London's Health
developing a vision together

Report

London Health Commission and the Environment Committee of the Assembly

Health Impact Assessment – The Mayor's draft Municipal Waste Management Strategy

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1 Framework for the HIA

Overview

At the London Health Commission meeting of 13 February 2001, it was agreed that plans should go ahead to carry out, jointly with the Environment Committee, a policy appraisal health impact assessment of the draft Municipal Waste Management Strategy.

The London Health Commission also commissioned a review of selected research evidence relevant to the draft Municipal Waste Management Strategy. This evidence is summarised in section 2 of the report.

In line with the process adopted for the health impact assessments of previous draft strategies, the health impact assessment of the Mayor's draft Municipal Waste Management Strategy includes the outcomes from four main forums for discussion, debate and scrutiny. These are:

- meeting of the London Health Commission on 27 September 2001
- policy appraisal workshop on 10 October 2001
- Environmental Strategies Investigative Committee on 13 November 2001
- meeting of the London Health Commission on 15 November 2001.

At the policy appraisal workshop on 10 October, stakeholders from a variety of sectors had the opportunity to:

- bring their own experience and knowledge to bear on key questions about the draft strategy, and to share their views with other participants
- explore evidence linking municipal waste management and health and, where appropriate, to relate this to their own experience and recommendations.

'Headline' findings from the workshop, and the priorities identified there, were debated by the Environmental Strategies Investigative Committee on 13 November. Key points from that discussion were presented orally at the Commission meeting of 15 November.

What is the Municipal Waste Management Strategy trying to achieve?

The executive summary of the strategy describes the purpose of the strategy in the following way:

'The Mayor's **2020 Vision for Waste** in London is that, by this date, municipal waste should no longer compromise London's future as a sustainable city.

To achieve this goal, lifestyle habits must change so that we each produce only the minimum amount of waste, and reduce the pressures on our environment.

We must also manage waste better, so that its impact on the local and the global environment and on Londoners' community, economy and health is minimised. This strategy will be waste minimisation and recycling-led.

The strategy is a visionary strategy, which sets out clearly where we want to be in 2020, and also an operational strategy covering the period up to 2005.'

Shape and focus of the policy appraisal workshop

The workshop took place on 10 October, 2001, at the GLA in Romney House.

The aims of the workshop were to:

- provide participants with an overview of the contents of the draft strategy and of the development process underpinning it
- to brief participants on key aspects of existing evidence on the health impacts associated with the draft strategy
- to encourage participants to share their own experience and knowledge in this area with colleagues, to discuss insights and analyses, and to help shape recommendations going forward to those finalising the strategy.

The model of health used during the workshop was that contained in the constitution of the World Health Organisation:

Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or injury.

The focus of the workshop was to enable participants to explore the following questions and go on to make recommendations on the basis of their findings:

- Which determinants of health are likely to be affected by the strategy?
- How may health determinants change as a result of the strategy?
- How might the expected changes affect the health of people?
- What might be the outcomes for health?

(adapted from Cave and Curtis, 2001)

Who attended, and what did they do?

Over 40 people attended, drawn from a range of sectors and levels of seniority. (See Annex 1 for a full listing of the participants.)

An initial plenary meeting was chaired and introduced by Sue Atkinson, Regional Director of Public Health at the London Regional Office. Katherine Higgins, from the GLA Municipal Waste Management Strategy team gave a presentation on the draft strategy. Caron Bowen of the London Health Observatory gave a brief introduction to HIA methodology; and Giovanni Leonardi of the London School of Hygiene & Tropical Medicine presented an overview of the literature review of the evidence that he had undertaken on behalf of the London Health Commission (see section 2 for a summary of this evidence.)

Participants then moved into facilitated small groups to discuss themes relating to clusters of policies and proposals from the strategy. These were:

- waste reduction
- recycling
- composting
- recovery
- landfill
- other municipal waste (ie 'non-standard' domestic or commercial waste, such as clinical waste from homes, electronic goods, and hazardous waste).

The groups structured their discussion round four key questions:

- What are the major health benefits of the draft Municipal Waste Management Strategy?
- What actions are needed to achieve these benefits?
- What are the health hazards of the strategy?
- How can the health hazards of the strategy be mitigated?

