Bridging the Information Gap

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INTRODUCTION

Waste management facilities of every type are unpopular for a wide variety of reasons. Waste-to-Energy (WTE) plants, commonly described dismissively as 'burners' or 'incinerators' are the least popular. Yet any technical, informed and objective review of the facts show that the recovery of energy from material which has reached the end of its useful life has a valid role to play in society. The challenge for society is to ensure that WTE achieves its rightful role within a menu of waste management options, in a balanced, integrated and sustainable strategy. In many parts of the world, sophisticated arguments are presented to sceptical, doubtful and often hostile groups of stake-holders. These arguments explain why and how waste should be managed, and although the technical cases are well-rehearsed, proposals are often rejected by potential host communities, who opt instead for an often inferior solution.

This paper reviews the factors that shape public responses to planned developments which they perceive as unwelcome. The conflict between technically excellent arguments and perception-driven hostility is explored, and a tool-box of responses given by way of advice to waste planners and developers.

WTE - CONFUSED OBJECTIVES

Energy recovery is the most controversial of the waste management options. Everyone agrees that waste prevention is the supreme aspiration, and that there should be a reduced dependency on landfill disposal. Voices of dissent are raised when considering whether energy recovery is a valid adjunct to materials recovery and composting, or merely a waste-hungry prelude to disposal. There are sound reasons for recognising that both opinions have a basis in fact. In many countries waste management strategies are developed around just this confused ambiguity. A brief review of the European Union's waste strategy provides useful illustrations of this situation.

Approximately 60 per cent of municipal solid waste (MSW) in Europe fetches up with no prior treatment in landfills of variable quality. Martin[1] reports that landfill leachate pollutes aquifers at an annual rate of 120 km^2. One of the most significant pressures towards improving landfill operation is aimed at the putrescible fraction of landfilled waste. Composting bio-waste is mandatory in Austria, the Netherlands, several German regions and parts of Belgium. Thirty million Europeans now enjoy selective collection systems for bio-waste. France will introduce a ban on landfilling untreated waste within the next few years. The imminent draft EU landfill directive is set to ban organic wasteprogressively from landfills. Future policy will make pre-treatment of wastes a requirement of landfill. Under the German law, only waste which cannot be recycled may be landfilled. Organic content must not be greater than three or five per cent (depending on the landfill type). It is inevitable that some form of thermal processing will be required for the bulk of German MSW currently landfilled. Here, WTE is regarded as a waste pre-treatment technique.

Renewable energy resources currently provide Europe around 63 million tonnes of oil equivalent (Mtoe) each year, nearly five per cent of primary energy needs. The European Commission's Action Plan for Renewable Energy Sources in Europe was contained in the Madrid Declaration[2], and set a goal of delivering 15 per cent of Europe's primary energy demand from renewables (including biomass and waste) by 2010. Also relevant to renewable energy is the EU Altener programme, which aims:

- to reduce dependence on imported energy
- to protect the environment by limiting emissions of greenhouse gases

Under Altener, the annual contribution of biomass and waste is set to rise across the EU to 20 terawatt-hours per year (TWhpa) by 2005 (up from 6.3 TWhpa in 1991). This resource will comprise 10.4 per cent of all EU renewables by 2005, and will deliver 0.8 per cent of the Union's primary energy demand by that time. One of Altener's targets is for 7.8 per cent of the Union's primary energy demand to come from renewables, compared to 3.7 per cent in 1991. Here, WTE is viewed as a real contribution to renewable energy, with global environmental benefits.

EU policy and the Framework Waste Directive

Council Directive 75/442/EEC established (in 1975) the basis for a system to co-ordinate waste management in the European Community, to limit arisings. This was later amended by the 1991 Waste Framework Directive. A number of subsequent instruments helped implement these principles,

particularly the 1989 Waste Management Strategy[3] and the 1991 Waste Framework Directive[4]. The latter document established the familiar hierarchy:

- prevention and minimisation
- recycling, recovery and re-use
- optimisation of final disposal

The use of waste 'principally as a fuel or other means to generate energy' is considered as a form of recovery.

EU waste strategy review

In July, 1996, the European Commission published a controversial proposal for a review of the EU waste management strategy[3] and a draft Council Resolution[5], which set out the Commission's views on the original strategy. In this review, the Commission adhered to the 1989 hierarchy of prevention, recovery and safe final disposal. However, elaboration in the Review showed a clear preference for materials recycling over energy recovery, making the following points:

- recovery is at the core of any sustainable waste management policy
- material recovery implies separation of wastes at the source
- end-users and consumers should carry out source-separation
- energy strategies relying on waste supplies should not be detrimental to the principles of prevention and material recovery

The review states that "....preference should be given, where environmentally sound, to the recovery of material over energy recovery operations. This general rule is based on the fact that material recovery has a greater effect on waste prevention than energy recovery". The author of the review[6] confirmed that, as a general rule, "material recycling should be favoured above incineration with energy recovery". This view is broadly shared by Ken Collins MEP, chairman of the European Parliament's environment committee. He expressed the view[7] that "....where possible it is better to recover materials than energy, because the world's resources are clearly finite". Here, we see a grudging acknowledgement that WTE provides a second-best resource conservation option.

Finally there are intriguing reports[8] that the European Commission's environment directorate plans to classify incineration with energy recovery as a disposal option under EU law. This apparently comes in response to pressure from some Member States anxious to ban trans-frontier shipments of waste for energy recovery. Re-defining this activity as a disposal operation would allow such bans. This does not seem to be due to an aversion to incineration. The Danish government is reportedly embarrassed by the flow of MSW imports arriving from Germany for incineration. Denmark seems concerned that these imports will consume the capacity needed for its own MSW. In Germany, a shortage of waste for installed plants is seen as the reason why two regions have blocked exports of wastes that the Belgian and French cement industries want for fuel. Here, WTE becomes a strategic economic policy tool.

