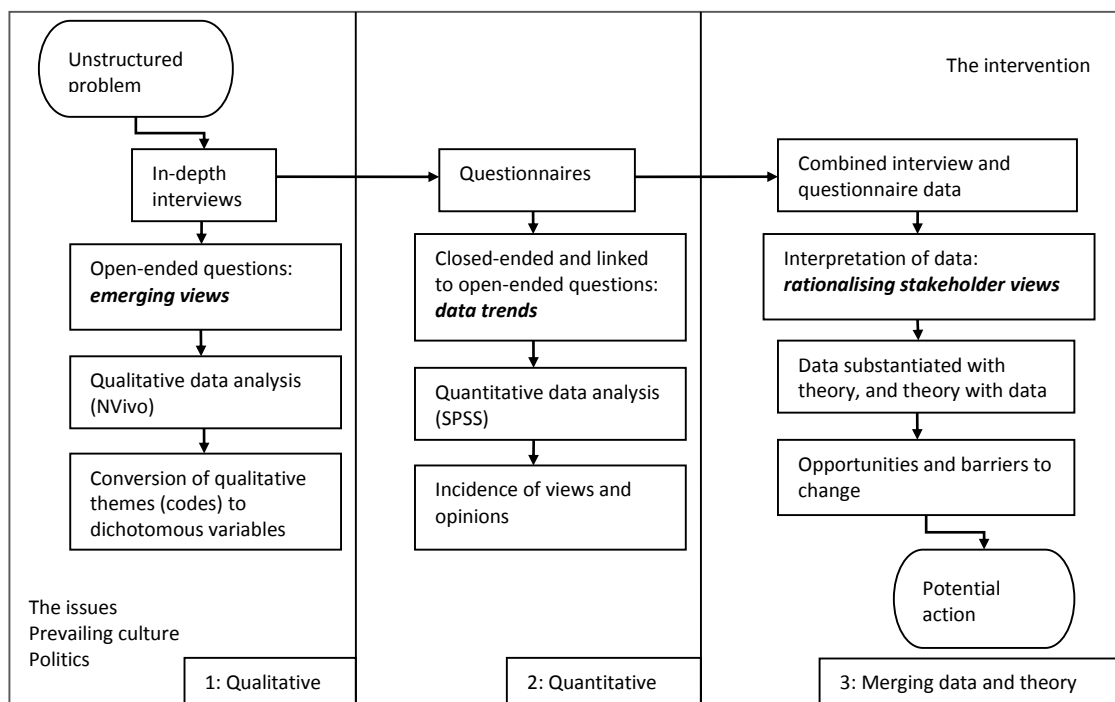
Figure 1: Sequential data collection and analysis

44 The sequential combination of methods (i.e. interviews followed by questionnaires) allowed for an
45 exploration of differences across groups that may otherwise have been missed. Both the interview
46 questions and questionnaire are provided in the Appendix. Questionnaire data (descriptive statistics)
47 measuring the incidence and variation in participants' views served as a means of verifying and
48 augmenting the qualitative data from interviews (Figure 1). However, the interview data is given
49 greater prominence in the presentation of findings, as this is where connections are made that
50 explain why people hold certain views; the quantitative data suggest how strongly these views are
51 felt (or how many people hold similar views). This use of transformative design allowed for stronger

1   inferences to be made by capturing a greater diversity of views and underlying reasons behind
2   differences in opinion.
3
4   The nature of the research necessitated that a wide range of views be captured. Categories are used
5   to classify the public in environmental decision-making (Aggens 1983) and in this research internal
6   and external stakeholders, local communities and activists - were used to define different groups.
7   Participants were drawn from a range of backgrounds and had various interests in waste
8   management; they were not necessarily individual experts but represented organisations with an
9   interest in waste policy or local waste management practices, categorised as 'local authorities',
10   'citizen groups' and 'key stakeholders' (Figures 2 and 3).
11
12   In selecting interview participants a judgement sample was employed to achieve maximum variation
13   across the three groups (Figure 2). Various techniques were used to ensure the right participants
14   were targeted, including identifying organisations from consultation lists for waste planning or policy
15   development initiatives and co-nomination by participants in order to identify other important
16   organisations or those typical excluded from decision-making. Other factors, such as the type of
17   organisation (e.g. sector, main business or service), its responsibility or interest in waste
18   management (e.g. waste campaigner, regulator for waste management facilities) and the
19   geographical region (e.g. Yorkshire and the Humber, East of England), were used to sub-divide
20   categories and ensure that different types of organisations and individuals were included in the
21   sample. For instance, the local authority category was sub-divided according to location by region
22   and then into three sub-categories (unitary, disposal and collection authorities) before a random
23   sample was selected. A similar approach was used for the other categories (i.e. citizen groups and
24   key stakeholders). Participants in the citizen groups' category were selected from the same local
25   authority areas in order to compare information gathered and assess issues related to
26   misrepresentation, bias and reliability of evidence. The resulting sample (33 participants) included
27   representatives of key organisations with a wide range of interests or responsibility for waste policy
28   and local waste management practice.
29
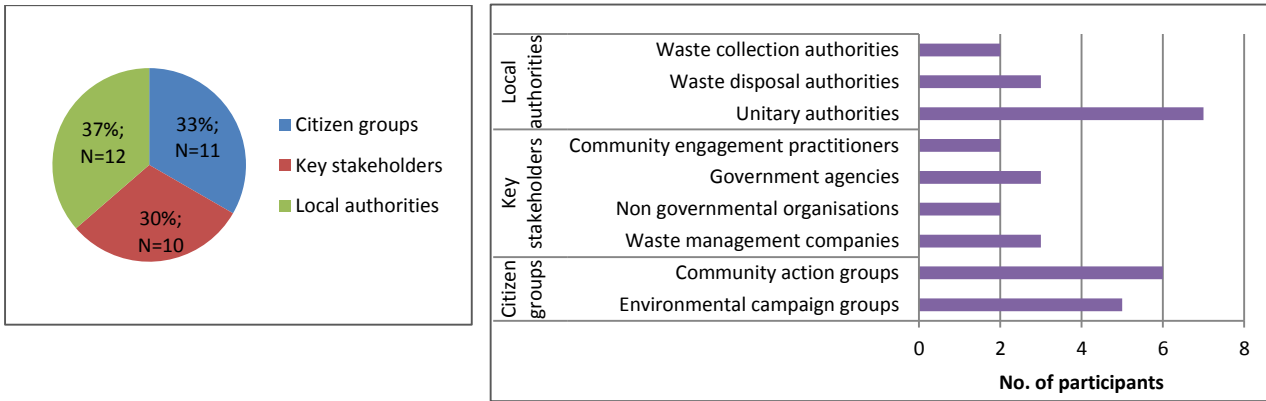
34   Figure 2: Affiliation of participants (interviews)
35
36   In selecting questionnaire respondents a random stratified sample was used to maintain spread in
37   the population (Figure 3). Several sub-categories of the target groups were formed based on
38   feedback from interviews and, as with the interviews, reflecting a range of organisations with
39   different interests or responsibility for waste policy and local waste management practice. As the
40   general population was unknown, the same proportion of organisations was selected in each
41   stratum. However, the resultant sample (60 respondents; 40% response rate) was self-selecting and
42   not proportional across groups, which required due consideration in presenting and interpreting
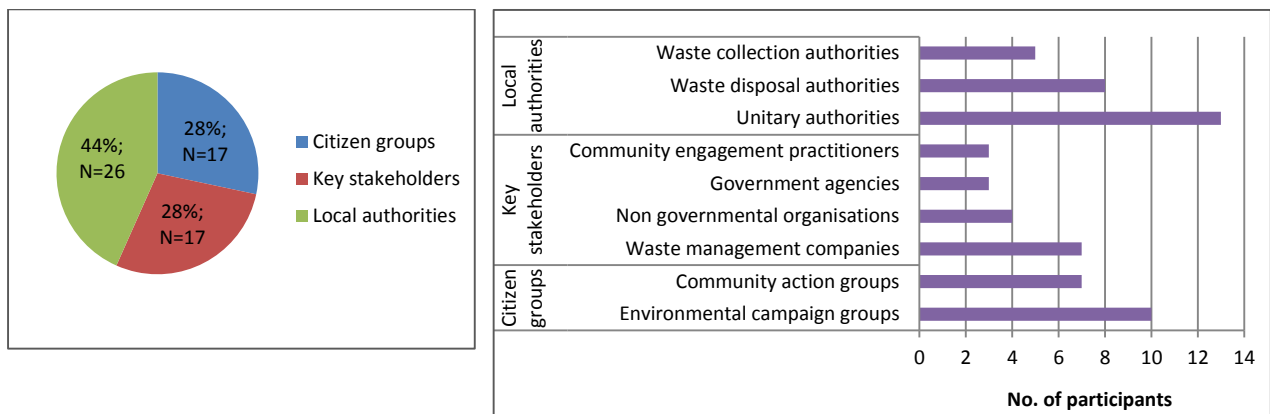43   questionnaire data.
44