The groups were also asked to think about which population groups would benefit/suffer from the health impacts identified; and to indicate why and how they believed that the different factors they identified would impact on health.

The groups shared their thoughts and recommendations in a final plenary, offering a range of key points in response to the strategy. These form the basis of the recommendations presented in section 3.

Feedback from participants

Participants filled in an evaluation form distributed at the end of the workshop. Over 90% of participants rated the workshop as achieving its goals 'well' or 'very well'.

Many participants offered additional helpful insights and comments on the structure of the workshop. These insights will be used to inform the structure of future policy appraisal workshops.

A breakdown of responses is available on request from Gus Wilson: email gus.wilson@london.gov.uk.

2 Summary of the evidence used in the recommendations

To inform the health impact assessment, Giovanni Leonardi of the London School of Hygiene & Tropical Medicine was commissioned to carry out a brief literature review of the existing evidence on the potential health impacts of the Mayor's draft Municipal Waste Management Strategy.

This review was used to develop a table analysing the potential health impacts of the policies and proposals set out in the draft strategy (see Annex 1 at the end of this report). Key points coming out of the evidence relating to the main sections of the strategy are shown below. This summary of the evidence was used by participants in the policy appraisal workshop.

Introduction

For each of the five main waste management options (landfill, incineration, recycling, composting and reduction of waste) a broad definition of health impacts was chosen, including effects attributable to pollution, effects attributable to global ecological impacts, and socio-economic effects.

Landfill

A substantial number of studies have been conducted and some are consistent in their findings of significant adverse health effects. Despite some of the studies coming from established researchers there are residual problems such as extremely weak assessment of exposure routes, types of chemicals and dose, possible recall and reporting bias, limitation of statistical power and lack of a priori hypotheses. Risks to health from landfill sites are hard to quantify, as there is insufficient exposure information and effects of low-level environmental exposure in the general population are by their nature difficult to establish. There may be health risks such as congenital malformations in the vicinity of landfill sites, but we know very little about which specific characteristics make a site "hazardous". Nevertheless, it may be argued that policies to reduce the quantity of waste landfilled and to prevent co-disposal will have a beneficial effect on those living and working in the vicinity of a landfill site as the exposure to chemicals will be reduced as will the risk to health. Policies involving tradeable permits may develop a "pass the buck" attitude which is not beneficial for health on a large scale. Policies to recover landfill gas are good for global health for existing landfill sites, but should not be a reason to develop more sites.

Incineration

The general health effects of air pollution are well documented and there is consistency between studies. However the extrapolation of these studies to

exposures from incinerators is difficult. For dioxins and other persistent compounds the evidence of health effects is weak, but worrying as it includes a vast range of impacts. Limitations of studies estimating the impact of single incinerators are severe and include: small size of population, migration of people from and to the area considered, poor identification and measurement of factors potentially confounding or modifying the effect of incineration products. Policies reducing incineration will be beneficial for health of the general population as they will reduce levels of air pollution. Policies relating to adoption of waste reuse and recycling before incineration will have a positive impact on health as incineration has many more potential adverse effects on health. Energy recovery is beneficial to global health, though incineration plants should not replace other waste strategies for this.

Recycling

There is little evidence on the direct health impacts of recyling. The health impacts of recycling will be seen on a larger scale in the future. Major health effects in workers- need for more strict controls on exposure. Need for policies in this area. Policies for increasing recycling likely to have an overall beneficial effect on health, locally and globally.

Community composting

There is little evidence on the health effects of composting but the evidence of the studies done is quite strong- consistency between studies. Use of biomarkers enables exposure measurement. Minimal health effects in general population. Major health effects in workers- need for more strict controls on exposure. Need for policies in this area.

Policies for increasing composting likely to have an overall beneficial effect on health, locally and globally.

