

1. Introduction

This project, commissioned by the DEFRA Waste Evidence Programme, was designed to gather insight into young people's understanding, attitudes, motivations, and barriers to community participation in kitchen waste kerbside collections. This report details the project process and sets out conclusions and recommendations. Separate annexes provide detailed project outputs and other data.

The project worked with groups of young people in a way which enabled them to research the background to and develop their own understanding of these locally and nationally significant issues, establish the local administrative context within which their research was taking place, identify potential strategies to reduce the amount of waste going to landfill, undertake and report first-hand investigations of the perceptions of peers and adults in their communities about these strategies, and finally make informed recommendations about the most appropriate ways to meet policy objectives. The project employed an action research process that had previously been successfully developed, used and evaluated by WTA Education Services Ltd working with schools and youth groups in the contexts of [a] biodiversity conservation, [b] energy use reduction, and [c] radioactive waste management. The project involved working closely with waste managers and education officers from Luton and Aylesbury (Annex 1), and with teachers from selected Luton and Buckinghamshire schools (Annex 2), all of which were identified through discussions with the relevant education officers and waste management staff in each local authority. Members of the project Steering Committee (Annex 3) provided on-going advice and commentary in relation to the UK national waste context, as well as on strategic project matters. An internal project evaluator, whose role is set out in Annex 4, and report is in Annex 5, provided on-going formative feedback to the WTA project worker and the Steering Committee.

The project worked with young people in schools and youth groups within Luton Unitary Authority, Aylesbury Vale District Council, Wycombe District Council, and Chiltern District Council. The target participation was 19 schools, 9 in Luton and 10 in Aylesbury / Buckinghamshire, and a youth group in Luton. One of the Luton schools withdrew at an early stage, but the remaining eight schools and the youth group completed all stages of the project. Although two of the 10 schools recruited in Aylesbury / Buckinghamshire also withdrew, this occurred at a later stage in the process which meant that data in relation to food waste management options were available to the project.

Work took place over the 2006/07 school year. The young people: [1] were introduced to issues around food waste by the WTA project worker; [2] formed research teams and conducted desk research to understand the wider context; [3] discussed and identified possible options for consideration by policy makers; [4] devised and implemented a primary research strategy to investigate the views of peers and significant adults; [5] analysed results and used these to finalise their preferred policy options, and [6] reported and discussed their ideas at two end-of-project conferences in Luton and in Aylesbury, which were attended by, representatives of all the research teams, steering committee members, the appropriate waste management and education officers, Council officers and elected members.

The remainder of the report is structured as follows:

2. Project Objectives
3. The Policy Context: Sustainable Development, Education and Waste
4. Project Methodology
5. Project Outcomes and Discussion
6. Implications and Recommendations
7. Possible Future Work
8. Action Resulting from the Research

2. Project Objectives

2.1 Objectives agreed with Defra

1. To provide insight into understanding, attitudes, motivations, and barriers to participating in kitchen waste kerbside collections.
2. To investigate the behavioural determinants for participants and non-participants, both at the individual and household level.
3. To ascertain the effects of scheme design variables on participation rates and bio-waste collected, in the context of different socio-demographic groups and housing types.

2.2 Achievement of objectives

Objective 1 was achieved in full.

This objective was pursued through the WTA project worker's direct involvement with groups of young people in the schools and youth group to investigate their understanding, attitudes, and motivations in relation to kitchen waste, and their perceptions of the barriers that exist to wider participation in kitchen waste kerbside collections. 2532 young people were directly involved in this. Details of how this work was carried out in the Inception phase of the project and in Stage 1 are set out in Section 4.2 of this report. As indicated in the initial proposal, this part of the project was carried out with young people who were identified by the schools which took part in the project. In addition to data on young people's understanding, attitudes, and motivations (Annexes 6a and 6b – Session 1 Questionnaire and Results), which are fully discussed in section 5 of the report, the key outcome of this part of the research was the identification of 12 potential policy options for managing food waste (Annex 7). In order to provide construct validity, these options were discussed with the steering committee which approved their use in the next project stage in young peoples' own primary research with their peers. Analysis of Stage 1 data indicated that responses were consistent irrespective of ethnic and/or socio-economic profiles of the schools.

Objective 2 was achieved in full in relation to individuals, but, with the full approval of the steering committee, was not pursued in relation to households.

This objective was pursued through the WTA project worker's mentoring and support of young people working in research teams through a series of action research exercises that enabled them in Stage 2 of the project to prepare and undertake their own primary research with peers. Details of how this was carried out in Stage 2, and reported in the conferences in Stage 3, are set out in Section 4.2 of this report, and data are fully discussed in section 5. Following discussion and agreement by the steering committee, issues relating to socio-economic groupings and housing types were not included in questionnaire designs at any stage of the project because, as noted above, responses were consistent irrespective of ethnic and/or socio-economic profiles of the schools.

Research teams in each school investigated potential methods for food waste collection and composting and presented their ideas to the WTA project worker. As neither Luton nor Aylesbury Vale local authorities at this time had initiated any trial food waste collections, many groups considered food waste as another form of green waste to be composted. However, the expansion of the sample more widely into Buckinghamshire, and allowing the definition of food waste to include green waste and composting, enabled some groups to discuss the practicalities of food waste collection in a context they understood. From this more informed view, the groups of young people refined and developed possible methods that would encourage people to recycle and reduce their food waste. This resulted in a series of strategies and scheme implementation ideas that were summarised in the final conference reports (Annexes 8a and 8b).

Objective 3 in its original form was, with the full approval of the steering committee, not achieved owing to anticipated local initiatives not yet being in place. Work relating to one aspect of this was completed.

It was not possible to undertake work in direct relation to *Objective 3* as no food waste collection schemes had yet been initiated in either Luton or Aylesbury Vale local authorities. However, discussion with the steering committee suggested focusing on making recommendations about the initiation of schemes that could inform local authorities. Both local authorities wished to have such advice from young people prior to implementing their own schemes. Accordingly the research undertaken by young people focused on current habits with regard to green waste, and an assessment of people's willingness to adopt food waste strategy options. Young people focused on what would overcome a lack of participation in current schemes. Details of their policy options and their implementation are included in Annexes 9a and 9b. These show the research groups' rankings of potential policy options as a result of Stage 3 activities and prior to deliberations at the end-of-project conferences.

Further details of all these processes and outcomes follow in discussion of the conference where ideas for overcoming barriers to involvement in food waste collection are given. Before discussing these, a policy context is given for the research in terms of the role of the action competence approach discussed in this section. The perceived relevance of the policy options to the national waste strategy and potential actions to help design food waste schemes are given in the conference reports (Annexes 8a and 8b).

3. The Policy Context: Sustainable Development, Education and Waste

3.1 International Context

It is important to see the issue of waste in general, and food waste in particular, in the context of wider environmental concerns, as waste is one of many critical, and inter-connected, problems that the world now faces. As such, it seemed essential for this project to place waste within the thinking by both Defra and DCSF about sustainability and sustainable development. Over the last 20 years, the idea of sustainable development has come to be seen in policy circles across the globe (e.g., UN agencies, national governments and international non-governmental organisations (NGOs) as the most appropriate way to conceptualise that range of social / environmental issues that threaten both the integrity of the biosphere, and human well being (IUCN 1980, WCED 1987, 1993, UNCED 2002). Sustainable development has been defined in many ways but the most familiar definition remains that given in the Brundtland Commission report (WCED, 1987):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

However, a more useable (and hence more useful) view on sustainable development is than contained in the government's response (DfES, 2006b) to its consultation about a framework for dealing with sustainability issues in schools:

Sustainable development is a way of thinking about how we organise our lives and work – including our education system – so that we don't destroy our most precious resource, the planet. From over-fishing to global warming, our way of life is placing an increasing burden on the planet, which cannot be sustained. Things which were once taken for granted such as a secure supply of energy or a stable climate do not look so permanent now. If our prosperity is tied to the health of the planet, then no one's well-being is secure unless the environment is protected. If we cannot prosper in a world that suffers from poverty, inequality, war and poor health, then our future is intimately bound up in the future of other people and places. Sustainable development means inspiring people in all parts of the world to find solutions that improve their quality of life without storing up problems for the future, or impacting unfairly on other people's lives. It must be much more than recycling bottles or giving money to charity. It is about thinking and working in a profoundly different way.