Figure 3: Affiliation of participants (questionnaire)

4. Research findings: Analytical-deliberative processes for municipal waste management decision-making

The potential for adopting analytical-deliberative processes in a UK waste management context is discussed in this section by exploring and interpreting the research data, contrasting it (and supplementing where possible) with information from the literature. The perceptions and judgements of participants, the complexity of issues regarding waste management, and the theoretical and practical demands of a deliberative and participatory decision process are considered, with the aim of clarifying opportunities and barriers to the use of analytical-deliberative processes. Drawing on data from the research and some evidence of practitioners using analytical-deliberative structures in the UK and abroad, key learning principles for adopting the approach are established. The findings are structured around the key components of an analytical-deliberative process: problem-framing, process design, means of engagement, option definition, evaluation and data synthesis and closure.

4.1 Problem-framing

The iterative nature of the analytical-deliberative process requires problem-framing to be open to public input so that a wide range of perceptions and interests around the issues and all relevant risks and impacts are considered during option evaluation. The framing of the waste management problem in a socio-technical context necessitates a contribution from a wide group of stakeholders, specifically in considering the nature of the risks and impacts involved and how they are to be assessed.

The diverse and competing interests, values and principles regarding the goals of waste management largely influence how solutions are rationalised. A tendency to compartmentalise the role of citizens and experts based on pre-judged epistemic or ethical competencies, rather than seeing these as emergent qualities (Healy 2004; Lafferty 1999; Pellizzoni 2003; Perhac 1998; Young 2000), was evident in the research. For example, there was a pessimistic view, especially within local authorities, of the possibilities for active forms of citizen involvement in problem-framing, particularly when associated with campaign organisations:

> *There is little room for debate with the hard-line environmental lobby groups who are dead set against EfW [incineration]…They purport to speak on behalf of the population but our suspicion is they speak on behalf of their own vested interest or through some philosophical standpoint. Government and local authorities need to continue to evaluate the options scientifically and put facts into the mix rather than emotion.*
>
> *- Head, Waste Management, Unitary Authority*

There was less support for public involvement in problem-framing at the strategic level (75% of citizen groups, 40% of key stakeholders and 31% of local authorities) compared to the local level (77% of citizen groups, 50% of key stakeholders and 42% of local authorities). The tendency of local authorities to privilege technical expertise over public knowledge, insulating the problem-framing and option evaluation from citizen interaction, indicates that past institutional assumptions about public ignorance or non-competence still hold. The tendency to rely on 'rational' debate is not, however, limited to local authorities and industry experts: some citizens also utilise scientific arguments to justify their views (Petts 2004). The research suggested that this is sometimes the case in arguments about transport routes presented by opponents to waste facilities:

> *One of the most effective ways of appealing against a facility proposal appears to be dealing with the increase in transport. If you personalise the risk then you are sort of pandering to the NIMBYs.*
> *- Manager, Professional Waste Association / Waste Management Consultant*

Broadening the focus so that participants do not 'personalise' risks from facilities may therefore be necessary in order to achieve a balance between regional and local needs, particularly where potentially contentious technologies, such as EfW incineration, are on the agenda. The research suggested that a clearer direction from government on the role of EfW incineration in waste management may prompt local authorities to be more honest and candid with the public in terms of their motives, priorities and how they make judgements:

> *There has to be national leadership on [the waste strategy] because without that local authorities are kind of left in a vacuum and have to feel their way around, which causes confusion... the strategy has to be clearer and has to provide that national framework for every [local authority] to follow.*
> *- External Affairs Officer, Waste Management Company*