Waste reduction and re-use

The reduction in production of waste will have a positive effect on health in the sense of reduction in dependency on resources and energy- leading to less pressure on the environment. Human health consequences have been described in terms of increasing the chance of climate change and its direct and indirect impacts, as well as increasing the possibility of ecosystem failure and its possible consequences on the social and physical infrastructure that supports human life on the planet. Therefore policies on reducing waste will have global and local positive impacts on health. Policies on education and increased awareness of waste will form a sustainable attitude among Londoners which will improve health over the long term.

Other aspects

In addition to the above five areas, two other aspects may be of concern:

- the effects of any waste management strategy on the **health of workers** directly involved in the handling or processing of waste, as they are sometimes more clearly defined and serious than health impacts in residents.
- the health effects of **uncollected solid waste**

Conclusion

Forecasting health status as a consequence of waste management decisions in London is not an exact science, but the brief overview suggested that a strong emphasis on the waste hierarchy principle, favouring waste minimization over disposal by landfill or incineration, would achieve optimal health status in London.

3 Main findings and recommendations

The main findings and recommendations of the HIA on the draft Municipal Waste Management Strategy are outlined in this section.

A wide range of work has gone into the preparation of the draft strategy, and many diverse types of evidence have been pulled together.

Recommendations from the workshop relate mainly to the need for further clarity about the ways in which the strategy can be operationalised. In other words, how can the ambitious targets set by the strategy be achieved?

The recommendations are grouped into five main themes, outlined below. Each theme is made up of the following parts:

- specific recommendations (marked by roman numerals)
- supporting evidence for, or further explanation of, the recommendations (marked by bullet points and where appropriate, reference to section 2 of the report).
- where relevant, reference to specific proposals in the draft strategy (marked by the use of italic type).

The recommendations are grouped into the following main themes:

1. Clearly state the actions which need to be taken for the waste management targets to be achieved
2. Show as clearly as possible that a waste minimisation/reduction-led approach will result in health benefits as well as social and economic benefits
3. Indicate ways of meeting the need for widespread education in the issues involved, and identify clearly the different levels of learning that will have to take place if the strategy is to achieve results
4. Use every opportunity to promote lobbying of manufacturers and other organisations to develop more sustainable practice in relation to the creation and disposal of waste
5. Clarify the health benefits likely to result from the proposed strategic planning of municipal waste in London

1 Clearly state the actions which need to be taken for the waste management targets to be achieved

i. Develop a hierarchy of targets so that organisations directly and indirectly connected with waste management can prioritise their work and focus activity.

ii. Ensure that the range of cross-sectoral links outlined in the full strategy are reflected in the executive summary so that sectors which may not traditionally consider themselves connected with waste management are able to clearly identify the role they can play in contributing to achieving the targets.

- The executive summary concentrates on the key targets of the waste strategy.
- The full strategy looks at the ways in which the policies and proposals of the strategy relate to other policy agendas and to people's lives ie the different motivations people have and the barriers they face.
  - … *paragraphs 3.60 – 3.128 of the full strategy outline the ways in which the waste management strategy needs to link with the other Mayoral strategies*
  - … *Policy 9 recognises the role for partnership and co-operation*

iii. Acknowledge that this strategy sets itself a wide brief and that success depends on complex social changes

- Many of the changes upon which the strategy depend lie outside the range of what most people would associate with waste management (*eg* individual choice as to what to eat, what to wear and what to use as furniture or equipment, etc)
  - … *para 2.76-2.86 … looks at institutional and individual barriers to recycling*
  - … *para 4P.1 acknowledges that everyone from businesses to householders must begin to demand and purchase goods made from recycled materials*

iv. Acknowledge that complex trade-offs will have to be made among the range of different interests involved

- Who benefits from the strategy? If waste is produced without incineration capacity, it may have to be landfilled outside London and may have a detrimental effect on the health of those living near the sites.
- The Mayor should not take decisions to the detriment of health of those outside London. For example the use and location of landfill sites balances the needs of the wider population of the London region against the well-being and perceived health of people who live in areas close to those sites
  - … *Policy 5 requires Best Practicable Environmental Option to be considered when looking at ways to treat particular waste streams*

v. Draw on the evidence bases which have been prepared for the HIAs of the other Mayoral strategies and consider the recommendations made by the HIAs

- The evidence bases and reports relate to the ways that health and well-being underpin the Mayoral strategies on transport, air quality, biodiversity and economic development – and, where appropriate, raise issues likely to be relevant to the spatial development and the culture strategies (see, for example, Box 1)

Box 1 Taking sustainability seriously

Londoners' quality of life and health depends on different kinds of sustainability – for example, economic, social and environmental – being developed in association with each other. When there is synergy between these different policies the mutual benefits can be known as virtuous cycles.