Through the 1990s, and continuing into this present decade, education and training interventions (and hence the learning accruing from these) have been seen as important strategies within sustainable development policies, especially by UN agencies. In this, education has been increasingly thought of as 'Education for Sustainable Development' (ESD). Clearly, the issue of waste: reducing its production, and dealing with it appropriately, is central to any strategy for sustainable development, and it follows that ESD programmes focused around waste issues also have considerable significance.

In 2002, resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005-2014) was adopted by the UN General Assembly, and UNESCO was designated as lead agency. The UN Decade aims to promote education as a basis for a more sustainable society and to integrate sustainable development into education at all levels and all areas of life including communities, the workplace, and society in general. The Decade website says that ESD is about learning to:

- respect, value and preserve the achievements of the past
- appreciate the wonders and the peoples of the Earth
- live in a world where all people have sufficient food for a healthy and productive life
- assess, care for and restore the state of our planet
- create and enjoy a better, safer, more just world, and
- be caring citizens who exercise their rights and responsibilities locally, nationally and globally.

UNESCO's overall goal for ESD is to build capacity to work for sustainable futures, to make people better informed, ethical, responsible, critical, and willing to take social action, based on an integrated approach to economic, social and environmental issues. In 2006, UNESCO identified four thrusts of ESD: [1] improving access to quality basic education, [2] reorienting existing education to address sustainability, [3] developing public understanding and awareness, and [4] providing training programs for all sectors of private, governmental, and civil society. Given the difficulties with waste in the UK (over-production and problems of its disposal), the last three of these are all areas where education and training directed towards waste issues are important, whether as part of general education programmes, or more specific training through, for example, social marketing.

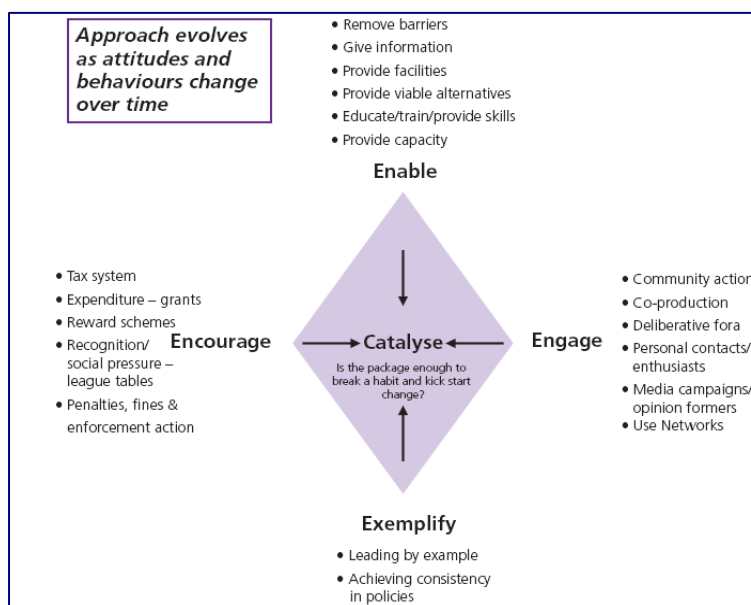
3.2 The English Context

In 2005, the UK Government launched its strategy for sustainable development, *Securing the Future* (HMG, 2005), in which the government set out its long-term aims for sustainable development in the UK. Its immediate priorities for action were:

1. Sustainable consumption and production – achieving more with less
2. Natural resource protection and environmental enhancement – protecting the resources on which we depend
3. Sustainable communities – creating places where people want to live and work, now and in the future, and
4. Climate change and energy – confronting the greatest threat.

The direct relevance of points one and two to waste issues is clear. The relevance of points three and four may be less immediately obvious, but is real nonetheless. *Securing the Future* argues that government must promote a clear understanding of, and commitment to, sustainable development so that all people can contribute to the overall goal through their individual decisions. It acknowledged that, although attitude and behaviour change will be needed to achieve sustainable development, such change is complex, with information alone not necessarily leading to desired change. *Securing the Future* proposed a new, more active, research-based approach to changing behaviour and habits that would be light on regulation and which would focus on the need to *enable*, *encourage* and *engage* people and communities in the move toward sustainability, while recognising that government should lead by *example*. Figure 1 sets out what the elements under each of these headings could comprise. In this view, education is clearly seen as an enabler of attitude and behaviour change, and to have a similar role in relation to sustainable development as it does in promoting healthy lifestyles or civic renewal.

Figure 1



This general activity on behalf of government as a whole was followed by action from the Education ministry. In May, 2006, DfES issued a consultation paper: *Sustainable Schools for pupils, communities and the environment; delivering UK sustainable development strategy* (DfES, 2006a). The paper began:

DfES has reaffirmed its commitment to sustainable development by publishing a two-year action plan to achieve outcomes to underpin a sustainable society. Schools are a key strand of this action plan and are invited to become models of sustainable development for their communities. This consultation paper seeks views from schools and their stakeholders on how we can work together to turn issues like climate change, global justice and local quality of life into engaging learning opportunities for pupils – and a focus for action among the whole school community.

The key ideas here are [1] the connection between action and learning: between what the Schools does, as a community, and what the people in it: pupils, staff, governors, can learn; and [2] the way that schools can

model sustainable ways of working for the wider community. The links to *Every Child Matters*, through the principle that every child should have the opportunity to positively shape society, and their own future, are clear, and central. In a speech on climate change, in May 2004, the Prime Minister (Blair, 2004) said:

Sustainable development will not just be a subject in the classroom: it will be in its bricks and mortar and the way the school uses and even generates its own power. Our students won't just be told about sustainable development, they will see and work within it: a living, learning place in which to explore what a sustainable lifestyle means.

The DfES consultation paper set out a national framework for developing sustainable schools, through which every school was invited to consider its achievements so far and plan what more it could do over the longer term to help the government meet its 2020 sustainability targets. It also set out eight aspects of the work of a school which it terms "sustainability themes" or "doorways" in which action could be taken, and learning occur:

| | |
|-----------------------|-----------------------------|
| Food and drink | Energy and water |
| Travel and traffic | Purchasing and waste |
| Buildings and grounds | Inclusion and participation |
| Local well-being | the Global dimension |

The doorway metaphor is a potentially powerful way of thinking about the task of creating a sustainable school, as each door provides a different opening onto a set of common challenges, and each has relevance for the major areas of school life: curriculum, campus, community. The outcome that Sustainable Schools looks for is:

- pupil learning that integrates academic, practical and ethical concerns
- reduced resource use by schools (and families) with financial savings, and
- increased awareness of global issues around water and energy availability (now and in the likely future), with an enhanced motivation to get involved in action to address the issues (both locally and globally).

and in doing all this, the school, as a community of interested citizens, becomes a model for similar action and learning elsewhere. The report on the consultation (DfES, 2006b) contains a quote from Alan Johnson which re-emphasises the action – learning – modelling point that's at the heart of the Sustainable Schools idea:

Schools are there to give children the knowledge and skills they need to become active members of society. Many children are rightly worried about climate change, global poverty and the impact of our lifestyles. Schools can demonstrate ways of living that are models of good practice for children and their communities. They can build sustainable development into the learning experience of every child to encourage innovation and improvement.

The DfES designated 2006/7 as a Year of Action (DfES 2006c), by the end of which it was hoped that:

- all schools will have received information about the sustainable schools strategy.
- at least 60% of schools will have addressed the goals of the strategy in their school development plans.
- 90% of schools taking action on sustainable development will consider that the action has had, or will have had, a measurable impact on the pupils' knowledge and understanding of sustainability issues and/or improved the schools' environmental performance.

Although this Food Waste Consultation project was conceived before the Sustainable Schools consultation (and subsequent implementation), it did anticipate its arrival in several ways:

- its overall focus on waste issues – a significant topic nationally, locally, and for individual families
- its emphasis of links between the work of schools and the wider community
- its encouragement of a curriculum focus on waste
- the engagement of young people with real socio-political issues, and
- the bringing together of the curriculum focus and community action.