> *We would like to see a much more positive policy towards incineration... a statement from government that says 'EfW [incineration] will play a larger part in energy production in the UK'.*
> *- Director of Policy and Public Affairs, Trade Association*

An important question to emerge from the research was how to ensure that participants in the decision-making process represent the interests and values of all interested and affected parties, as evident in the reported challenges local authorities face in determining whether campaign groups adequately represent the interests and values of the wider community. Equally, questions regarding the kind of expertise to involve in the process were implicit in concerns voiced about the impartiality of technical experts (e.g. if employed by a waste management company) and their ability to prioritise local concerns when evaluating waste management options:

> *Waste management companies like [company X] are owned by equity companies so if you are dictated by shareholders to get the best possible financial deal for them, you are going to implement solutions that may not be the best for that council or its community.*
> *- Campaigner on Waste and Resources, Environmental Organisation*

> *EfW [incineration] very rarely does very well when appraised against criteria developed by the community. How is it that the Government and the Environment Agency think this it is such a fantastic facility? One of the reasons is that the expert*

view - but not the community view - takes into account the avoided emissions from a power station 200 miles away.

- Principal, Waste Management Consultant

Such concerns reinforce suggestions in the literature (e.g. Petts 2004) that a wide range of expertise should be utilised, particularly during engagement in developing the waste strategy, in order to have a more comprehensive evaluation of the choice of technology and the associated risks. This is likely to enhance trust in technical experts and local authorities and encourage greater public understanding and acceptance of potential risks:

It is no good pretending a view can be taken on environmental or health risk without considering the social context, because that affects whether the public is willing to accept the assessment of risks or whether they even understand it.

- Head, Waste Regulation Policy Unit, Government Agency

The research revealed that local authorities are aware of these benefits through sporadic experiences of early public involvement initiatives during facility planning; 85% of local authorities (N=26) supported the engagement of citizens through community liaison groups (or community advisory committees) as a means to satisfy a democratic right to participate and to gain their support for waste management facilities:

There is a lot of work to do with the public in terms of trade-offs around optimal size of the plant, travel distances [etc]. These impacts are continuous throughout the life of the facility [and] so require both technical judgement and negotiation with communities.

- Planning and Community Engagement Officer, Unitary Authority

The level of ambiguity implicit in debate around local authority priorities and goals for sustainable waste management, particularly in relation to EfW incineration, reveals potential framing issues, which suggests a need to open the decision process to a wider group of stakeholders and community groups. Early public engagement provides opportunities to open up the decision process and admit a wider range of perceptions of complex issues (to gain a richer understanding of the waste problem and a more holistic assessment of options and potential outcomes), thus creating a stronger foundation for decision-making. In cases where there is potential for controversy, both analysis and deliberation may highlight the concerns and values of different interest groups, allowing for the consideration of diverse, sometimes competing, objectives.

4.2   Process design

Designing a public engagement process to achieve perceptions of fairness and legitimacy requires an appropriate distribution of opportunities to contribute (i.e. setting objectives, establishing procedural rules, selecting relevant information and expertise to inform the process, and assessing validity claims). The research suggested that a major challenge is the difficulty in establishing effective dialogue within a prevailing regulatory and technocratic culture that has not historically supported participative decision-making. Indeed, deliberative and participatory processes are sometimes viewed as a potential cause of conflict and delay:

Some of the discussion that takes place on waste with community groups can be unhelpful because it raises public awareness where perhaps it shouldn't. This is probably a radical thing to say, but in some ways you do need national campaigns to raise the importance of things like recycling, but you don't want people to input into other decisions because it polarises opinions and is an excuse for inaction.

- CEO, Private Sector Organisation

I think there is so much dispute and controversy over waste treatment technologies
that an objective has to be to get rationale debate going and to get proper
information to make it an objective discussion.

- Head, Waste Management, Unitary Authority

The research revealed that comparatively more key stakeholders (41%; N=17) and local authorities (33%; N=26) than citizen groups (24%; N=17) were doubtful of the potential to involve citizens and 'non-experts' in complex decisions, due to the prospect of misunderstandings and misrepresentation of issues. The technocratic policy culture in existing institutional structures for waste management decision-making may impose narrow institutional framings that reflect strategic interest-based manipulation of issues, thus closing down opportunities for wider debate (Irwin 2001; Pellizzoni 2003). As a result, it is commonly asserted that local citizens often consider consultation to be a means of *post hoc* rationalisation of pre-determined decisions (e.g. Burgess *et al.* 2001), a point confirmed in the research. Attempts to widen debate around strategic issues were sometimes treated with suspicion and cynicism regarding the power of citizens to influence decision-making:

We thought the way the questionnaire was put together was flawed. There weren't
many options for people to choose from. We were asked whether we would like
[EfW] incineration with MBT [mechanical biological treatment] or just [EfW]
incineration: that was the extent of treatment options offered. It just was not proper
consultation and most residents were disappointed.

- General Assistant, Local Action Group Against Incineration

Education is the key…they didn't do that here, the information that they gave was
taken off the waste company's website and they said there is no choice – we either
incinerate or we face huge fines. To educate is not to give an opinion, it is giving a
balanced reflection of the real choice. They did this in [County X] and they had no
objections to the EfW [incineration] plant because they went in and engaged with the
public.

- Management Campaigner on Waste and Resources, Environmental Organisation

While such views do not reflect the culture of engagement across the waste sector, they imply a need to reconstruct ideas around the 'information deficit' model of public understanding in order to increase awareness of the benefits of constructive dialogue between citizens, local authorities, experts and other stakeholders. The successful involvement of 'ordinary' citizens beyond consultation (i.e. during problem-framing, option definition and option evaluation) will require a cultural change within local authorities, such that they regard public understanding of complex waste management issues as necessary and legitimate instead of assuming and accepting public ignorance (Bäckstrand 2003; Wynne 1993). Suggestions that emerged from the research include the need for a more structured approach to recruiting participants, which involves careful selection of interested and affected parties that ensures everyone is given a fair and equal opportunity to participate throughout the decision process. This presents a substantial challenge when many waste experts are unwilling to accept that their scientific knowledge is insufficient for decision-making and should be subject to public scrutiny (Fischer 1999).