Communal composting activities are likely to lead to social as well as economic benefits.

An increase in employment associated with a growth in recycling would also count as a positive factor for health.

A watching brief needs to be kept on unintended side-effects of the initiative. Will workers in composting and recycling depots receive health and safety training? Will the increase in local authority services necessitate increases in council tax which could in turn place increased financial burdens on households which are at risk?

2 Show as clearly as possible that a waste minimisation/reduction-led approach will result in health benefits as well as social and economic benefits

vi. The strategy currently makes it clear that a scale ranging from 'most harmful' to 'least harmful' can usefully be applied to the social and economic effects of waste management. Demonstrating that this scale is equally relevant to health effects will strengthen the case for waste minimisation and waste reduction.

- Evidence on the health effects of recycling is scarce.
- The scale refers to the ways in which social and economic effects of waste minimisation and reduction are the least harmful, these are followed by recycling, recovery, and then, at the far end of the scale, landfill.

… *Sections 4C to 4G*

vii. Strengthen the case to reduce the impact of collection and transport of waste and recyclables by demonstrating how waste management affects people's health and quality of life as well as the environment.

- The transport and collection of waste and recyclables and the location of the waste management sites all affect people's lives. These effects may be felt most by people in deprived areas. For example, disadvantaged urban areas tend to be characterized by high traffic volume, leading to increased levels of air and noise pollution and higher rates of road traffic accidents without the benefits of access to private transport.[1] Also, accidents show a

[1] Davis, A. Submission to the Inquiry into Inequalities in Health. Input paper: transport and pollution. 1998 *cited in* Cave, B. Rapid review of health evidence for 'Towards the London Plan … initial proposals for the Mayor's Spatial Development Strategy'. 2001. Greater London Authority, London Health Commission and London Health Observatory.

social class gradient *eg* in the UK road traffic accident deaths for children in poorest families (social class V) are more than 4 times greater than those in the richest (social class I).[2]

… *Policy 43 aims to minimise the environmental impact of collection and transport of waste and recyclables*

Box 2 Health well-being and waste management

All waste has the potential to adversely affect the environment, either by contaminating the air, soil or water. Though there are uncertainties about the type and magnitude of health effects which derive from waste dispersal in the environment, some adverse impacts are probable.

Pressing for waste minimisation presents substantial practical and political challenges; but these challenges need to be tackled for the sake of longer term environmental benefits.

3 Indicate ways of meeting the need for widespread education in the issues involved, and identify clearly the different levels of learning that will have to take place if the strategy is to achieve results

viii. Specify the individual, communal, industry and organisational levels of learning needed, and outline approaches to stimulating that learning (see, for example, Box 2)

… *Section 4N describes education and promotion*

ix. Clearly identify funding for health and safety training for workers in recycling and composting depots and develop proper procedures for community composting staff

x. Consider ways of promoting further research into the effects of waste treatments on health, and of making findings from research of this kind widely accessible to Londoners

- Landfill sites
  Risks to health from landfill sites are hard to quantify.
  There have not been many studies on the health of landfill workers.
- Incinerators
  Exposure measurements to pollutants from incinerators have been obtained exclusively during 'normal' operating conditions. 'Upset' conditions may be frequent and are associated with much higher emissions of hazardous materials.
  The UK Royal Commission on Environmental Pollution highlight possible site-specific risk assessments that could be carried out to examine the risk of adverse health impacts.
- Composting
  Much of the evidence on the health effects of community composting has

[2] Jarvis, S., Towner, E. *et al.* "Accidents" in *The health of our children* ed. Botting, B. London, Office of Population Censuses and Surveys, HMSO. 1995 *cited in* Cave, B. (2001).

been conducted on workers.
Significantly higher levels of microbial agents have been found in houses that separate organic waste and store the waste indoors.