This much was common across the project. However, the young people in the participating schools and youth groups lived in areas which not only have different approaches to waste collection (in terms of what is collected, and how this is done), but also are in different positions in terms of developing structures and processes for food waste. For example: Luton Unitary Authority is trialling a food waste collection scheme;

this started in some areas of the authority towards the end of the project (10 groups); Aylesbury Vale District Council itself currently does not operate a food waste collection scheme (7 groups). Crucially, they all have unique experiences of how waste matters are thought about and dealt with in the home, within extended families, and in the local community. This personalised experience of centralised policy initiatives was important for the project to capture, hence an early emphasis on having young people reflect on their own context was thought important.

3.3 A Strategy for Waste

Understandably, the government's waste strategy sits squarely with its wider sustainable development policy. For example, it says that we must reduce waste by making products with fewer natural resources, and break the link between economic growth and waste growth; that most products we use should be re-used or their materials recycled, with energy being recovered from other wastes where possible, and that for (only) a small amount of residual material, landfill should be available. The waste hierarchy: *prevention – re-use – recycling / composting – energy recovery – disposal* is increasingly familiar, and good examples are now seen. It is less likely to be known and acted upon in the schools sector than in other areas, as too much of the emphasis to date has been about recycling where messages, if not handled sensitively, can too easily give the impression that waste is ok *because* it can be recycled (or composted).

The strategy's emphasis that the dividends of applying the waste hierarchy will not just be environmental, but will also result in financial savings echo the strong message within sustainable schools where financial savings to the school are put forward as a very tangible carrot. Although there is no overt emphasis on the role of learning in the strategy, it is clear that much learning will need to be done if it is to be successful and if targets are to be met. Most of this learning will likely not be the outcomes of formal education programmes involving young people. More likely it will occur within families, communities and workplaces, and may be the sort of learning that is never actually described as such; rather it will be seen as behaviour change, a shift in habit, or a switch in how things are thought about without due recognition that all such processes fundamentally involve learning of the most fundamental kind.

This is not to argue that schools are not important to such a strategy, or that what young people learn cannot assist in the wider changes in society. Given that young people are citizens consumers in their own right, and are implicated in waste production and reduction, what schools do has to be important. And as the sustainable schools framework argues, it is what goes on across curriculum, campus and community that matters here. When schools become examples of good waste practice, this will make dealing with such matters much easier as it will provide exemplification from a position of strength. There are now some indications that this is beginning to happen. Given that 'purchasing and waste' is one of the eight 'doorways' through which schools are urged to enter the debate about sustainability, and the emphasis that is increasingly placed on helping schools both reduce their waste at source and deal with that waste which remains, we are now beginning to see case studies of what is possible. For example, the City of London Academy now recycles 65% of its waste and succeeded in reducing the amount of waste it produced by 58% over a year: http://www.gos.gov.uk/gol/Environment_rural/Sustainable_schools/. Although cases involving food waste are not yet as common, they do exist, see for example, Bridport primary school's activities: <http://www.teachernet.gov.uk/casestudies/casestudy.cfm?id=506>.

In the summary of the objectives of the (England) Waste Strategy (DEFRA, 2007), there is no mention of education as a specific sector (see Annex 10), save that, of course, all schools are institutions within local authorities which are prominently featured. However, the important roles that schools have in relation to waste and recycling are stressed. This not only occurs under the heading of *Cultural Change* in the sense that "changing how we deal with our waste requires action by all of us as individuals, consumers, householders, and at work and leisure" (DEFRA, 2007: 16), but there is also a dedicated section (pp. 99-101). Specifically, the strategy notes that *Purchasing and Waste* is identified by DCSF as one of the eight *sustainable schools* doorways, and goes on to argue for greater emphasis on promoting the reduction of waste in schools, and for an increase in recycling, citing WRAP's *Recycle Now* initiative as a major development. The Strategy says that:

DEFRA will work with the Department for [Children, Schools and Families (DCSF)] and other partners to help schools overcome barriers to recycling their own waste. This will include:

- clarifying the definition of schools' waste (including local authorities recycling obligations) and encouraging local authorities to provide reliable, high-quality recycling facilities to schools to help them showcase action on waste in their communities;

- providing advice to schools on actions that they can take to improve waste collection and recycling arrangements in line with the DfES national framework for Sustainable Schools;
- providing stronger guidance to schools on how to reduce waste and re-use and recycle more, and make smarter purchasing decisions; and
- working with the DfES and local authorities to establish a National Sustainable Schools Forum to develop and share good practice in enabling schools to address sustainable development in areas like waste, traffic, energy, water, food and procurement.

4. Project Methodology

4.1 Theoretical Underpinnings

The issue of food waste and its treatment is a good example of a topic that bridges national sustainable development policy and the focus that government is encouraging schools to adopt under its *sustainable schools* policy. Waste is a core issue for local authorities in meeting government targets relating to landfill, and it is one of the eight sustainable schools doorways, as is Food and Drink. Thus, food waste is an ideal issue for young people to focus on in education context. Although it is clear that socio-environmental issues need to be worked with in schools, there is no prescription about either how this ought to be done, or where in the curriculum it best fits, although it seems clear that, if it is to be effective, a co-ordinated across-the-school approach will be needed that engages the curriculum, how the school is run and managed, and works with parents and community groups. Project schools, in fact, chose to involve young people in science, geography and religious studies classes, as well as extra-curricular groups that were designated 'gifted and talented'. There is more consensus, however, about the need for active forms of learning, and for the personal engagement of young people with the important issues of the day. It was because of this that it was decided to ground the methodological stance of the project within the well-known and respected approach *action competence*.

Action competence was developed in the early 1990s in Denmark, in the context of school health education, with the goal of developing pupils' critical thinking skills and their abilities to constructively engage with local communities about taking action to resolve problems. Central to the idea of action competence is that it is not the task of schools to solve the political problems of society, or to improve the world through the behaviour of pupils (Jensen, 2002). Rather, developing action competence becomes a formative ideal in a democratic approach to education (Jensen & Schnack, 1997). Thus, action competence is centrally concerned with encouraging positive engagement with political structures (e.g., local authorities / government departments) in order to address current issues (e.g., waste). In this sense, action competence is already found in those views of citizenship in the UK (Haste & Hogan, 2006) which do not privilege electoral or social engagement (i.e., voting and volunteering), but which rather enable a different mode of civic engagement, i.e., making one's voice heard about issues.

Action competence is an approach where a school education is seen as an integral part of an active, engaged democracy which is not a view commonly espoused in the UK. However, this project's focus on young people's offering guidance to local authority (and national) agencies about effective waste strategies does fit squarely with this. Two important aspects of action competence are that actions which are undertaken in a conscious and targeted manner, and that there is a clear distinction between actions and activity. An example of an environmental activity would be young people cleaning up a public area near their school, which, though obviously of value, does not address the underlying issue of why it is littered in the first place. Three key components of action competence are: knowledge/insight (of the environmental problem, a commitment (to solve this problem), and the avoidance of the 'individualization trap' (which sees the solution to socio-environmental issues in terms of personal behaviour change, and is very common in environmental education and ESD) through enabling students to see environmental problems from a structural and interdisciplinary perspective and to develop their competence to take social action (Jensen & Schnack, 2006). This is something that the food waste project set out to do through its active involvement of young people in considering and advising on appropriate policy initiatives.