Fundamental to achieving a legitimate and acceptable process is an assessment of the context for public involvement (e.g. Benneworth 2009; Bull *et al.* 2010; Chilvers 2009). Assessing the nature of risks or impacts is important in order to capture conditions in the locality that increase the potential for controversy, enabling the design and conduct of public engagement processes to take these into account. In situations where the proposed technology or facility site may raise public opposition, engaging with dissenting views can help to promote joint 'ownership' of the waste problem:

All of sudden, the Council decided we were going to have one big [EFW incineration] plant and told us where it would be. You would expect a certain backlash, wouldn't you? We felt let down by the system – they railroaded us!

- Chairman, Local Action Group Against Incineration

We need to face reality – people react when a facility affects them, so you need to try and engage them at the strategic level for them to take a more joint ownership of the problem.

- Facilitator, Community Engagement, Waste Consultant Company

Increasing public involvement in situations of conflict allows policy makers to understand and explore opposing perspectives and resolve issues by finding common ground or developing novel solutions. Being context-dependent, some decisions will require greater levels of public involvement than others. For instance, in cases where there are low levels of trust or confidence in a local authority (or waste management operator), there will need to be higher levels of public involvement to encourage greater social interaction and trust-building between parties. Similarly, there should be higher levels of public involvement to resolve conflict, particularly in situations where there is uncertainty and ambiguity around a waste problem.

4.3 Means of engagement

The necessary change in the institutional and political process for waste management entails adopting more deliberative and participatory methods so that public knowledge and values are considered alongside technical and scientific issues. However, experience in the UK suggests that without greater regulatory and funding support it is difficult to adopt analytical-deliberative processes and so extend participation beyond the present level of statutory consultation (Petts 2004). There are also concerns inherent in adopting deliberative and participatory methods, such as raising unrealistic expectations of what can be achieved within local communities, which may lead to even greater disillusionment with political processes (Pratchett 2000). The research suggested that the expectation should not necessarily be consensual decision-making but to negotiate a workable, relatively fair, solution that the vast majority of interested and affected parties can accept.

If the public are allowed to structure the debate, determine the criteria and participate in option appraisal, they are more likely to sign up to the preferred option.

- Facilitator, Community Engagement, Waste Consultant Company

Clarifying objectives regarding who should participate, the relevant interests and values of participants, and the roles that they should play is important (Stern and Fineberg 1996). The research suggested that one approach would be to have fuller representation of the different parties when issues are controversial or there is mistrust of key parties (e.g. waste management operators), a view that finds support in past literature (e.g. Benneworth 2009; Bull et al. 2008; Petts 2008). Identifying different interests and values in waste management, particularly at the strategic level, would necessitate the inclusion of a wide cross-section of the community. Some local authorities suggested that the cost-effectiveness of public involvement is a consideration and generally necessitates the inclusion of 'representative stakeholders', as opposed to the general public, at early stages of consultation:

Involving the general public at the very early stages gets quite costly. I would be more inclined to have a small group of stakeholders at the earliest stage, defining roughly where you are going, then open it up.

- Waste Development Manager, Unitary Authority

Others claimed that there are problems concerning the tendency of some citizens to set 'optimistic waste management targets such as high recycling rates', which may have de-motivating effects if not achieved, and the 'radical and uncompromising position' taken on some waste management technologies (notably EfW incineration) which, by polarising opinion, may delay decision-making. These issues raise questions concerning the extent to which deliberative methods and traditional consultation processes can be integrated at the strategic level and allow participants a fair equal opportunity to influence decision-making. The balance and extent of integration achieved when combining deliberative and traditional methods will depend on how inclusive the process is. Decisions regarding who to consult will typically depend on the urgency of decision-making, the nature of the technology or policy, the prevailing culture, values and history of the area, and the time, expertise and other resources available.

4.4   Option definition, evaluation and data synthesis

Analytical-deliberation requires all interested and affected parties to be represented and all aspects of the problem to be addressed, including public knowledge and values. The research suggested that the decision on who is chosen to represent the interests of the community is a concern. Many respondents from the citizen group (81%; N=17), but comparatively fewer key stakeholders (60%; N=17) and local authorities (54%; N=26), felt that the general public ought to be given a fair and equal opportunity to contribute to decision-making. Consequently, selecting a representative sample of the public necessitates consideration of who is interested in and affected by the waste strategy or facility location, together with the social context in which public engagement takes place. The research revealed that the latter is associated with the type of facility (i.e. whether is it contentious) and the local situation (e.g. its culture, values and history).

While representation dominates discussion regarding the effectiveness of public engagement (Creighton 2005, Rowe and Frewer 2004), there are also concerns about whether the expertise will be broad-based enough to cover the range of issues pertinent to waste management. As noted above, the engagement of people with diverse expertise and views is advocated in potentially controversial situations or where there are trust issues in order to draw out different interests, allowing 'fixed positions' to be challenged. However, a problem with widening public representation is how to integrate information from different stakeholders on the basis of the interests and values that they represent (Rauschmayer and Wittmer 2006), an issue also raised through the research:

> *Our technical team scored the options on a number of objective criteria and we*
> *presented these scores, along with the more subjective data from workshops (e.g.*
> *perceptions regarding public health impacts, nuisances such as dust and noise) in a*
> *report to our Executive. Overall, it was difficult to adopt a methodology that*
> *combined the technical results and subjective data in a fair and equitable way.*
> *- Waste Strategy Development and Implementation Manager, North East England*

The research revealed support for engaging a representative group of the public and technical experts simultaneously (e.g. in separate, parallel sessions), though this was more popular among key stakeholders (88%; N=17) than citizen groups (59%; N=17) or local authorities (49%; N=26). It was suggested that for this to be considered acceptable to the general public there should be good representation of local interests through ordinary residents, who may need to be encouraged and rewarded for participating:

> *Selecting stakeholders and community groups should not limit representation from*
> *the range of people interested in waste and willing to participate, even though those*
> *in authority may feel their participation is not helpful to the process.*
> *- Chairman, Local Action Group Against Incineration*

The community does not have the resources and time of corporations, so local authorities need to recognise, applaud and reward the people that are willing to give up their free time to get involved.
- Campaigner on Waste and Resources, Environmental Organisation

The research confirmed a need for independent and competent facilitation of discussions in order to convert and convey information between scientific experts and ordinary citizens effectively. One challenge is to create exclusionary criteria for public involvement that most participants will consider fair and equitable, in order for the process to be manageable while ensuring that all interests and values are represented.