Box 3 Taking fruit seriously

The initiative to increase the proportion of biodegradable matter which is composted could be linked with the Department of Health's five-a-day campaign to increase fruit and vegetable consumption in schools.

Pupils could be shown the wider benefits associated with decreasing the environmental 'footprint' of food consumption and encouraged to compost waste fruit and vegetable matter.

4 Use every opportunity to promote lobbying of manufacturers and other organisations to develop more sustainable practice in relation to the creation and disposal of waste

xi. Suggest approaches to providing incentives to organisations – including those in the packaging industry – to reduce the waste burden on the consumer

xii. Wherever possible, indicate ways of 'persuading by example' – with the goal of encouraging other organisations to switch to more sustainable practices (see Box 4 for one example)

Box 4 Don't forget the power of example

NHS waste is not municipal waste, but the NHS is a major consumer of goods and services in the capital and can set a powerful example. For instance, despite recent improvements in the quality of meals offered to in-patients, the NHS in London still disposes of a considerable quantity of unwanted food.

Opportunities exist to compost waste food … how can the strategy effectively promote composting in influential agencies outside its direct remit?

5 Clarify the health benefits likely to result from the proposed strategic planning of municipal waste in London

xiii. Support research to investigate the health effects of the proposals and indicate how London-wide guidance on waste disposal will improve the health of Londoners (see Box 2).

xiv. Indicate how the proposed standardisation of waste collection, recycling and waste disposal contracts will improve the health of Londoners

xv. Indicate how the proposed single London waste disposal authority will improve the health of Londoners

… *Policy 47 states that all waste authorities will have a joint municipal waste management strategy*

Annex 1 Analysis of potential health impacts of strategy policies and proposals

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
4A: Framework for Policies and Proposals				
Policy 1- Aim to exceed recycling and composting targets set in Waste Strategy 2000.	• Greener approach to waste. Saves energy and natural resources. Reduces global warming. Reduces air, water, noise and soil pollution.	• Beneficial for global and local health and well-being for the present and the future.		
Policy 2- Legislative changes to achieve recycling and composting rates recommended by House of Commons.				
Proposal 1- Aim to exceed recycling and composting targets and recovery targets for municipal waste.				
Policies 3-9 Proposals 2-12	• Limited relevance to health.			
4B: Waste minimisation and recycling versus incineration				
Policy 10- Promotion of waste minimisation, increased recycling and sustainable management of waste.	• Stimulation of greener approaches to waste management.	• Reduction in demand on resources and less global warming, therefore beneficial for global health and well-being.		
Proposal 13- Presumption against increase in large scale mass burn municipal waste incineration.	• Reduction in emissions of greenhouse gases such as carbon dioxide.	• Less Global warming therefore reduced effects on: vector-borne and contagious diseases, heat-related and respiratory diseases, crop production, natural disasters.		
Proposal 14- Emission limiting equipment and combined heat and power technologies to be used; no long term contracts for incineration; recyclable material to be removed before incineration.	• Reduction in general air pollutants such as particulate matter, oxides of nitrogen and sulphur, soot particles.	• Reduced morbidity from cardiovascular and respiratory diseases, fewer deaths brought forward, increase in social well-being.		

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
Policy 11- Support of tax on incineration and removal of exemption of incineration from Climate Change Levy.	• Reduction in emissions characteristic of incinerators such as dioxins, furans. • No reduction in volume, toxicity and infectivity of hazardous waste. • Loss of jobs.	• Possible reduction in cancers, congenital malformations, sexual development and immune system problems. • Fewer workers exposed to toxicants such as dioxins and furans.	• Workers continue to be exposed to hazardous agents. • Job loss leading to poverty and reduced self-esteem.	• Improved regulations on handling waste. • Employment of incineration workers in recycling and reuse jobs.
4C: Waste Reduction and Reuse (Waste minimisation)				
Policy 12- Increase in awareness regarding waste.	• Saves natural resources and energy production- especially important for non-renewable resources and carbon sinks.	• Less Global warming therefore reduced effects on: vector-borne and contagious diseases, heat-related and respiratory diseases, crop production, natural disasters.		
Proposal 15- Promotion of waste minimisation.	• Less waste produced and therefore less sent to landfill sites and incineration plants.	• Reduced health effects such as respiratory and cardiovascular diseases. Reductions in social problems. Possibility of reduction in cancers, congenital malformations, spontaneous abortions, self-reported problems. Long term effects of landfill not known, issue for future health, environment and future land development.		
Proposal 16- Identification of influencing factors in waste.	• Reduces toxicity of waste- selecting non hazardous items important in source reduction.			
Proposal 17- Provision of waste collection services.		• Reduction in infections, chronic diseases, wounds, burns, poisoning.	• Workers exposed to hazardous and infectious agents therefore respiratory and gastro-intestinal diseases, poisoning and burns.	• Working conditions to be monitored and regulated.