A caveat is needed here, however. Some who advocate action competence argue that ideas for actions ought to come from young people, rather than schools, teachers, or the community. Clearly that was not the case here as the idea for the project arose out of the bid to DEFRA for funding. Some would also argue that teachers themselves ought centrally to be involved as overseers (but not instigators) of any student activity. Here, again, this project was different as teachers largely left the WTA project worker to manage on-going student activities. They did this, in part, of course because this was a role that he was expecting to have,

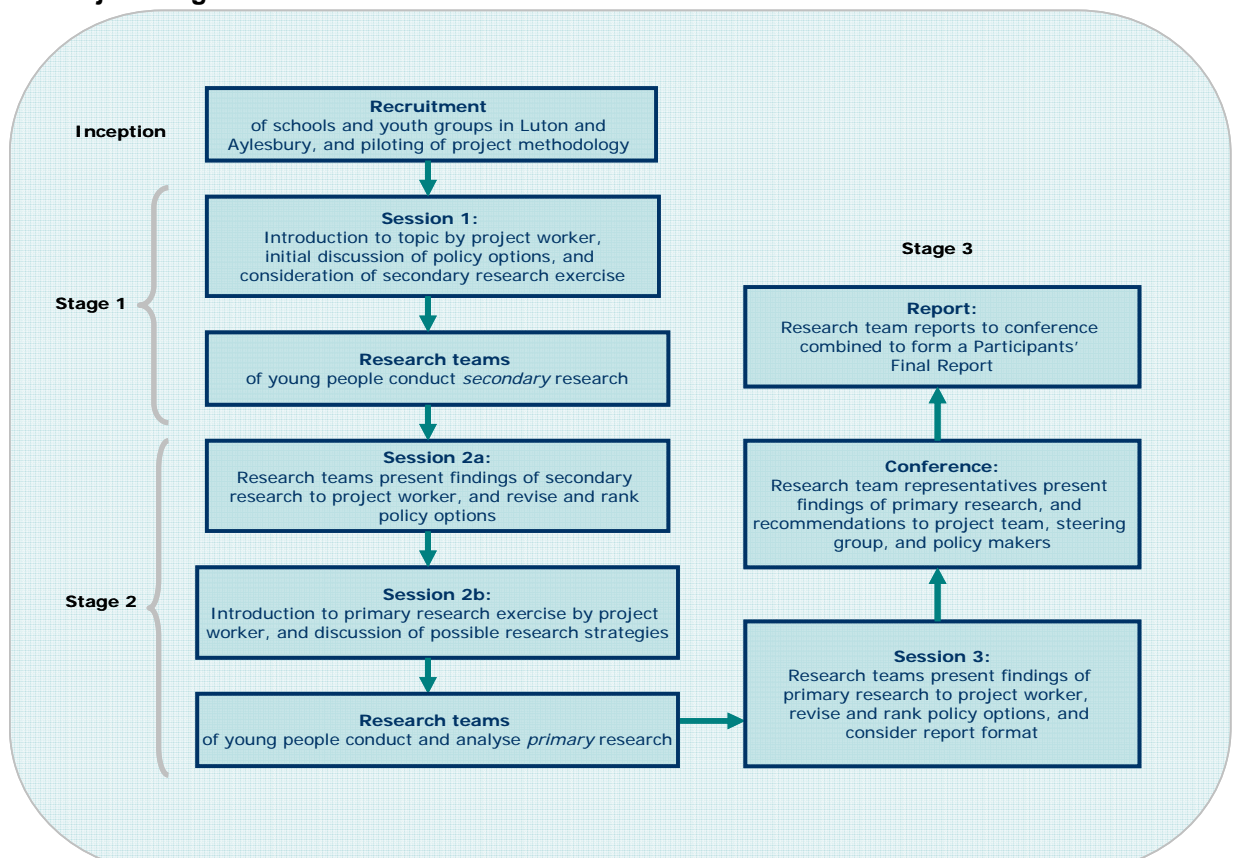
and needed to carry out in order to manage the research process and data generation and collation within the tight project timescale.

It is clear from teacher comments, however, that they also were content to step aside from the day-to-day project management because of the freedom that this gave the groups to self-manage their own work, and the opportunity to develop skills of self-reliance and responsibility. In the event, teachers (and the youth group leader) did maintain regular contact with both the groups and the WTA project worker. It is the case, however, that although schools widely welcomed the initiative as a broadening experience for young people, it was mostly regarded as an *add-on* to existing teaching foci and schemes of work. One reason for this was the inertia found in schools today around the processes of curriculum change, and the accompanying difficulty of accommodating opportunistic activities such as this project in anything other than a marginal fashion; another was clearly the difficulty of deciding where such activities fit within a highly structured and fragmented view of what should be taught and learned by young people which can lead to a lack of certainty about the value of work such as this. This was in sharp contrast to the views of the young people themselves who consistently expressed an enthusiasm for the sort of research processes that the project embodied, and which they were not normally available to them as routine components of school work. Despite an initial scepticism as to whether anyone would take them seriously, the young people also expressed a willingness to engage with the community and to contribute ideas and address problems in relation to local issues, in consultation with agencies and institutions. This is an old tension, of course, around the purposes of schools and the nature of knowledge.

4.2 Practical Project Implementation

As with other very successful uses of this approach in schools by WTA, the project was conducted over a school year. Following an inception phase in which groups were recruited and methodology trialled, there were three distinct stages to the project, each of which was sub-divided into specific interventions with the groups of young people by the WTA project worker and research conducted by the young people. In the sessions facilitated by the WTA project worker, the young people worked through a range of exercises to help frame their discussions of the issues and their evolving understanding. They were also provided with written guidance to help frame their own research in order to provide as consistent and rigorous an approach as possible across all groups. This guiding approach (which was enabling rather than rather prescriptive) allowed ownership of strategies to remain with the groups which encouraged commitment and maintained engagement across them. Figure 2 summarises the project process.

Figure 2 The Project Stages



Each of these stages and sessions will now be briefly described:

Inception Piloting – with the WTA project worker – developing ideas and instrumentation

Working with groups in three pilot schools, the WTA project worker trialled both the approach to the project, and the instrumentation (power point presentations / questionnaires (Annex 6a) / key question research / etc.). The questionnaires focused on the young people's views of how food waste might be minimised through actions that local authorities could undertake. When the questionnaire had been developed, the school groups were asked to complete it and the WTA project worker analysed the ensuing data. From an analysis of some of these data it was possible to identify twelve potential policy options for managing food waste (Annex 7). These were then discussed and agreed with the Steering Committee in order to provide *construct* validity of them as appropriate options to use in further work with the groups in the project.

Stage 1 Session 1 – with the WTA project worker – surveying young people's views

An overview of the DEFRA process by the WTA project worker was given to either a whole class of young people as part of a science, geography or gifted and talented group lesson, or at a lunch time meeting of a school eco-committee. The questionnaire (Annex 6a) was then completed by the young people to identify their current habits and understanding of ideas concerning composting and food waste. Composting was used as the organising idea in this as not all areas had a food waste collection service. This generated an understanding of the level of young people's knowledge and their ideas at the start of the research process (Annex 6b).

Stage 1 Young People's Initial Research

The young people were then asked to research key questions about food waste and its treatment in order to ensure they had appropriate background knowledge and understanding relating to, for example: the amount of food waste now produced in England, current government targets for reducing waste going to landfill, and available options for managing food waste. They were given details of web sites (Annexes 11a and 11b) that could provide information to help answer the questions, and asked to make notes of their views on the utility of the sites after they had tried to use them. They were asked to present their findings to the WTA project worker in session 2a.

Stage 2 Session 2a – with the WTA project worker – reporting initial research findings

Each group's research was reported to the WTA project worker, and jointly reviewed and discussed. Matters of accepted fact relating to food waste management were established. The 12 potential policy options, derived from the initial questionnaire data with pilot schools, were presented to each participating group and, following discussion, each was asked to confirm that these 12 options accurately reflected their own deliberations, and that each was plausible, thus strengthening the construct validity of the options, established through the Steering Committee.

The WTA project worker then used a 'pyramid ranking' exercise (Annex 12a) with each group, focusing on the 12 policy options. This exercise required users to identify most- and least-favoured options and facilitated an evaluative discussion around the value of the options, and their likely practicability in overcoming barriers to people's involvement in food waste management. The outcome of this was that each group agreed a 1-to-12 ranking of the policy options that informed their own subsequent research with others.

Each group was then asked to nominate a small research team to carry out research with other young people and, in some cases, adults. The purpose of this research was to get feedback on rankings in order that they could then evaluate their own preferred orderings.

Stage 2 Session 2b – Young People's Research Team Activity

Working with the WTA project worker each of the 19 groups established research teams comprising, in total, 206 young people. Each newly-formed research team discussed how they might undertake locally-based research with their identified target audience, for example, using the questionnaire and the 'Pyramid Ranking' exercise introduced in Session 2a. The WTA project worker discussed with the teams a research framework (Annex 12b) that would help ensure consistency of approach across the project.

Overall, the research teams consulted 2532 other people: 872 in Aylesbury / Buckinghamshire; 1660 in Luton (see Annexes 13a and 13b for research profile details). Each research team was asked [1] to conduct an initial analysis of data, and to refine their ideas based on this prior to meeting with the WTA project worker, and [2] to provide written reasons to the WTA project worker for their suggestions about the ranking of the policy options.