This quick tour shows a certain schizophrenic approach to WTE as a waste management tool. It is seen by some policy-makers as a means to an end, although the end might be diversion of waste from landfill, it might be pre-treatment of organic wastes prior to landfill, and it might be as a source of renewable or alternative energy displacing fossil fuel consumption. If waste strategists cannot decide whether WTE is really a form of resource recovery or a disposal option, one might sympathise with a concerned member of the public in a community faced with hosting a new WTE facility.

There are encouraging signs that once entrenched positions on the 'matter vs. energy' debate are giving way to a more balanced search for the real goal of sustainable waste management - the best practicable environmental option for all waste streams. The UK National Recycling Forum is part way through its own policy wrangles in this area. The Recycling Council of Ontario has also explored this route, approving a new policy towards incineration[9]. The Recycling Council of Ontario believes that energy from waste, fuel substitution and incineration should be considered on a case-by-case basis only if:

- It is clearly demonstrated that reduction, re-use and recycling initiatives are maximised
- Any technique used to handle remaining residual materials is of net benefit to the environment and economically sound

- Energy from waste or fuel substitution initiatives meet or exceed stringently enforced environmental performance standards
- Incineration of solid non-hazardous waste includes energy recovery

This review was at least partly provoked by the decision of the incoming Ontarian Progressive Conservative government to repeal the ban on any new energy from waste incinerators.

The real dilemma will lie not in relative positions or fractions of the waste stream, but in absolute tonnage routed one way or another. The competition will be for tonnes of recyclables or fuel, not for percentage points. Project scale will be the most important issue to resolve, managing the trade-offs between economies of scale and available material. The social dimension, i.e. public attitudes towards waste management alternatives, is likely to become increasingly important.

There are several alternatives to conventional MSW combustion being explored around the world. Although public acceptability is not the main driver, there can be little doubt that any incidental increment in popular support will be a welcome benefit. In the Netherlands[10], work is underway to develop co-combustion systems for a range of waste streams in coal-fired power stations. Wood waste, sewage sludge and refuse-derived fuel (RDF) are promising options. Integrating waste management facilities, but leading with the materials recovery option[11] has been successful in Britain. In Japan, the Toyohashi plant[12] blends waste incineration, with sewage treatment and a composting plant, producing electricity, hot water and steam. German packaging waste recovery policy has shifted to allow combustible packaging to be converted to gas which is permitted to be burned. Plastic packaging can be added to steel furnaces, where it serves as a reducing agent, in a material sense rather than simply as a source of energy. In Thailand[13] a $US70 million WTE plant is being built to burn MSW and lignite, generating 20 MW of electricity.

PUBLIC PERCEPTION

If given a choice, people tend to prefer things as they used to be (or seemed to be) than they are now. They also tend to prefer things as they are now, rather than risk something worse in future. The nature of the environmental problems are complex and far from understood. Public perceptions of these issues are sometimes clouded and communication processes often imperfect. The public are now bombarded, and confused, with information and opinions that often conflict. As a result they lose confidence and withdraw the trust that they once placed in the hands of the experts and decision-makers. This leads to a breakdown in communication and Not In My Back Yard (NIMBY) reactions become almost inevitable. However, because the issues are complex, the public may lack the expertise to endorse decisions themselves, becoming increasingly dependent upon views of experts. Given this dilemma, and a lack of confidence in establishment-based experts, groups claiming to represent the public interest take a more active role, demanding more information, more communication and involvement in decisions,.

The public receives information from many sources, which frequently conflict with one another. All of these elements play a role in shaping our perception of reality (see figure 1). It is hardly surprising when pollster Robert Worcester[14] claims that "[the public] tell us that they are sceptical of politicians and journalists. Industry's and the government's scientists are little more believed than are business leaders and senior civil servants and their ministers. The public don't know whom to trust".

Perception and trust

Gaskell[15] observes that "to have trust in someone is to anticipate the future, to behave as if the future were certain. Trust gives us confidence to make choices in an increasingly complex world, without it we are condemned to anxiety and inaction". Loss of trust triggers a switch from passive to active(see figure 2), the sceptical view is no longer acceptable and a search is initiated to alleviate uncertainty by the public themselves. Studies in more than twenty countries show that Green Activism is growing[16]. Loss of trust and increased activism create a demand for better communication to disseminate information and public participation to rebuild trust. However, mis-trust and activism are by no means universal. It is understandable that there are communication problems when raising awareness of global concerns given

the fact that experts themselves can rarely reach agreement. Locally, however, where there is greater scope for data acquisition and understanding, this is less of an excuse, and problems of distrust and NIMBY reactions here are the result of a breakdown in communication between the general public and the experts upon whom they rely.

The need for openness

The British Royal Commission on Environmental Pollution reported on its detailed investigation into waste incineration[17]. One of the areas it investigated was that of public concern, finding that "relations between the plant operator and the community are also important in explaining differences in the level of concern". The Royal Commission recommended that the "waste management industry should adopt a policy of openness in providing information to the public". A key section of the Royal Commission's report notes that "Before the public will accept a large incineration plan, whether existing or proposed, the site operator will have to earn their trust and establish his credibility as a source of accurate and impartial information". The UK Government replied formally to the Royal Commission, observing that "Openness by the waste management industry may well lead to improvements in the public perception of waste disposal". The apparent view that industry should shoulder the burden of persuading the public that energy recovery was a fine waste management option was modified somewhat in the UK national waste strategy[18], when the Government set out a target for overall recovery - including energy. This obliged the policy-makers themselves to help deliver the policy.