4.5   Closure
It is important to achieve sufficient closure at the end of an analytical-deliberative process, arriving at a point at which stakeholders agree on the recommendations or, at least, the basis on which decisions have been made. The minimum level of agreement should be a consensus about the nature of dissent. Care needs to be taken not to arrive at premature closure, so the focus during process design should be on establishing procedures for a reflective and reasonably open-ended discussion within a predetermined timescale (Renn 1999; Stern and Fineberg 1996).

In assessing the motivation for and purpose of public involvement, the research revealed that citizens' support for waste management facilities is strongly influenced by whether they feel that they have had a genuine impact on the decision. Some local authorities felt that public involvement is most beneficial if processes are set up for effective communication, as this strengthens groups and avoids stand-offs or impasses:

There is a benefit if there is social input into the process – people are more likely to feel in control of waste management situations instead of feeling the decision has been taken out of their hands.
- Head, Waste Services, Unitary Authority

Analytical-deliberative processes fit in the tradition of direct democracy, reflecting a political belief that citizens have a democratic right to participate and contribute at all stages of decision-making (Dryzek 2001; Parkinson 2003; Petts 2008; Rowe and Frewer 2000; Snary 2002). In order to be seen as legitimate, both by local authorities and the public, they will require institutional validity either through legislation to make deliberative engagement mandatory or regulatory support (including funding). The research suggested that, currently, policies and plans may enter the public arena only after important decisions have been made. In the case of facility proposals, for example, certain conditions in the waste local plan (e.g. site location) may be pre-determined and thus not be open to discussion prior to the application stage.

Experience with deliberative and participatory methods suggests that local authorities are not bound to adopt the recommendations of local citizens, raising questions about the legitimacy of the engagement process. The research implied a need to respond to this problem with openness and transparency concerning the means by which public opinion can influence decision-making. Local authorities with experience of deliberative and participatory events suggested making explicit reference in official documents to comments or recommendations from local citizens that led to changes in elements of the waste proposal or policy. Such documents should also identify suggestions that could not be adopted or addressed and explain the reasons why:

The one thing we were keen not to do was consult people without being willing to change our plans, and indeed a number of public views changed this project.

5.   Conclusion

In the present political climate, in which increased local choice is promised and there is growing momentum for public involvement in waste policy, an opportunity exists for local authorities to refashion traditional consultation techniques to incorporate more inclusive forms of engagement. Effective implementation will necessitate determining the appropriate context for deliberation and the conditions whereby public values may be integrated with technical analysis of waste management options successfully. The approach to public engagement and shaping of activities that initiate learning and build trust among participants will require careful consideration of the nature and complexity of waste issues, the local culture and the potential for controversy.

In order for analytical-deliberative processes to be successful, they need to be adequately balanced and integrated, and to offer fair and equal opportunities for stakeholders, including local communities, to influence decision-making. In adopting a more deliberative approach, the main challenge revealed through the study has been to create effective dialogue in a regulatory culture in which representative rather than participatory (or 'deliberative') democracy has dominated. Inherently this suggests a need for a shift in the disposition of power from technical experts to other stakeholders in the local community.

Important insights into the design of analytical-deliberative processes were revealed through the study. Effective deliberation necessitates clear understanding of, and agreement on, (i) the relevant evidence and expertise required to inform the process, (ii) access to information and its communication, interpretation and assessment, and (ii) the procedure for reflection and closure. Adequate time for deliberation and support must be offered to citizens to enable them to interpret information and to question and challenge evidence or expertise; this is a prerequisite to maximising social interaction and utilising opportunities for mutual learning and trust-building. The information provided to citizens should be of an interactive and visual nature in order to cater for a range of cognitive abilities and reduce inequalities in communicative resources that otherwise restrict public participation. Sufficient resources will need to be provided, perhaps including incentives, to encourage ordinary citizens to be involved.

The research revealed that the appropriate level of public involvement depends on the nature of the waste management problem and the policy context. Varying levels of deliberation may be undertaken, depending on the type of technology or waste facility under consideration and on the local situation. Where there are high levels of ambiguity or disagreement, local authorities should extend the boundaries of participation to establish genuine partnerships between public representatives, technical experts and decision-makers. This demands a more collaborative approach, in which stakeholders, including local communities, take an active role in structuring the debate, determining the criteria and participating in evaluation of options. Involving a wider group of participants, specifically in consideration of the risks, should clarify the views of various stakeholders and the level of assessment necessary to achieve an adequate balance between regional and local needs, thus building credibility and trust into the process. The aim is to aggregate and interpret different forms of knowledge in order to solve problems and find common ground. Cost-effectiveness, the availability of expertise and demands on time and other resources will impact on the level of interaction and opportunities for discussion. This is particularly true if citizens are given extensive remits in the process: for example, in waste strategy development they may be asked to contribute to setting policies and targets as well as selecting and evaluating options, while in facility planning they may be asked to help to identify concerns and site selection criteria as well as evaluating sites and facility design.

The potential for using analytical-deliberative processes was addressed in the study at two stages of policy-making: waste strategy development and facility planning. In the case of waste strategy, analytical-deliberative processes may help to reveal the level of ambiguity around goals and priorities for future waste management. This may make it easier to reconcile different perceptions of the risks or other impacts associated with particular policies or technologies. Some scepticism was revealed, however, primarily among local authorities, concerning the potential to adopt inclusive engagement processes during waste strategy development. This was associated with a perception that citizens have less interest in (and potential influence on) broad, strategic issues. Some participants felt that an inclusive approach would suffer from poor public representation and that those who engaged might have known interests (e.g. environmental groups are perceived by some local authorities as having fixed agendas). Another concern was the potential for institutional trust problems arising from a history of local conflict or tension between local authorities (or waste contractors) and other stakeholders; this may affect the level of interaction and so restrict the organisational learning and cultural change needed to correct past assumptions about public ignorance and non-competence.