Stage 3 Session 3 – with the WTA project worker – reports from research teams

The research teams presented their results to the WTA project worker. Following discussion, each team then confirmed its preferred policy option rankings using the data they had collected. They did this by ranking the options using a 'dot exercise' method (Annex 14a) that necessitated a sharing out of 50 points amongst the options, giving the highest number to what they negotiated amongst themselves as the most important options.

The research teams were asked to describe their recommendations for implementing the policy options (Annex 14b). Consolidated sets of results were produced in both Luton and Buckinghamshire, identifying preferred policy options, and discussing strategies for encouraging people to participate in food waste management schemes (see Annexes 15a and 15b).

The teams reported their research findings, recommendations and final results in the form of a report to the WTA project worker using a report outline (Annex 16) provided by the WTA project worker. Examples of the submitted school reports are included in Annexes 17a and 17b.

Stage 3 Conferences – discussing research outcomes with stakeholders

Two summative, day-long conferences were held in Luton and in Aylesbury. The programmes for these are at Annexes 18a and 18b. Three representatives from each of the research teams presented their findings at these conferences that were hosted by members of the waste management team in each local authority. Following a recap of the purpose of the research, the conferences began with a presentation by the WTA project worker of the overall rankings of policy options in both local authorities (see Annex 19), together with a brief summary of specific recommendations made in respect of each one.

This was followed by mixed-school small group discussions of these results with plenary feedback on both the rankings and recommendations for preferred policy focuses. Each group then had the chance in plenary to explain why they supported (or did not support) the ranking that had emerged in the overall synthesis from research teams, and to comment on the recommendations.

After lunch, the WTA project worker introduced the key policy ideas within the UK national waste strategy. Following this, the same small groups reviewed the policy options in the light of the national strategy, identifying which of the key policy ideas matched most closely the policy recommendations, making notes as to reasons.

In the final part of the conference each young person there was asked to reflect on the discussions during the day, especially those in the small groups, and decide finally on their own top three policy preferences. In this way, a final set of recommendations was established which reflected young people's own research, that of the others involved, and the debates that ensued. The outcomes of these processes were recorded for the Luton and Aylesbury / Buckinghamshire areas, and reported separately.

Stage 3 Final Report

The contributions from the research team representatives at the two conferences were combined into Conference Reports (see Annexes 8a and 8b), and are discussed in the next section.

5. Project Outcomes and discussion

In this section, we comment on the outcomes of the work with young people. This is divided into four parts. The first examines the results of their thinking about potential policy options, the second deals with the early work with young people and the initial survey of their views. The third looks at the outcomes of their own research, and the fourth examines the outcomes of the final conferences which represents the conclusions of the project. The fifth and final part examines the thinking behind the final ranking of the policy options

5.1 Thinking about potential policy strategies

After completing the initial research questionnaire (Annex 6a), and working from ideas about barriers to participation, young people refined and developed ideas that would encourage people to reduce and recycle their food waste. From the initial questionnaire survey of young people in pilot schools, twelve potential policy options for the effective management of food waste were identified. These were:

- A Payment in some form of incentive scheme if you compost
- B Fines if you don't compost
- C Someone from the council comes round to show people how to compost
- D Land is provided for neighbourhood composting schemes
- E Young people are trained to support the community in composting
- F Explain how to reduce food waste
- G Explain why you should compost
- H Explain how to compost
- I Provide compost bins at no cost to the household
- J Provide better designed bins (easy to use / nice to look at)
- K Reduced council tax
- L Compost is sold back to households by the council at low prices

These policy options are further examined in Annex 6b where the descriptions given by young people are summarised.

5.2 Initial survey of Young People's Views

Although there appeared to be some confusion concerning the definition of food waste (see examples of the reports in Annexes 17a and 17b), it was clear from the results of the research teams' questionnaire surveys (Annex 6b) that food waste management through collection is seen as desirable, provided there is appropriate communication of its benefits, and concerns about smell and frequency of collection are addressed. The following key points summarise young people's attitudes and motivations at this initial stage of the project, and their thoughts about barriers to supporting a food waste management strategy:

- 1 Young people had a good awareness of recycling and their own household waste collection scheme, and there was no need to explain basic concepts to them. However, this needs to be contrasted with their reported lack of understanding of the techniques of, or science behind, composting, and a lack of knowledge of what happens to waste once it is collected by local authorities. When an explanation of what subsequently happens to waste was provided by the WTA project worker, anecdotal evidence suggests that this was a motivator for young people to take part in recycling schemes.
- 2 The lack of effective communication with residents was a constant theme discussed by all groups. The young people were provided with a wide range of internet sources by the WTA project worker to help them research food waste issues. All participating groups reported that appropriate information was difficult to find from the recommended sources. The young people were also largely unaware of the leaflets and other communication materials that already exist in their local authorities.
- 3 The main barriers to participation in food waste management were reported to be a lack of awareness of processes, a lack of understanding about the reasons why food waste management and composting is important, a lack of household facilities, and an unwillingness to take the personal time and trouble necessary to be get involved and be effective.
- 4 The majority of young people in this project defined food waste as uncooked parts of meal preparation, waste food left on the plate, or out of date food, but there was some recognition that packaging around out of date food can also be classed as food waste.
- 5 The majority of young people surveyed thought that it is food-related waste that is currently composted at home, rather than garden waste, and that this is done mainly by parents (usually mothers) and carers. Subsequent research of parent's views by participants (see examples of reports in Annexes 17a and 17b), however, suggested that food waste tends not to be composted in this way.
- 6 The research in Luton indicates that only a minority of their families currently compost, that a high proportion of families have no compost bins and lack garden space. Respondents reported their concerns about the difficulties of storing food waste, given its possible low collection frequency by the local authority.
- 7 Discussion in groups supported the idea that more effective communication directed specifically at target groups might be effective. NB, in the final conferences the young people commented that effective action might occur were awareness to be developed through some type of appropriate media, perhaps defined by local people themselves, in partnership with relevant council staff, and also that incentives and appropriate infrastructure would help encourage participation. They also thought that making information more readily accessible to people by means of a presence at local events, as a 'face for food waste', for example, would be a good way of providing key ideas and be a means of helping people understand the issues and take action.

5.3 Young People's Research

The exemplar reports (Annexes 17a and 17b) summarise the findings of the research subsequently undertaken by the young people. Significant points include:

1. As with the initial research, space, time and lack of knowledge were cited as reasons for inaction in reports, as were concerns about smell and vermin, suggesting that there needs to be an emphasis on facts about the collection of food waste
2. Knowledge of how to compost, and awareness of alternative recycling schemes appears to be limited. Information sources were known but did not lead to behaviours that increase recycling, reinforcing the points made during the initial research that the provision of information is insufficient by itself.
3. The uses of the products of food waste management need to be emphasised as these were not clear to participants until they researched the issue for themselves – something local people will probably not do.
4. The need for reduction and recycling should to be linked to awareness of landfill issues and the potential use of waste as a resource if people are to understand why managing food waste is something they ought to do. The monetary value of the food waste was often discussed as a key issue by participating research teams.
5. Participants were aware of the limited practicality of incentive schemes, particularly the scope for any reduction in council tax. Group discussions suggest that most participants could not see how necessary infrastructure could be funded through a lowering of taxes.
6. It will be useful to increase understanding of the costs associated with food and other waste management both for the householder and local authorities.