MAKING COMMUNICATION EFFECTIVE

Petts [19] has identified four areas where the communication process is beset by problems:

- Message Problems: e.g. deficiencies in knowledge and scientific understanding; large uncertainties in risk estimation; highly technical language.
- Source Problems: e.g. disagreements between experts; resource limitations which prevent reduction of uncertainty; use of technical legalistic language leading to a lack of trust and credibility in experts; limited understanding of the interest, concerns, and preferences of different communities.
- Channel Problems: e.g. biased media reporting; premature disclosure of information; inaccuracies in interpretation of information, one-way information flows; over simplifications, distortions, inaccuracies in technical information.
- Receiver Problems: e.g. lack of interest; inaccurate perceptions; unrealistic expectations about the effectiveness of regulatory action; reluctance to make trade-offs between risks and costs; difficulties in dealing with probabilistic information; suspicions of industry's motives.

So how can communication be improved, to improve public perceptions and rebuild trust? Furnham[20] recommends four actions for dealing with the general public:

- Acknowledge that there is a risk of pollution, accidents etc.
- Explain the preventative action being taken, and any plans to cope with outcome of any problems or disasters.
- Stress that perfection is unrealistic and that a process of improvement is a more important and practical way forward.
- Build trust.

Likewise, Gaskell[15] suggests six points for cultivating a reputation:

- Technical competence is crucial, don't deny the risks, because few will believe it is risk-free.
- Acknowledgement - admit mistakes of the past, respond to crises quickly and effectively.
- Disclosure - be more forthcoming about who you are and what you stand for.
- Accountability - articulate areas of responsibility.
- Take on the wider responsibilities and obligations reflecting the concerns of society.

These represent only one side of the communication process. It should be remembered that communication is a two-way process. This is highlighted by Petts[19] in the first of five ways forward for risk communication:

- Risk communication must be a two-way process: a process of bargaining. Statutory authorities, industry and the public must expect to learn and be prepared to change views.

- Risk communication which is perceived as simply risk education is unlikely to be effective, because it will almost certainly fail to address the main concerns of the public and information requirements of decision-makers
- Risk communication is an ongoing process; it is not simply a specific assessment in response to questions on a specific planning application.
- Quantified risk assessment is becoming an essential element of siting decisions where risk is a dominant factor or is perceived by the public to be a dominant factor. Subjective discussion of 'small', 'low', 'insignificant' etc. risks is no longer acceptable.
- Risk acceptability is location and time dependent. Risk communicators must understand the specific concerns for specific siting decisions.

It is clear that communication is a process of participation in a debate in which both sides learn from one another, and as a result shift to some common ground. It is clear that this participation must be with the specific local community that is likely to be affected by any decisions made.

The experience of the German Federal Environment Agency in this respect has been summarised by Johnke[21] as follows:

- In projects involving public participation, the climate in which discussions are held needs to be improved. Proponents and opponents must take each other's arguments seriously
- The data on which technical proposals are based should be disclosed at an early stage
- The fact that the situation will worsen for affected residents must be acknowledged and compensation granted if at all possible
- Decentralised solutions should be preferred; burdens must be distributed evenly within the region concerned
- Ecologically committed groups must be involved in the planning and try to accommodate opposing views
- Pollution levels must be compared and considered in relative terms. For example, waste incinerators are able to comply today with dioxin emission levels that are ten times lower than the value applicable for the open burning of wood. If the waste-related emission limits applied to wood, it would have to be shipped to an incinerator for combustion!
- The relative environmental burdens should be demonstrated in greater detail.

Public Participation

A 'ladder of participation' (see figure 3) has been widely adopted and used in the design and consideration of the public participation programmes. Described by Petts[19], "This ladder commences at the bottom with the primarily 'manipulative' methods of the public relations exercise, and with steps up the ladder of informing, consulting, placating, forming a partnership, and finally (at the top) delegating powers to the public for both decisions and implementation. In the USA, Kiser et al[22] indicate that "communities are involving citizens in the decision-making process regarding WTE projects in their communities. This public role frequently includes more than one mechanism for gathering input from citizens, and often includes formation of a citizens advisory group".

Paradoxically perhaps, public participation can slow the pace of change. Lanny Hickman[23], formerly CEO of the Solid Waste Association of North America reports that no new WTE facility has been developed in America for a number of years, primarily due to public resistance. Hickman notes that developments by industry, for example of transfer stations and material recovery facilities, are more likely to succeed than municipal initiatives, because industry has less onerous duties for public consultation. He compares discreet, innocuous municipally-owned local transfer stations which are strongly resisted, with private sector 'megafills' taking 5,000 tonnes per day for landfill disposal which may receive consent without difficulty. Hickman adds that the concept of Host Community Fees can deliver locally negotiated revenue that exceeds local tax income.

Kiser et al[22] present evidence of success explaining that "citizens who are involved say the majority of people served by modern WTE operations in the US consider the facilities to be good neighbours, based on satisfactory operation and the benefits these facilities provide to their communities". The authors conclude that "the favourable reaction to WTE plants should give other community leaders the confidence to consider integrated waste management systems of their own that include WTE".

Similar groups to those in the USA are evolving in Britain, as Lisney[24] reports on the development of community advisory forums for debating the waste management strategy for the English county of Hampshire: "These forums comprise representatives of parish councils, community environmental groups, interest groups, local residents, business and health sectors"...."The quality of debate was of an extremely high standard. It did not take very long for members to get up to speed in terms of the problem and the options for solution. This approach has been successful in some WTE projects. Lisney concludes by stressing "the importance of involving the key stake-holders in debates which have local importance, and to do so in an open and forthright way". The complex relationships between partners in consultation is illustrated in figure 4.