In the case of facility planning, analytical-deliberative processes raised different issues. Past literature suggested that discussions often become emotive as public involvement moves from strategy to specific site applications and local residents become more fully engaged in the process. The most contentious issues are usually around fixed parameters (perhaps set by policy or location), which are often considered non-negotiable, unlike elements of the proposal such as the design of the facility or routing of transportation. Some participants were aware of the potential benefits of analytical-deliberative processes at the facility planning level, where there are opportunities for trading-off potential negative impacts with positive amenity benefits to the local community. This was most evident in wide support for the use of community liaison groups that encompass early and continuous forms of engagement in the planning process, where success hinges on defining a clear remit for public participation and a willingness to amend the facility proposal in response to input from the local community. The primary explanation for this appears to be the opportunity to find an acceptable balance between regional needs and local impacts, addressing problems relating to perceptions of risk and concerns about impacts and equity. The immediacy of the decision at the facility planning stage may also help to explain support from local authorities, as they need public acceptance of the technology to avoid impasses and stand-offs that may delay or cause refusal of planning applications.

The research has demonstrated that communicating the practical benefits of more inclusive forms of engagement is proving difficult even though planning and policy delays are hindering development and implementation of waste management infrastructure. Some local authorities perceive engagement as time-consuming, costly, politically risky or ineffective and, as a result, there is little opportunity to link analytical-deliberation to institutional or policy change. The study revealed that local authorities are most likely to support the use of analytical-deliberative processes during facility planning. This presents a possibility that expert-citizen deliberation, which provides opportunities to initiate learning processes, develop mutual understanding and resolve conflicts between participants, will cause real change in individuals or small groups, thereby increasing the likelihood of more acceptable solutions. Adopting analytical-deliberative processes at a more strategic level will require local authorities and practitioners to demonstrate how expert-citizen deliberations may foster progress in resolving controversial issues, again through change in individuals, communities and institutions.

Even though extensive forms of deliberation have the potential to resolve disputes, build trust and generate public support, local authorities may remain reluctant to engage in such dialogue with their communities as it exposes them to public review and accountability. It appears that a significant shift in culture will be necessary for local authorities to realise the potential of more inclusive processes.

This calls for political actors and civic society to collaborate in institutionalising public involvement in both strategic and local planning structures.

6.   Acknowledgements

7.   References

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8.   Appendix: Interview questions and questionnaire

Individual interview questions (e.g. local authorities, waste management operators)

Local waste management decision making - focus on issues affecting decisions on suitable sites and installations for treatment and disposal of municipal waste

Objectives, future vision and responsibility for change

What is your role in decision making as it relates to the development of municipal waste strategies?

Can you briefly summarise the process for developing a waste strategy.

What do you consider to be key factors in developing an effective waste strategy?

Who are the main stakeholders in this process? Are other stakeholders likely to identify similar factors as you identified? If not, can you explain why these factors tend to differ for other stakeholders?

In your opinion, what should be the 5 main objectives on the agenda of all stakeholders? Could you explain why these objectives take priority over others?

What is the most important and least important objective? How were you able to prioritise them?

By 2020, where do you expect this city to be in terms of achieving these objectives?

What changes are required to achieve these 5 objectives by 2020?

Who is responsible for leading change in the areas you mentioned? Can you explain why responsibility should be apportioned to this party?

Issues affecting decisions, likely impacts on the problem situation, possible changes and future outcomes

What do you consider to be key factors affecting decisions on suitable sites and installations for treatment or disposal of municipal waste?

From your own perspective, why do you think some citizens and environmental groups object to plans for siting and permitting treatment or disposal facilities?

How can these issues be addressed in order to minimise public opposition and reduce impacts on the planning process?

What are the expected outcomes (in the long-term) should these aspects be addressed?

Debate on deliberation and analysis, possible benefits of analytical-deliberation & expected outcomes

Can you explain how citizens and other stakeholders are involved in developing the waste strategy? (prompt: e.g. data gathering, opinion surveys, consultation, focus groups etc.)

Do you think it is possible to increase levels of involvements beyond what is currently done? (prompt: e.g. adopting citizen panels, juries or combination of methods that give some power of authority to citizens in the decision process)

In your opinion, to what level should citizens be involved in decisions related to the selection of installations for treatment and disposal of municipal waste? Can you explain why?

Do you think it is possible to establish a framework that allows citizens' views and concerns to be considered alongside more technical considerations such as regulatory benefits, environmental impacts and costs - can this be done throughout the entire decision process (prompt: deciding on the issues and objectives, initial planning and development of policy options, assessment/evaluation of options, selection of option or implementation)

What are the likely impacts and outcomes of establishing such a framework to standardise and increased public involvement in planning and decision making? (Follow-up if necessary: Can you explain why you think this?)

Group Interview questions (e.g. citizens' panel, community activists groups)

Topics for Discussion:

What was the purpose of consultation - did it meet your expectations?
Strategy policies and principles
Targets for recycling/composting
Options for future collection, treatment and disposal of municipal waste
Approach to selecting/designating sites for waste management (landfill and other facilities)

How were you selected for the waste focus groups - what are your thoughts about the selection process?

What was the procedure for consultation - did it meet your expectations?
Briefing
Training
Debate
Feedback

What were the main outputs of the consultation - did it meet your expectations?
Consultation analysis
Recommendations
Reporting, feedback and information dissemination
Follow up

Are you satisfied that citizen and stakeholder recommendations during consultation are reflected in current decisions/plans for waste management?

1   **Generic version of the questionnaire (personal details section omitted)**

2

1.0 Targets for municipal waste management

In your opinion, what national targets should English local authorities achieve by 2020? Please select one of the following suggested targets or put forward your own.

The current national waste management figures for 2006/07 are provided as option 3 below.

Municipal waste management	National targets *(Please tick only ONE of the eight options below and ensure option 8 adds up to 100%)*							
	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8. Other target, please specify. ☐
i) Recycling / composting	10%	20%	31%	45%	45%	70%	95%	
ii) Landfill	70%	20%	58%	10%	10%	5%	5%	
iii) Incineration with energy recovery	0%	60%	11%	0%	45%	0%	0%	
iv) Energy recovery NOT from incineration	20%	0%	0%	45%	0%	25%	0%	

3

2.0 Waste management technologies

In your opinion, which technology has the most potential for handling waste left after recycling? Please rank each technology in order of its potential to be situated in your city / town AND across the region / country.