5.4 Research with Peers: Reporting at the Conferences

The research the young people did with their own peers, allowed a refinement of their ideas about the saliency of particular policy options. Each research team presented its empirical data to the WTA project worker and then used this to reflect on their own their preferred policy rankings. Through discussion, they then refined their rankings, and it was these that were ultimately reported to WTA together with their recommendations for implementing the policy options. WTA then combined these, providing consolidated results for Luton, and for Aylesbury / Buckinghamshire, which were used as a basis for discussion at the two conferences (see Annex 19). At the two conferences these consolidated data were discussed, as outlined above. In the final part of each conference each young person there was asked to reflect on the discussions during the day, and then decide on their top three policy preferences. In this way, in each conference, a final set of policy option recommendations was established which reflected young people's own research that of the others involved in their area, and the debate that ensued around these. The outcomes of these processes are shown in Tables 1 and 2:

Table 1 Luton Conference Outcomes

| Option # | Specific Policy Options | Initial Luton Policy Option Ranking | Final Conference Scoring | Final Luton Policy Option Ranking |
|----------|--|-------------------------------------|--------------------------|-----------------------------------|
| G | Explain why you should compost | 2 | 25 | 1 |
| H | Explain how to compost | 3 | 21 | 2 |
| I | Provide compost bins at no cost to the household | 4 | 15 | 3 |
| F | Explain how to reduce food waste | 1 | 7 | 4 |
| A | Payment in some form of incentive scheme if you compost | 6 | 4 | 5 = |
| E | Young people are trained to support the community in composting | 8 | 4 | 5 = |
| C | Someone from the council comes round to show people how to compost | 5 | 2 | 7 |
| D | Land is provided for neighbourhood composting schemes | 9 | 0 | 8 = |

| Option # | Specific Policy Options | Initial Luton Policy Option Ranking | Final Conference Scoring | Final Luton Policy Option Ranking |
|----------|---|-------------------------------------|--------------------------|-----------------------------------|
| K | Reduced council tax | 7 | 0 | 8 = |
| B | Fines if you don't compost | 12 | 0 | 8 = |
| J | Provide better designed bins (easy to use / nice to look at) | 10 | 0 | 8 = |
| L | Compost is sold back to households by the council at low prices | 11 | 0 | 8 = |

Notes

1. The "Initial Luton Policy Option Ranking" was the combined rankings from the research data from the Luton schools and the youth group.
2. The "Final Conference Scoring" is the result of stating preferences at the end of the Luton conference, in which each student had 3 votes.
3. The "Final Luton Policy Option Ranking" is the result of the stating preferences at the end of the Luton conference.

Table 2 Aylesbury / Buckinghamshire Conference Outcomes

| Option # | Specific options | Initial Aylesbury / Bucks Policy Option Ranking | Final Conference Scoring | Final Aylesbury / Bucks Policy Option Ranking |
|----------|--|---|--------------------------|---|
| G | Explain why you should compost | 5 = | 12 | 1 |
| J | Provide better designed bins (easy to use / nice to look at) | 11 | 11 | 2 |
| C | Someone from the council comes round to show people how to compost | 1 = | 9 | 3 |
| F | Explain how to reduce food waste | 3 | 9 | 3 |
| A | Payment in some form of incentive scheme if you compost | 5 = | 8 | 5 |
| I | Provide compost bins at no cost to the household | 1 = | 6 | 6 |
| H | Explain how to compost | 8 | 5 | 7 |
| K | Reduced council tax | 10 | 3 | 8 |
| B | Fines if you don't compost | 9 | 2 | 9 = |
| D | Land is provided for neighbourhood composting schemes | 4 | 2 | 9 = |
| L | Compost is sold back to households by the council at low prices | 12 | 1 | 11 |
| E | Young people are trained to support the community in composting | 5 | 0 | 12 |

Notes

1. The "Initial Aylesbury / Bucks Policy Option Ranking" was the combined rankings from the research data from the schools.
2. The "Final Conference Scoring" is the result of stating preferences at the end of the Aylesbury conference, in which each student had 3 votes.
3. The "Final Aylesbury / Bucks Policy Option Ranking" is the result of stating preferences at the end of the Aylesbury conference.

As can be seen from Tables 1 and 2, at the end of the research phase, there was a clear difference between the favoured policy options identified by the Luton research teams, and those from Aylesbury / Buckinghamshire. In Luton, options F / G / H were the most favoured; In Aylesbury / Buckinghamshire, it was options I / C / F. In policy options G, H, and F, the focus is on *explanation*. Explanation about *why* we should compost (G), about *how* to compost (H), and about *how* to reduce food waste (F). Thus, although focused on the practical issues of doing something about food waste, these options are all *precursors to action*: they are about argumentation strategies (e.g., information / communication / mediation) aimed at putting people in the position where they will both *want* to do something, and also know *how* to do it (in this case, reducing waste in the first place, and then composting that waste which is produced). In policy option I,

the focus is on more practical matters; i.e., on removing barriers to action through the provision of compost bins at no cost to the consumer. Policy option C is also practically-oriented in that people are shown *how* to compost, which presupposes, of course, that they *want* to be shown, and hence assumes that any necessary argumentation has already been effectively carried out.

In summary, in Luton, young people's research led them to focus on precursors to action, on argumentation strategies, whereas in Aylesbury / Buckinghamshire, the research pointed more to action strategies.

5.5 The Thinking behind the Final Ranking of the Policy Options

Something of their thinking behind these final preferences can be seen from the discussions at the conferences. The points in Boxes 1 & 2 summarise this thinking. These came from the young people after they had had a chance to examine the consolidated data from across all the Luton (Box 1), and Aylesbury / Buckinghamshire (Box 2) research teams. To get a fuller perspective on young people's views it is necessary to read the conference reports in full (see Annexes 8a and 8b).

Box 1 Comments from young people on the consolidated data at the Luton conference

- The *why's* and *how to's* are the most important element to a strategy. People need to know why they should compost or recycle. Then they should know how to do it. It would perhaps be more sensible to combine the information-giving options, keeping the emphasis on reducing the amount of food waste we produce in the first place.
- There is a lack of knowledge and understanding of the issues and a need to raise awareness. Explaining how to compost needs to be a multi-media approach and not rely on people doing homework by reading leaflets. They need to be shown how to do it.
- The consequences of recycling affect young people the most and so this is where the training should be focused, perhaps in schools. The training of young people should be added into PHSE (at school).
- Free bins are essential but we need to add a collection service to it in addition to the green waste collections. This could be linked to providing better designed bins.
- Incentives and fines need to be fair. Think about people on benefits or people in flats. Incentives are more important than fines. There are also concerns that people will try to cheat the system and that it will be very expensive to introduce and implement.
- Fines if you don't compost should be moved down to the bottom of the list. The two major concerns about fines reflect the fact that some people could already be composting or should not be fined as they are not producing much waste. It would discourage people, rather than stressing the positives.
- The option of selling compost is sold back to households by the council at low prices is confusing. It contradicts the reduced council tax option; people might not want it; they may think it's another way of making money from them. If it were free they might be willing to take it.
- Only a small amount of council tax goes to pay for food waste, about £50 each year, around £1 per week, so there's not much to reduce it by.

Box 2 Comments from young people on the consolidated data at the Aylesbury conference

- There is a need to combine the options in the strategy, such as information outlining how to reduce food waste, how to compost and why. If you explain why and how, it will encourage people. There's no point giving land for composting if you don't know why you're composting in the first place.
- Knowing 'why' and 'how' are most important. People need to know why they should compost/recycle. It's hard to do individually; it should be done at schools. Also explain if councils don't make their targets, they will be fined, which will be passed onto us to pay through council tax.
- Young people need to be trained on how to compost and this needs to start at a young age. Tie in people at secondary school, there's a lot going on at primary level already on this subject.

- Explaining how to compost needs to be a multi-media approach and not rely on people doing homework by reading leaflets.
- Cheap bins (maybe around £4 to £5). These need to be very good looking, funky designs and colours, with systems to stop odours. Areas of Bucks County Council have bins supplied (compared with Oxford / Thame who have to pay). But getting the bins free will encourage more people to compost. Better designed bins – change the culture to make it more fashionable to compost, especially for young people. Pay for an accessory pack including odour eaters.
- Compost sold back should be free. People should be entitled to a portion of what's gone in and get a monthly allowance of collected compost, but get a bigger share if you do composting yourself.

In the conferences, the focus on explaining not only about how to compost, but also why it is necessary, is clear:

“People won't do it even if it is explained to them. They will not compost if they don't buy into the need for it. Tie this in with the how.” [Aylesbury Conference comments]

“People can't be expected to do composting if they don't know how to. Don't give us homework – come and tell us. Use adverts in communities such as parents evening, community centres, religious centres, pubs, etc.” [Luton Conference comment]

This, taken with the lack of trust in information leaflets, is really an emphasis on the need for learning, with an integrated approach being taken to this, ideally within a social setting, rather than the home.