Willingness to embrace a public debate was instrumental in the success of Britain's most recent WTE facility - the SELCHP plant. Planned for south-east London within 200 metres of many local residents, the developers appreciated from the outset that public confidence would be a critical factor. SELCHP's managing director declared "...during a long planning and public consultation process we achieved a high level of public confidence". Throughout construction, developers kept in touch with their neighbours - directly through mail and local newspapers, and indirectly through meetings with an Incinerator Monitoring Group. A representative of this group was able to attend SELCHP board meetings, to hear of progress and register local concerns. Recognition of specific controversial issues is very important and SELCHP soon identified that the emission stack (with a height of 100 metres) would become a significant feature on the sky-line. The company undertook local public exhibitions of alternative designs, asking residents to vote for their preferred design.

Public participation and LA21

Currently, the most significant action being taken with regard to sustainable development, which includes waste management issues, stems from the 1992 Earth Summit held in Rio de Janeiro. The Summit adopted Agenda 21, a comprehensive action plan for the pursuit of sustainable development into the next century, with 40 chapters of detailed recommendations addressed to international agencies, national and local governments and NGOs. Some two-thirds of Agenda 21 applies to the local level, and consequently needs the active participation of local authorities.

As local authorities develop Local Agenda 21 (LA21) strategies, community participation should improve public perceptions and rebuild some of the trust lost in recent years. With public involvement in the LA21 process local authorities are in a position to raise awareness and improve perceptions. Worthington and Patton[25] found little agreement on which departments within local authorities should be responsible for the initiative, only half had developed formal means of co-ordinating the process, there had been minimal contacts with local environmental and business groups. Municipalities experiencing successful public participation made the following suggestions:

- Local authorities should nominate a key individual responsible for LA21 matters;
- Across-functional body should be established to transcend formal functional lines of responsibility within the municipality;
- An environmental forum should be established, to provide a focal point for all interested groups;
- Public awareness should be raised by a variety of means;
- Central government should be lobbied for direct (financial) support.

It is unlikely that there will be a return to the former dependency on experts by the general public. However, although it has been seen that the public do have an ability to deal with specialist areas, they are not in a position to collect, analyse and evaluate the large amounts of data needed to understand the environment. They will still depend on experts for this function. Any uncertainties generated through the imperfect communication between expert and public could be minimised through partnership.

Industry and participation

Understanding people's psychology and their behaviour is an important facet of business. Industry has recognised the importance of environmental awareness and the concerns that are expressed by the public about the effect of the activities of industry on the environment. As Elkington et al[26] have written "Big business has discovered that it cannot work effectively within a society that does not like its methods and refuses to buy its products". However, waste contractors will need to change their attitude, for as Petts[27] found in an assessment of a Community Involvement Programme, "The one group not fully

involved in the first phase of community consultation was the waste contractors themselves. While representatives of some contractors attended meetings, it is known that contractors in general have a poor appreciation of the importance, and methods, of communication and seem often to regard public concern as irrational and communication to be merely an 'education' exercise.

Environmentalism and participation
The 'Green Movement' is far from uncriticised. As seen earlier, environmental doom-mongers have developed low levels of trust due to their apparent failures in the light of their acquired expertise. Indeed all environmental groups are involved in public relations as are business and industry. These groups claim to be the 'voice of the environment', driven by environmental ethics. They are subject to the same communication problems that affect businesses, or other organisations out to promote their interests.

Facilitating Participation
Some people appear to need further encouragement to participate in decision-making activities. There are many reasons why people may not participate, including four outlined by Petts and Eduljee[28]:

- They may feel adequately represented by others;
- They may not feel that the impacts justify participation;
- They may be unaware that they might be affected;
- They may feel powerless to influence the decision.

Petts and Eduljee go on to state that "Whether or not they participate, will be a reflection of the information available to them. Furthermore, by not providing them with adequate information to allow them to decide on an informed basis whether or not to participate, there is potential for decision making by small 'elites'."

To some extent the success of a public participation campaign can only be judged upon the implementation of any plan derived from the consultation programme, which may take years. However, there are criteria that can be used not only for assessing a community involvement programme but also for its design, such as those used by Petts[27]:

- Representativeness of the participants.
- Effectiveness of the method.
- Compatibility with the objectives of the participants.
- Degree of awareness and knowledge achieved.
- Impact of the participation programme.

Techniques for participation
These groups and forums are only part of a number of approaches and techniques for public involvement. Petts and Eduljee[28] have outlined some of the approaches and techniques put forward in The Canadian Federal Environmental Assessment Review Office's (FEARO) manual on public involvement in Environmental Assessment, which includes descriptions on over 50 different techniques.

Public perceptions of the validity, or value, of information provided, can only be improved by a combination of accurate information provision and involvement in sustainable development. Achieving balanced dialogue will allow perceptions to evolve on both sides and return some confidence that those perceptions depict reality. This will reveal a wider picture to all: the size of problems will be more lucid and solutions more apparent.

Effective communications with WTE projects
Planning any communications strategy requires a clear definition of:

- The audience groups
- The messages to be communicated
- The appropriate media to be used

Audience Groups
The public. Many developers of waste management facilities will often attempt to communicate directly with the public. Usually, these are the nearest neighbours to a proposed development and contact is

through local public meetings, village hall exhibitions, house-to-house leaflet drops and by means of advertisements or editorial coverage in local newspapers.

Public interest groups. Local groups who claim to speak for and represent the public are often quick to rise to what they perceive is a threat to their territory. These groups are often far more enthusiastic to enjoin a debate than the public itself. Early attention should be given to identifying those bodies with a direct interest in local amenity development, environmental, archaeological or other interests. Addressing direct interest groups is an obvious approach to take, but there is also merit in considering a diverse range of less immediately relevant sectors. Having no specific 'axe to grind', these groups can give added buoyancy to support for a proposition. For example, the American League of Woman Voters[29] has published a document endorsing the combustion of waste plastics for electricity generation, in conjunction with other waste management techniques. The book states "it does not help the environment to expend large amounts of labour and money to 'over-recycle' inexpensive and benign materials like plastics". This type of 'third party endorsement' can be very supportive.