If you think two or more options have equal potential, you can show this by giving each option the same rank (e.g. option i) and option ii) could both be ranked 1 to show equal potential)

Waste management technology (A basic description of the treatment process)	Local technology (for your city / town) (1) = Most potential (5) = Least potential	National technology (for your region / country) (1) = Most potential (5) = Least potential
i) Composting This is a biological treatment process that decomposes green waste such as garden or kitchen waste in the presence of oxygen to produce compost.		
ii) Anaerobic digestion This is a biological treatment process that decomposes green waste such as garden or kitchen waste in the absence of oxygen to produce a gaseous fuel which can be converted to energy.		
iii) Mechanical biological treatment (MBT). This technology combines a waste sorting facility where waste is recycled with a form of biological treatment where waste is composted. MBTs can also process waste to produce a solid fuel (refused derived fuel) which can be converted to electric energy and heat.		
iv) Incineration Municipal waste incinerators combust waste materials at high temperatures to produce steam which can be converted to electric energy and heat.		
v) Gasification Gasification is an advanced thermal treatment process that converts waste materials into a gaseous fuel which can be used to produce energy.		
vi) Pyrolysis Pyrolysis is a chemical treatment process that converts green waste, such as garden or kitchen waste in the absence of oxygen, into a gaseous fuel which can be used to produce energy.		
vii) Plasma arc Plasma arc is a waste treatment technology that uses electrical energy and high temperature to convert waste to a gaseous fuel which can be used to produce energy.		
viii) Autoclaving The waste autoclave is a form of thermal treatment that uses heat, steam and pressure to convert municipal waste into a solid fuel (refuse derived fuel) which can be used to produce electric		

energy and heat.		
ix) Landfill Municipal waste landfill is a site for the disposal of waste materials by burial. The organic component of the waste is decomposed to produce a gaseous fuel which can be converted to energy.		
x) Other technologies, please specify		

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3.0 Stakeholders priorities		
How would you prioritize the following factors if you were asked to assess different municipal waste management technologies? Rank each factor in order of its importance to you.	(1) = Most important	(5) = Least important
If you think two or more options are equally important, you can show this by giving each option the same rank (e.g. option i) and option ii) could both be ranked 1 to show a similar level of importance)		
i) Local environmental impacts Environmental impacts such as air emissions, traffic increase and noise that affect local residents.		
ii) National environmental impacts Environmental impacts such as natural resource use and air emissions that affect the nation on a whole.		
iii) Landfill diversion targets Targets set by government for local authorities to divert waste from landfill. Local authorities face fines if they exceed the amount of waste they are allowed to landfill on a yearly basis (i.e. current fine is £32 / tonne for biodegradable waste)		
iv) Recycling targets Targets set by government for local authorities to increase recycling rates. Local authorities are legally required to meet these targets but there are no financial penalties if targets are not met		
v) Cost effectiveness The financial benefits of the waste management option (e.g. short payback period on technology investment)		
vi) Public satisfaction Local residents' satisfaction with the efficiency and cost-effectiveness of waste services (e.g. frequency of waste collection and costs to householders)		
vii) Public acceptance Local residents and general public acceptance of waste management technology (e.g. compost plant, MBT, incinerator etc.)		
viii) Political support Local councilors support of the waste policy or the waste management technology (e.g. compost plant, MBT, incinerator etc.)		
ix) Funding Funding for waste management technologies and infrastructure		
x) Length of waste contract The flexibility of long waste treatment or disposal contracts to meet higher targets for recycling (e.g. above the national average - 31%)		
xi) Planning approval A democratic planning system which delivers waste management facilities without delays		
xii) Other(s), please provide a brief explanation		

2

4.0 Improving deliverability of waste strategies

In your opinion, what action is most likely to improve how municipal waste strategies are delivered by local authorities?	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Please tick only ONE box for each action					
i) A broad mix of technologies for residual waste treatment approved by central government	☐	☐	☐	☐	☐
ii) A more positive national policy towards incineration with energy recovery as a source of energy production	☐	☐	☐	☐	☐
iii) Increase public education and awareness on waste reduction and recycling	☐	☐	☐	☐	☐
iv) Politicians to make long term strategic decisions that last over the lifetime of several local authority administrations	☐	☐	☐	☐	☐
v) Devolve decision making on waste management from county to town level or allow joint decision making	☐	☐	☐	☐	☐
vi) Include sites for facilities in the waste strategy	☐	☐	☐	☐	☐
vii) Introduce variable charging for waste not recycled by householders	☐	☐	☐	☐	☐
viii) A national statement on the health effects of incineration facilities	☐	☐	☐	☐	☐
ix) Develop the energy recovery potential from mechanical biological treatment (MBT)	☐	☐	☐	☐	☐
x) Independent assessment of local residual waste quantities for more accurate estimates of incineration capacities (e.g. plant size)	☐	☐	☐	☐	☐
xi) More recycling schemes that include source separation (i.e. kerbside recycling) and collection of food waste from households	☐	☐	☐	☐	☐
xii) A more equitable process for siting waste facilities (e.g. close to the point where waste is generated)	☐	☐	☐	☐	☐
xiii) Other(s), please provide a brief explanation					

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5.0 Relevance of knowledge in decision making

Different types of knowledge are relevant to decision making. In your opinion, which type of knowledge is most important to municipal waste management decision making?

If you think two or more options are equally important, you can show this by giving each option the same rank (e.g. option i) and option ii) could both be ranked 1 to show a similar level of importance)

Waste strategy development	(1) = Most important	(5) =Least important
i) Expert knowledge Expert knowledge in scientific, technical, and socio-economic methods of analysis etc.		
ii) Procedural knowledge Knowledge of due process, political, legal and institutional frameworks		
iii) Local knowledge Knowledge of a particular community and locality		
iv) Other, please explain		

Facility Planning	(1) = Most important	(5) =Least important
If you think two or more options have equal potential, you can show this by giving each option the same rank (e.g. option i) and option ii) could both be ranked 1 to show equal potential)		
i) Expert knowledge Expert knowledge in scientific, technical, socio-economic methods of analysis etc.		
ii) Procedural knowledge Knowledge of due process, political, legal and institutional frameworks		
iii) Local knowledge Knowledge of a particular community and locality		
iv) Other(s), please explain		

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6.0 Opinions on early public involvement