“People don't like being told to do things through being sent information – they want to make their own decisions.

“Important but time-consuming. Questions can be answered if there is a person. Not many will approve because they might see this as an invasion of privacy if it is to your home, but if it is in the places you want to be seen in, such as religious gatherings, church fairs, fetes, money-raising events, community centres for non-religious people, that will be better.” [Luton Conference comments]

“Very important, demonstration in Tesco's, town centre, squares, etc – give free bin, stickers, balloon, pens, pencils, younger kids will drag their parents along.” [Aylesbury Conference comments]

Explain to companies – they need to be made aware of what can be done. Village fete stall to do this.” [Aylesbury Conference comment]

“There is lack of knowledge even amongst adults who do not know what food waste exactly is. Combine with other information provision but not as leaflets or forms of homework.” [Luton Conference comment]

Usefully, and encouragingly, they see a role for schools as one of the places where young people can learn about waste and compost, and learn about how to compost. Implicit in this is that they will then have a role in communicating with their parents and carers, and for taking some responsibility at home.

“Hard to explain individually, teach at school, list what can be composted on the bin.” [Aylesbury Conference comment]

“Could this be put into PHSE lessons?” [Luton Conference comment]

The lack of interest in negative and positive financial incentives (e.g., fines and discounts), and in charging is equally clear:

“[Fines] might discourage people to start in the first place! Hard to 'police'. Privacy – don't rummage through my bin. Not ethical.” [Aylesbury Conference comment]

“Good for some people but not others, as not everyone lives in a house. Some people might not have enough space, time, money to compost and could be fined unnecessarily. It is punitive and (not) encouraging.” [Luton Conference comment]

These emphases which emerged in the early stages of the two conferences are unsurprising given the options that the young people's research led them to prioritise, and the commentaries offered in the reports that they produced for WTA at the end of the research phase. See Annexes 15a and 15b for the recommendations that young people made during Stage 3 of the process when they discussed their empirical data with the WTA project worker.

The following points should be noted after completion of the three information-gathering stages:

1. When undertaking their research, some groups enquired about information sources for families. Although both parents and children were generally aware of these sources of information they thought that key issues were not being communicated effectively. They reported that there is a lack of connection between the information provided for people, and people's ability to use that information effectively, partly at least because of its presentation. There are indications this has led some young people in the groups to act in an ambassadorial role with peers and parents in an attempt to increase understanding and hence effectiveness. This needs further study.
2. Although groups could see the merit in fines, and some of the research (see examples of reports in Annexes 17a and 17b) indicated that adults suggested they ought to be a high priority. The young people in research teams ranked this option as a low priority deciding that information and incentives were more important initially to any scheme. The young people concluded that fines should not be a top priority for any strategy as they would likely engender too many negative feelings about food waste management. With the introduction of food waste programmes in the local authorities this could be investigated further perhaps with young people devising incentive and information schemes and evaluating their effectiveness versus those already in use by local authorities.
3. Given that reducing the amount of (food) waste is the ultimate goal, this needs to be factored into incentive schemes. The young people were concerned, however, that most mechanisms discussed involved measuring waste sorted and collected as fractions which is not a means to encourage their suggested ideal of zero food waste. Rewards seem to be based on increasing the amount of waste which may be the subject of further research with young people devising ways to reduce waste and link them to incentives.
4. The training of young people to act as ambassadors, or the use of schools as collection points linked to development of local social enterprises was discussed. Although the training of young people in this context is considered important by the participants, a review of the reports from research teams, and the final conference, does indicate potential problems with apathy. Some form of pilot schemes researching the role of schools as collection points and development of school based businesses by students needs to be investigated further.
5. Explanations of processes, and encouragement to reduce waste, were often a top priority, with provision of appropriate bins considered equally important. The issue of smell and storage in flats or limited garden space was often raised, as was the need for frequent collections.
6. The role of schools as collection points for food waste from the community was discussed widely.

The input from local councillors and waste managers to the conferences also highlighted the benefits of involving young people at the end of the research process when their enhanced knowledge and understanding of the issues, coupled with their experience of data gathering, resulted in key actions being discussed, including:

- The potential for young people in Luton to work with waste managers and education staff to help develop communication strategies based upon their recommendations
- The presentation of the reports to local councillors to discuss how to implement young peoples' recommendations and ideas to Committees responsible for waste strategy in Aylesbury Vale
- The potential for inputs into local authority work programmes for waste officers that build upon relationships developed with the young people as an aid to encouraging community involvement.

The recommendations from participants completing the research task and providing reports to the project worker can now be discussed in more detail.

6. Implications and Recommendations

6.1 Implications

As is clear from Tables 1 and 2, in neither conference did all the policy options that had, hitherto, been most favoured by young people survive the critical scrutiny they received when research teams came together. In Luton, the focus on G (explain *why* compost) and H (explain *how* to compost) remained, but option I (no-cost bins, which before had been 4th option, rose to third place), although there was a very clear difference in popularity between the top two option choices (with 59% of option preferences between them) and the remaining 10. In Aylesbury / Buckinghamshire, the focus on C (show *how* to compost) and F (explain how to reduce food waste) remained, although neither of these now occupied the top two slots which went to option G (explain *why* compost) and J (better designed bins). The distinction between these top two options (getting only 34% of option preferences between them) and the remaining 10 was not as clear-cut as in Luton.

Overall, however, the prime emphasis was the same, with the most-favoured from each conference being the same: option G: *Explain why you should compost* which received 25% of all the preferences cast. And this, together with option H: *Explain how to compost*, constituted 43 % of all preferences across in Luton and Aylesbury combined. This would seem an implicit recognition by the young people concerned that the key challenge that policy-makers face is *not* that of making information *available* to people. Rather, it is helping them *access* and *understand* it in the context of their own highly contingent personal circumstances, and then to weigh it, not only in terms of information available from other sources, but also in relation to existing personal understandings, often tacitly held.

The difficulties inherent in this expert to consumer model of information flow are well documented (Kollmus and Agyeman, 2002), and have been categorized by Scott and Gough (2003, 112) as typifying characteristics of what they term *Type 1 theories of social change* where "the citizen is seen as the vector through which objective knowledge is turned into social action". Owens (2000) points out that even governments use this unproblematised assumption, for example in the UK government's 1998 'Are You Doing Your Bit?' campaign to develop public understanding of sustainable development. Of course, this is not to suggest that information is useless or its provision a waste of time. Both information provision and communication are obviously important, but need to be recognised as limited, basic strategies which work only under certain circumstances and need careful targeting.

Daniels (2001) has argued that it is the vital role of pedagogy that is neglected in settings that are not obviously 'educational' which, as noted previously, is a description that applies to most contexts where waste issues are significant. This is another way of saying that the processes through which people learn tend to be neglected because such information-led strategies assume that learning is not significant or necessary. Daniels argues that information provision needs to be viewed as a component of *pedagogic practice* which emphasises the idea that learning is a process that needs some expert mediation that involve 'responsive dialogues' between teacher and taught (i.e., expert and novice learner) in relation to both everyday and scientific understandings. Scott and Gough (2004, 217) argue that the distinction between the instruction and engagement of learners (through information & communication), and the facilitation of learning (through mediation) ought to be based on whether significant parameters and assumptions (i.e., facts & values) are disputed or not. They argue that:

- *Information strategies* are appropriate where there is mutually-acknowledged, near-universal agreement about detailed scientific facts and processes, and values. Here, not only can public awareness be increased, but conservation outcomes may also be achieved by providing timely and appropriate information.
- *Communication strategies* need to be used where there is general agreement about broad scientific and moral principles, but there exist contextual or other obstacles to action. Here, not only can communication clarify and enhance the understanding of issues and generate concern, it may also achieve appropriate outcomes.
- *Mediation strategies* are needed where there is debate about scientific facts, and/or about values. Here, only a strategy which engages learners on their own terms and with their own interests, whilst simultaneously confronting them with the perspectives of others, can advance the cause of conservation through increased understanding/skills/commitment.

In relation to the provision of information relating to waste, whatever the position with regard to scientific facts and processes, there is certainly no evidence of 'mutually-acknowledged ... agreement' in relation to

values, which reinforces the argument that information-lead approaches are not enough. The argument for having a strong communications element to any waste strategy, however, seems sound given the continued existence of 'contextual or other obstacles to action', and the on-going 'debate about ... values' does support a strategy with mediation at its heart. For example, in Aylesbury / Buckinghamshire, the groups discussed the development of communication strategies and how they and their parents have missed the current information provision about waste issues.