Industry. Potential supporters of WTE systems can come from unrelated sectors of industry. This has been widely seen in the packaging and other sectors, coming under increasing duties of 'Producer Responsibility', an obligation for their products beyond the point of sale. Many of these sectors are forced to take an interest in the economic and environmental impact of their products, and often advocate a mixed array of recovery options, including WTE.

Government bodies. Many national governments have prepared national waste strategies. The British national strategy[18] was published in January 1996, and set out a clear commitment to support increased WTE systems. Such a commitment needs action if they are to be anything more than posturing. Only at the national level can regulatory or economic incentives be put in place. The UK has seen the introduction of the tax on any solid wastes going to landfill, which is altering the current balance between landfill and WTE. The UK national waste strategy also includes broad resource recovery targets and advice to local authorities and others. The British government has also operated the Non Fossil Fuel Obligation for several years, levying a charge on the generation of electricity from fossil fuels, which then subsidises selected WTE projects.

Municipalities. Local government is in many ways at the focal point of public debate, and has a crucial role in shaping public perceptions. Local government is, by definition, local. It knows the issues that are important. It is also democratically accountable and must strive to reflect and shape public opinion. In waste management terms, municipalities are often charged with responsibility for many links in the chain. Waste collection, regulation, disposal and planning are duties that may rest with different parts of local government. A fine example of progress here has been demonstrated in Brescia, Italy[30]. In 1992, the town held a series of presentations between the local authority and a technical and scientific committee formed from members of local government and the public. Decisions relating to the project required unanimity before action. Community meetings, press coverage, exchanges of correspondence and a second international conference "Towards New Environmental Solidarity" crowned a successful public consultation process, following which planning consent was granted to develop a 266,000 tonnes/year WTE plant, to start operation in 1997.

Journalists. The media is an important audience, in an indirect way because journalists provide a conduit for information to the above audience groups. Public perception and ultimate fate of many projects may be influenced profoundly by the capricious whims of the media. Local newspapers often become one of the most active spheres of local heated debate on particular topics. Experience in Hamm, Germany[31] has shown the benefits of favourable media support. This, coupled with annual open days, has contributed to the WTE plant being totally acceptable to the host community.

Familiarity breeds content

The secret to successful WTE project development is likely to rest in its chosen location. There is clear evidence that proposals to develop a new facility on a new 'greenfield' site is far more likely to encounter delays or cancellations, than a project on a site already used for the same purpose. In Britain, proposals to build a new large incinerator near London (Belvedere) continue to be plagued by delays, while an existing unit in London (Edmonton) received planning permission to effectively double its capacity without a murmur. At Tyseley in Birmingham, UK construction of a £95 million WTE plant taking

350,000 tonnes/year is now complete. The planning application was submitted in November 1993 and was approved at its first hearing, with consent granted in February 1994. The unit's managing director declared "There has been very little adverse local reaction to the proposal because we made residents aware of what was involved well in advance of the work starting on site". He added that "..there has been an incinerator there since 1926, so people know what to expect". The main source of complaint came from the local Friends of the Earth representative, who opposed the project as a concept, questioning the justification of the planned scale, its economics and whether there would be sufficient waste to fuel the unit. The project team embarked on a 'consultation and awareness campaign' making "contact with residents' groups, environmental organisations and other interested parties. Press releases were issued, and press and radio interviews conducted".[32]

It is clear that replacing an old unit with a modern state-of-the-art WTE facility is almost certain to be applauded as an improvement, whatever one's feelings about energy recovery in principle.

Messages to be communicated

Acceptance for new projects depends heavily upon public participation in the process of decision-making. It is likely that support for a new WTE scheme will be shaped by the following vectors:

- The level of public involvement in the debate itself
- The degree to which this is seen as a local solution to a local problem
- The extent to which WTE reinforces and does not jeopardise those waste-related activities which the public supports (prevention, re-use, composting and recycling)
- The level of environmental and amenity concern shown by developers
- The presence of any perceived benefits of the proposed facility
- The absence of any perceived dis-benefits, or stigma arising from the project
- The demonstrated public support for the project of independent groups (local government, media, environmental groups).

It follows that the ideal messages to be communicated are those which rigorously establish, defend and reinforce the above vectors.

CONCLUSIONS

It is clear that public acceptance is essential for any developer - industrial or municipal - of a proposed WTE facility. Private individuals have reasonably high expectations of the quality of their lives, socially, economically and environmentally. They are unlikely nowadays to accept without question the opinions of 'experts', on allegedly necessary developments within their communities. The complexity of associated issues as probabilistic risk assessment, sophisticated technologies remote from everyday life, and high profile disagreements between opposing experts erode still further a feeling of public trust and confidence in something which is new, different and remote.

Bridging the gap between public perception of a hostile and perhaps dangerous proposal that brings no direct or personal or immediate benefit, and the necessary development of waste management facilities. falls on the other stakeholders in society. Developers - whether in the private or public sector - have a prime duty to build the trust necessary to achieve or restore public acceptance. Developers must be open, and must be seen to be open. Their communications with the host community must be active, effective and planned. While there are many means of communication open to developers, there can be no doubt that the most effective route will rest in demonstrating a partnership between industry and the community it serves. A proposed WTE unit should be appreciated as part of a wider, but still essentially local solution - and not simply as a site-specific problem.