Which opinion do you most agree with on EARLY public involvement in municipal waste management decision making?	*Please tick only ONE box for each opinion*				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
i) It is a means to negotiate a workable, relatively fair solution that the vast majority of stakeholders can accept.	☐	☐	☐	☐	☐
ii) Involving citizens and 'non-experts' in complex decisions could create misunderstandings and misrepresentation of issues	☐	☐	☐	☐	☐
iii) It reduces opposition to waste facilities because citizens are encouraged to take joint ownership of the problem early in the process	☐	☐	☐	☐	☐
iv) It could potentially polarize opinions and provide an excuse for local authorities not to take action	☐	☐	☐	☐	☐
v) It gives the public a feeling of 'real engagement' and enhances the political or democratic process	☐	☐	☐	☐	☐
vi) It is an antidote to public meetings which can be adversarial and leave citizens feeling very frustrated and disenchanted	☐	☐	☐	☐	☐
vii) The decision regarding the type of facility, its location and the general benefit to society has to be debated by experts and politicians. In practice, citizen opinion is considered but unlikely to influence the final decision.	☐	☐	☐	☐	☐
viii) Other(s), please provide a brief explanation					

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7.0   Factors affecting public involvement

In your opinion, which factors are most important in determining the level to which citizens are involved in municipal waste management decision making?	(1) = Most important (5) = Least important
If you think two or more options are equally important, you can show this by giving each option the same rank (e.g. option i) and option ii) could both be ranked 1 to show a similar level of importance)	
i) Type of waste facility It depends on whether the facility proposed is contentious (e.g. incinerators vs. household waste recycling centre)	
ii) The local situation The sensitivity of the locality (e.g. urban vs. rural area), the history of local waste management practice and residents' opinion on waste facilities etc.	
iii) Trust in expert opinion The extent to which citizens and those in authority agree with 'expert' opinion	
iv) Costs of public engagement strategies The added costs, time and resources required for early public involvement	
v) Selection of consultees It depends on who is selected to represent local residents or general public interest	
vi) Expertise on public engagement strategies Experience and expertise on appropriate strategies and techniques for public involvement	
vii) Public stance on waste issues The public's opinion on waste issues and their willingness to negotiate their position	
viii) Public interest in waste management The extent to which the average member of the public is willing to be involved	
ix) Public knowledge and awareness of waste issues The extent to which citizens understand sustainability aspects of waste management	
x) Stage in the decision process The possibility that citizens are more likely to be engaged when sites have been identified (i.e. facility planning stage)	
xi) Other(s), please provide a brief explanation	

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8.0   Level of public involvement

Which option do you most support (or agree with) for involving the public EARLY in municipal waste management decision making?

Waste strategy development	*Please tick only ONE box for each action*				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
i) Citizens should take part in defining objectives and criteria to identify waste management technologies	☐	☐	☐	☐	☐
ii) Citizens should take part in setting criteria to evaluate waste management technologies	☐	☐	☐	☐	☐
iii) Citizens should be consulted on a range of short listed waste management technologies	☐	☐	☐	☐	☐
iv) Other(s), please explain					
Facility Planning	*Please tick only ONE box for each action*				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
i) Citizens should take part in defining objectives and criteria to identify waste management technologies	☐	☐	☐	☐	☐
ii) Citizens should take part in setting criteria to evaluate waste management technologies	☐	☐	☐	☐	☐
iii) Citizens should be consulted on a range of short listed waste management technologies	☐	☐	☐	☐	☐
iv) Other(s), please explain					

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9.0   Approach to early public involvement

Which approach do you most support (or agree with) for EARLY public involvement in municipal waste management decision making?

A) How to select consultees and when to involve them	*Please tick only ONE box for each approach*				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
i) Consult a small group early on and the general public after the strategy is developed	☐	☐	☐	☐	☐
ii) Consult technical experts and a representative group of the public simultaneously, early in the process (i.e. in separate parallel sessions)	☐	☐	☐	☐	☐
iii) Ensure the entire public is given a fair and equal opportunity to be involved in decision making at strategy and facility planning level	☐	☐	☐	☐	☐
iv) Include local politicians in the consultation process either by engaging them early on or alongside the general public after the strategy is developed	☐	☐	☐	☐	☐
v) Include the media in the consultation process either by engaging them early on or alongside the general public after the strategy is developed	☐	☐	☐	☐	☐
vi) Use a more structured approach to public involvement in terms of a careful selection of consultees (i.e. representative group of the public)	☐	☐	☐	☐	☐
vii) Establish community liaison groups with local residents for ongoing consultation during facility planning and construction	☐	☐	☐	☐	☐
viii) Other(s), please provide a brief explanation					

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B) Levels of involvement and methods/techniques to adopt	Please tick only ONE box for each approach				
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
i) Get residents to think about the targets for recycling and preferences for different types of technologies and collection schemes and then use that to identify the range of options	☐	☐	☐	☐	☐
ii) Give the public direction on the aims of the waste policy; educate them on the types of technologies and associated environmental impacts before soliciting their opinions	☐	☐	☐	☐	☐
iii) Local authorities and citizens should jointly select experts or be able to put forward their own independent experts whose views should be given equal weight in decision making	☐	☐	☐	☐	☐
iv) Use a select committee made up of residents, politicians, local authority officers and other stakeholders to discuss waste issues, gather evidence and jointly make decisions	☐	☐	☐	☐	☐
v) Use surveys and opinions polls for consultation on the strategy and consensus panels or focus groups for consultation on facility sites	☐	☐	☐	☐	☐
vi) Use a combination of different methods (e.g. surveys and focus groups) for consultation on the strategy and facility sites	☐	☐	☐	☐	☐
vii) Where focus groups or consensus panels are used, employ independent facilitators with experience and expertise on citizen engagement events	☐	☐	☐	☐	☐
vii) Use alternative forms of communication such as online chat networks, emails and blogs to involve the younger generation (under 24 years of age)	☐	☐	☐	☐	☐
viii) Solicit ideas from the public on the types of activities and events to involve a wider group of people	☐	☐	☐	☐	☐
ix) Other(s), please provide a brief explanation					

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Other information

Please provide any other information relevant to the questions above or generally to the topic of public involvement in local waste management decision making.

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5 Thank you for taking the time to complete this questionnaire.

6
7 Return details and address omitted.