One clear recommendation was to consider how to involve youth panels in the review and development of communication methods that are more context-specific and relevant to the audience in question. In relation to showing people how to compost, initial discussions had suggested that young people wanted a simple service to people's homes, but after undertaking research and reflecting on the possibility of demonstrations, they began to think of places where people might be receptive to ideas. This suggested religious centres, community centres and schools. They noted that requiring the household to do the community equivalent of homework, relied heavily on motivation and literacy levels which were not always in place. There were also suggestions about encouraging small scale social enterprises at school so that young people can see from an early age a key benefit from food waste processing. This would be helpful in developing community-based support.

Daniels *et al.* (2007, 139-140), in arguing that the idea of 'navigating knowledge landscapes' is a helpful way of viewing the process whereby people "consult wider sources of information ... so that they can begin to learn more about the relevant aspects of [a problem] ..." quote Shotter's (1997) metaphor that "it is better to think about the complexity of the fluid, complex, continuously changing landscape of everyday life in terms of a seascape that requires navigational skills". Of course, Daniels and his colleagues were discussing how cancer patients and carers can inform themselves about the disease so that they can talk appropriately with experts and gain understanding and agency. Although this may seem a long stretch from waste policy, and the stresses on the learner are most certainly less, the position that the learner in relation to experts and uncertainty around knowledge is very similar.

6.2 Recommendations

It is clear from the work reported here that there is considerable scope, both locally and nationally, to extend and build on the work that has been done in partnership between local authorities and schools in this project on food waste. We set out, below, a number of recommendations in relation to waste policy and the work of local authorities and schools. Although the recommendations that follow are couched in terms of actions that we think that local authorities and schools across the country ought to pursue, we are conscious that Defra and DCSF also have a responsibility to encourage and support schools and local authorities in this work, and the recommendations need to be seen in that light.

The strategy's emphasis on the waste hierarchy could result in financial savings which echo the strong message within the sustainable schools initiative where cost savings to the school are put forward as an incentive. To return to a point that was made earlier, while there is no overt emphasis on the role of learning in the waste strategy, it is clear that much learning will need to be done if the strategy is to be successful and if targets are to be met. Most of this learning will likely not be just the outcome of formal education programmes involving young people. It is more likely that it will occur within families, communities and workplaces and be the sort of learning that is never actually described as such; rather it will be couched in terms of behaviour change, a shift in habit, or a switch in how things are thought about, without due recognition that all such processes involve learning of the most fundamental kind.

6.2.1 Local Authorities

This project has indicated its value for strategy development in relation to policy by successfully involving groups which would not normally be consulted, and has created methods of communication that are relevant to local communities through young people's involvement in research. The groups of young people involved felt initial scepticism about whether their ideas would be listened to by local authorities, and the research method itself has demonstrated the potential for not only involving young people in policy processes, but also in gaining knowledge, skills and insight both about waste and political processes which seem likely to be transferable. This 'action competence' approach is built around encouraging positive engagement with political structures in order to help address current issues (e.g., waste) in a way that does not privilege normal forms of citizenship activity (e.g., voting and volunteering), but which enable making one's voice heard about issues. It would seem that this, despite early scepticism, does have a strong appeal for young people, helping them see the relevance of policy, and is an approach that could be used by local authorities not only to increase civic engagement, but also to develop more effective strategies.

Local Authorities need, and need to be encouraged by government, to ...

- Ensure that traditional information / communication strategies and techniques (leaflets, adverts, etc.) are appropriately targeted at audiences which need and hence will likely use them. Develop sophisticated approaches that allow people to gain understanding of the issues around reducing both total waste, and the proportion of waste going to landfill, doing this by working with groups fully representative of community interests and expertise.
- Involve young people in the design and targeting of local campaigns on waste reduction, recycling, food waste, and composting by working with schools and / or through the development of youth panels which might also help in bin design
- Provide opportunities for local people (of all ages), linked to neighbourhood and social enterprises, to acquire skills in composting and waste reduction, and in teaching others about these, and then provide the means whereby these skills can be used with peer and other groups.
- Consider the use of carefully-targeted incentive schemes that encouraging waste reduction, recycling, composting, etc., and which are selectively used in specific contexts that are sympathetic to their use.

6.2.2 Schools

The provision of school recycling facilities and a visible, efficient and reliable collection process, and a requirement for recycling to become a norm, are essential steps to waste reduction. With these operational, the proportion of waste in schools going to landfill will be cut. However, without a strategy for reducing the creation of waste in the first place, the total amount of waste is likely to continue to increase, as it is clear from the literature that recycling doesn't automatically lead to waste reduction as different sets of behaviours are implicated. Initiatives promoting recycling are easier to diffuse and embed in schools and homes than those setting out to reduce the creation of waste. Given this, financial drivers and incentives are important and schools need to be allowed to keep financial savings from waste reduction for use on educational activities. Students and governors have key roles to play in establishing and monitoring school policies and initiatives in relation to waste, and as this project has shown, there is considerable enthusiasm for such involvement.

Schools need, and need to be encouraged by government, to ...

- Work with local authorities to set up visible, efficient and reliable recycling systems in order to reduce the proportion of waste in schools going to landfill.
- Have a governing body policy to progressively reduce the absolute amount of waste of all kinds produced by school activities, and actively involve students in the on-going monitoring and reporting progress on this policy to governors and the whole school, to the local authority, and to the community.
- Focus on local waste issues, and particularly food waste, as part of their response to the DCSF's *Sustainable Schools* agenda, seeking, to have a positive impact on reducing waste locally, to enhance the value of the curriculum experience for students, and to act as a role model for others in the community. Working with local authority agencies to set up collaborative schemes would be an important aspect of this.
- Take the opportunities afforded by current curriculum reviews to enable active student involvement and responsibility in 'real world' issues through both curricular and extra-curricular activities, working closely with local authorities and other community groups on significant local issues. Creating dedicated time for this in a working week would be helpful.

7. Possible future work

Local authority representatives in Aylesbury Vale District Council and Luton Borough Council and other Steering Committee members have identified potential work as an outcome of the project:

- Consultations of potential national and local strategy during the formulation of policy providing a youth perspective on effective mechanisms.
- Monitoring of activity in relation to minimisation, recycling and waste in those schools that have taken part in this work.
- Development of a Youth Board in Luton, and the monitoring of its work perhaps linked to a consultation project being developed in Luton asking how young people can contribute further towards waste minimisation and reduction.
- It has been recommended [1] that the job description for the Buckinghamshire Waste Partnership's Education Officer includes a substantial element of time for work in secondary schools; [2] that sixth formers, on their community involvement work placements in business and the community, be trained by council officers and master composters, so enabling them to work with younger peers. NB, this is something the students at the Aylesbury conference felt would be very successful given their respect for sixth formers; and [3] that whether recommendations are adopted, and how young people and school managers are able to capitalise on the support provided needs to be monitored.
- Appointing a Waste Education Officer in Luton to promote sustainable waste management within schools, colleges and universities as well as to the residents of Luton.
- It is intended that Aylesbury Vale's newly appointed recycling officer be tasked to focus much of her education work in terms of assemblies and workshops at secondary schools in the Vale. A meeting to discuss the branding of this is to be held with Buckinghamshire County Council officers in September 2007.
- Consultation project in Luton on how young people can contribute towards waste minimisation and reduction.

8. Action resulting from the research

Specific actions already identified include:

- The Sustainability Team Leader in Aylesbury Vale District Council has proposed using project outcomes to help formulate a Waste Partnership (for Buckinghamshire) Education Officer's job description.
- A summary of ideas and options in relation to the Aylesbury Conference on 12th July along with a summary the DEFRA presentation are being presented by to Aylesbury Vale's Environmental Scrutiny Committee meeting to members on 25 September 2007.
- A copy of the Luton Conference Report has been sent to Luton Borough Council's waste management portfolio holders for reference. The outcomes of this project will be used in future promotional activities with schools.
- Presenting the project at relevant conferences.
- Publishing journal articles.