Local Agenda 21 initiatives provide a valid model for community-based co-operation, and also offer a suitable vehicle relevant to implementing neighbourhood and regional sustainable waste management plans. As part of the route towards global sustainable development, local authorities have a key role to drive forward a productive debate between the public, industry, environmental groups and others, on the way society plans to move into the next century. Securing a really constructive debate is difficult, but experience shows that the municipalities are critical agents in any successful initiatives. Local authorities should work to stimulate LA21 planning through the creation of a high profile, cross-functional body, an environmental forum for interested groups in a continuing exercise to exchange

views and reach agreement. The debates within this type of forum should preferably precede any site-specific discussions, to establish in principle the way that a community believes progress should be made. This will help alleviate the inevitable NIMBY reaction when site-specific details are considered. In this context, national government has a duty to ensure that a broader framework is established. Local authorities should be involved, not simply as a planning authority. The local authority's own waste collection or disposal function will be in partnership with any private sector interest. The fact that the plant addresses the community's own waste arisings shows that the plant is part of a solution, not part of a problem. Local government should not adopt the attitude of impartial observer while industry battles with a community, but should strive to help the community or region address its own waste management issues.

A prospective WTE plant should ideally be planned to replace an older unit. It should be technically and environmentally of higher performance and greater efficiency, offering indirect benefits - for example demonstrating improved materials recovery and less waste to final landfill disposal. It can therefore be seen to be a better replacement, delivering a clear net benefit.

Effective dialogue calls for technical competence on the part of developers and decision-makers, of course. There must also be a willingness to explain the information - some of which will be highly technical - to the wider public. Proponents must listen to views expressed by the groups to whom they speak, and they must be seen to react to views expressed. Hostility will be far greater if a new WTE unit is proposed on a greenfield site. It is crucial that the site is acknowledged to be an integrated part of a planned system, pursuing environmentally sound objectives to the highest standards. Dis-benefits should be honestly recognised, and some form of local compensation addressed. It will be of paramount importance that developers are seen to be open from the outset. Developers also need to recognise that the public will be there for the lifetime of the plant, and beyond. Promises must be kept and dialogue should continue. A successful WTE facility will be one that becomes a part of the community that it serves. The relationship between the public and the operators (who may not be the developers) will be shaped by events at an early stage.

Increased pressure on landfill disposal will mean higher costs of this option. Tighter environmental controls on what may be landfilled will further increase costs, closing the gap between disposal and alternative management techniques. Greater enthusiasm at the international policy level for the application of Producer Responsibility, and for waste reduction (or landfill diversion) targets will tighten this stranglehold. Landfill bans on organics, mean that composting and anaerobic digestion will not suffice. Supplementary treatment will be more attractive. Higher materials recovery and recycling targets will require improved source separation for its cleaner secondary material streams. This will be assisted by isolating non-combustible recyclables and wet organics, which will deliver a higher energy content residue (better suited to energy recovery).

There is good cause to hope that structural limitations, economics, modest targets and waste composition will combine to ensure that materials and energy recovery will be complementary options. Scaling and siting of waste management facilities in the short to medium term will be the most important and difficult decisions. In the longer term, sustainable waste management can only be approached through changed public attitudes and adoption of waste minimisation targets through better design and clean technology.

With traditionally pro-incineration groups calling for a balanced, integrated approach to waste management, and with recycling-oriented bodies re-visiting established policies on energy recovery, the signs of rapprochement are very encouraging.

It is up to governments, local authorities, industry, pressure groups and consumers to ensure that we do not squander this opportunity.

Figure 1

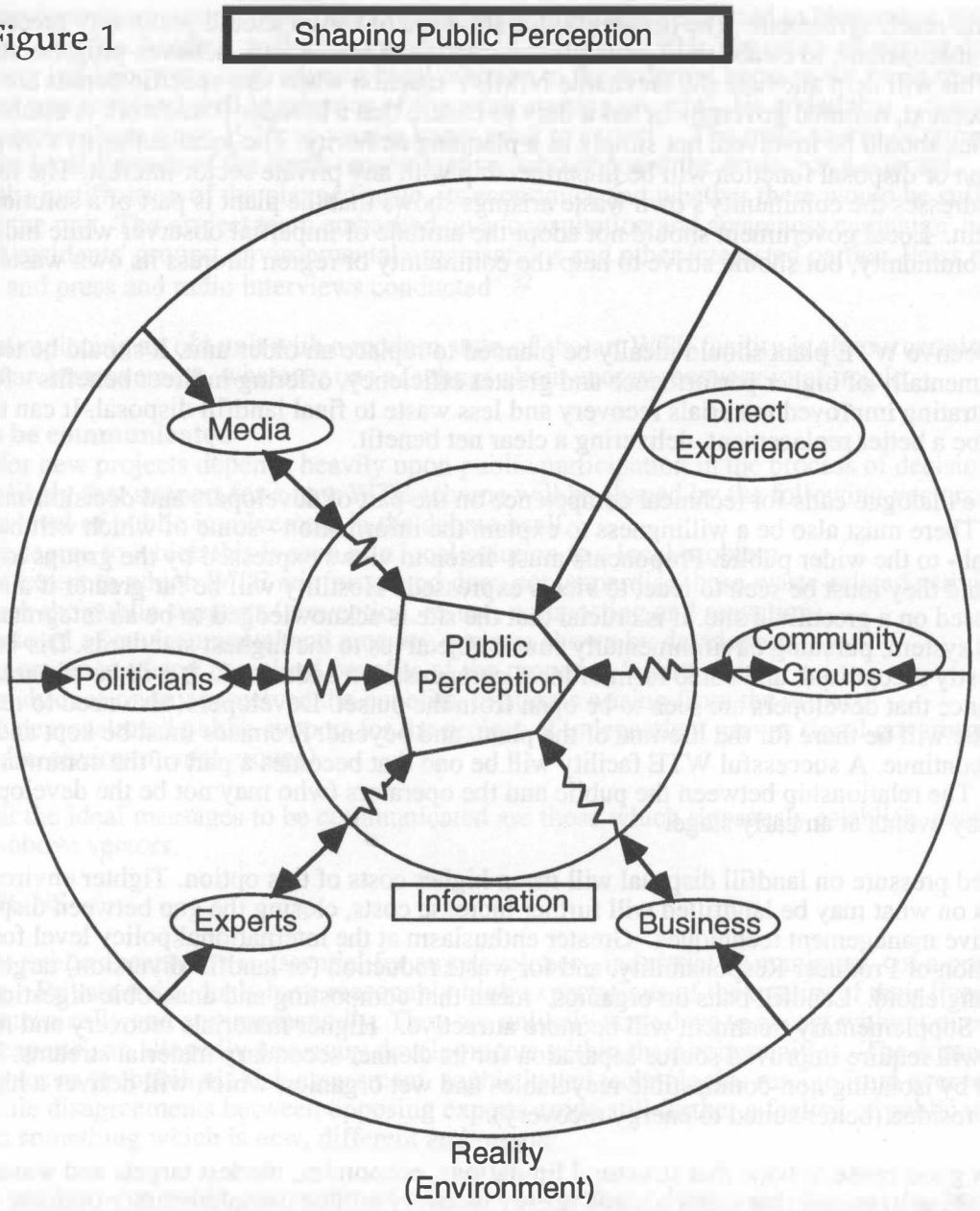

Shaping Public Perception
Media
Direct Experience
Public Perception
Politicians
Community Groups
Information
Experts
Business
Reality (Environment)

Figure 2.

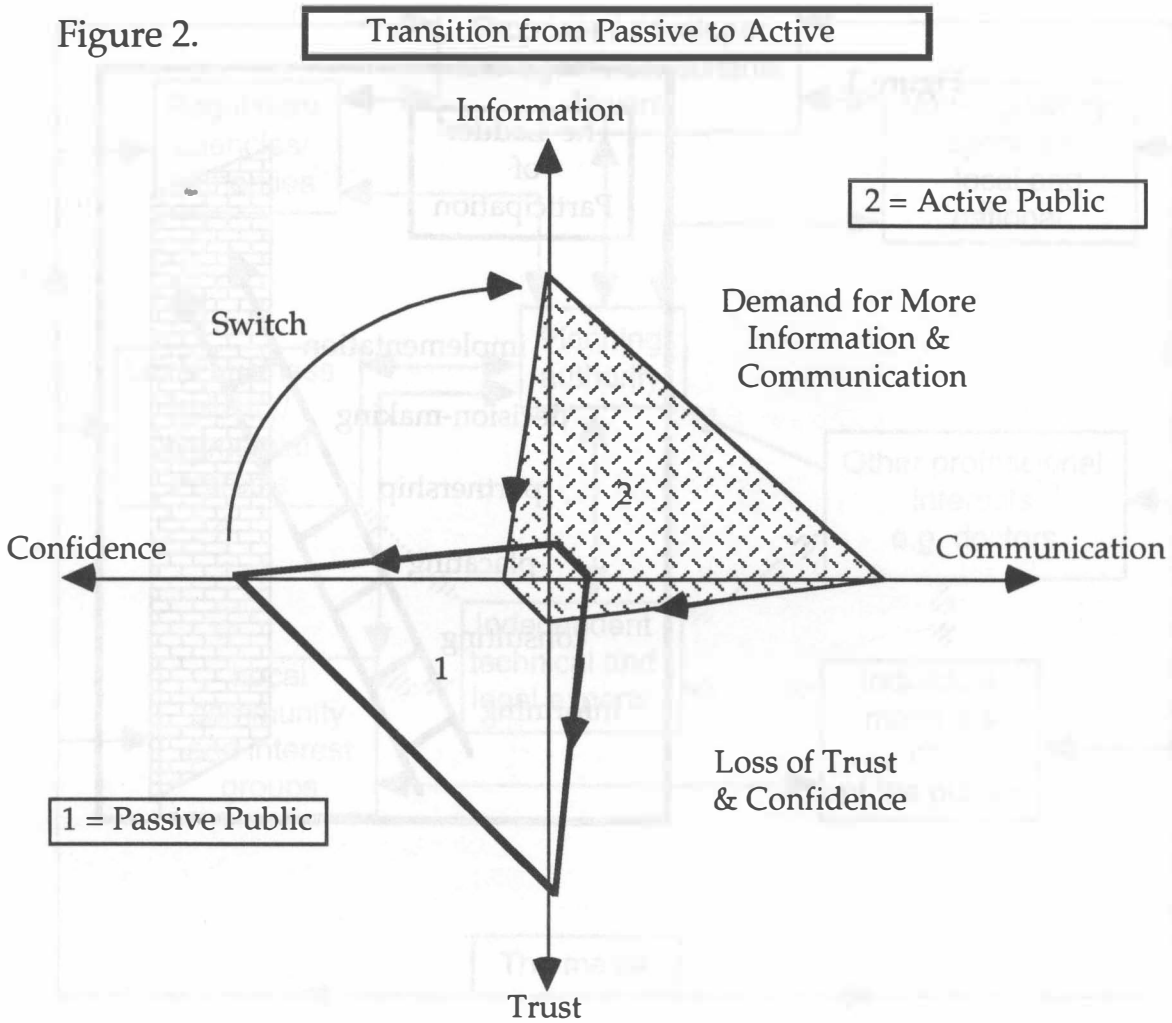

Transition from Passive to Active
Information
2 = Active Public
Switch
Demand for More
Information &
Communication
2
Confidence
Communication
1
Loss of Trust
& Confidence
1 = Passive Public
Trust

Figure 3.

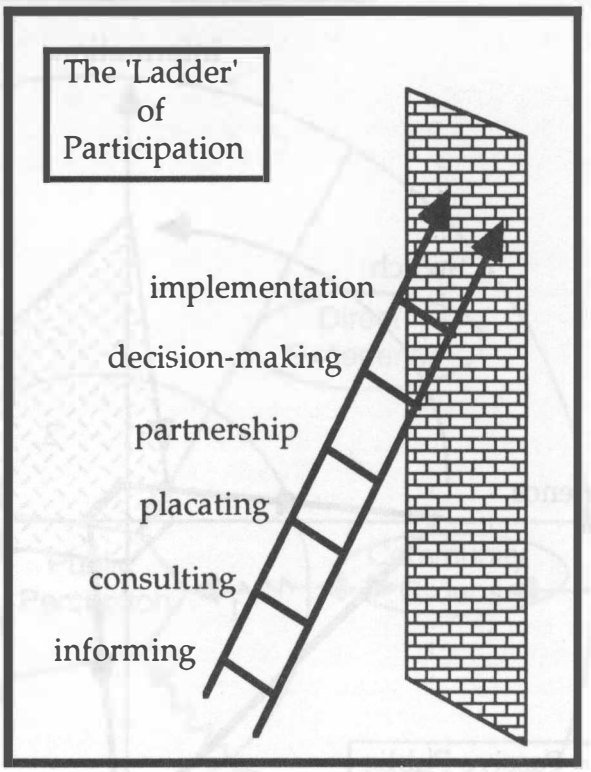
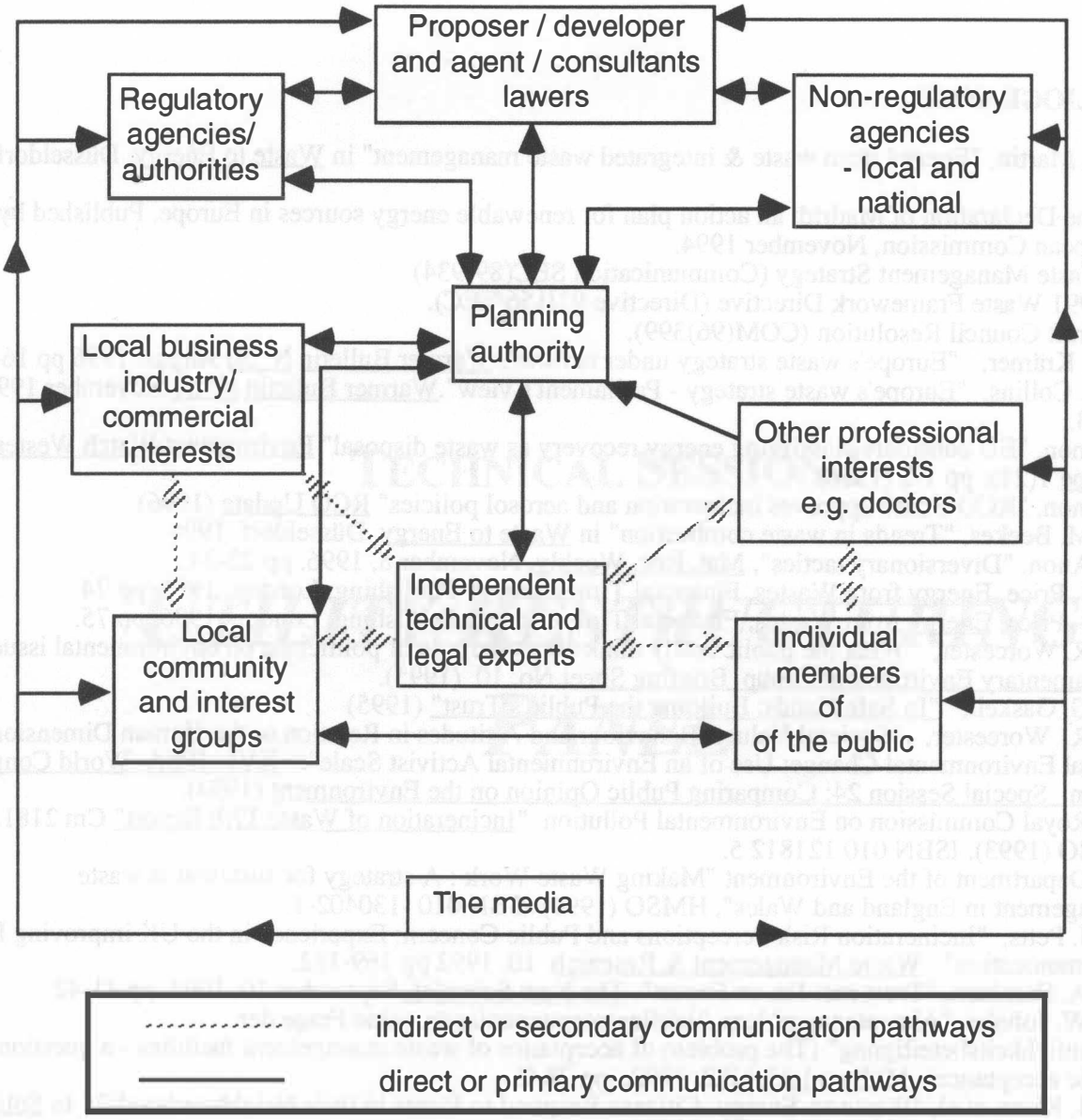

The 'Ladder'
of
Participation
implementation
decision-making
partnership
placating
consulting
informing

Figure 4. Communication Pathways



Source: Petts & Eduljee [28]

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