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
Policy 13- Minimisation of waste, therefore per head of population.	• Development of a sustainable attitude.	• Increased health and well-being on a global and on a local scale. Benefits on health seen in future generations. Positive approach to life crucial for Earth's survival.		
Proposal 18- Environment for change through communication.				
Proposal 19- Sustainable product design.				
Proposal 20- Promotion of reusable nappies.				
Proposal 21- Reuse of wood, rubble and others.				
Proposal 22- Co-ordination of furniture reuse.				
Proposal 23- Refurbishment of computer equipment.				
Proposal 24- Remanufacturing workshops for brown and white goods.				
Policy 14- Home and community composting encouraged.				
Proposal 25- Appropriate information for home composting.				
Proposal 26- Sharing of resources in composting.				
Proposal 27- Consultation with stakeholders.				
4D: Recycling Collection				
Policy 15- Maximisation of recycling where minimisation and reuse not possible.	• Conservation of resources and energy.	• Beneficial for global health and well-being for the present and the future.		
Policy 16- Kerbside collections and 'bring' systems.	• Prevents emission of greenhouse gases therefore less global warming.	• Reduced effects on: vector-borne and contagious diseases, heat-related and respiratory diseases, crop production, natural disasters.		

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
Proposal 28- All properties provided with kerbside collections.	• Stimulation of greener approaches to waste management.	• Reduction in demand on resources and less global warming, therefore beneficial for global and local health and well-being.		
	• Reduces need for landfill sites and incineration plants.	• Reduced health effects such as respiratory and cardiovascular diseases. Reductions in social problems. Possibility of reduction in cancers, congenital malformations, spontaneous abortions, self-reported problems.		
Proposal 29- Alternative arrangements if kerbside collections not possible.	• Air and noise pollution and infectious agents from plant. • Generates jobs.	• Reduced poverty and well-being.	• Respiratory, gastro-intestinal and cardiovascular disease, effects on social health.	• Strict controls on exposure.
Policy 17- Maintenance of bring facilities.				
Proposal 30- Range of recycling banks.				
Proposal 31- Recycling of street and trade waste.				
Policy 18- Greater participation in waste minimisation, recycling and composting schemes.				
Proposal 32- Possible financial rewards as incentive.				
Proposal 33- 'Best Practice' on recycling schemes.				
4E: Composting				
Policy 19- Maximisation of waste composting where minimisation and reuse not possible.	• Reduction in volume of waste landfilled and incinerated.	• Reduced health effects such as respiratory and cardiovascular diseases. Reductions in social problems. Possibility of reduction in cancers, congenital malformations, spontaneous abortions, self-reported problems.		

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
Proposal 34- Hierarchy of composting.	• Less organic waste in landfill so less methane produced from landfill sites.	• Less global warming therefore reduced effects on: vector-borne and contagious diseases, heat-related and respiratory diseases, crop production, natural disasters.		
Proposal 35- Central composting facilities.	• Use of compost improves soil structure and acts as fertilizer.	• Better crop production and less reliance on artificial products.	• Compost may be contaminated by heavy metals.	• Strict testing of compost before used for agriculture
Proposal 36- Green waste received at Reuse and Recycling sites.				.
Proposal 37- Dry recyclable kerbside collections.	• Generation of jobs.	• Reduced poverty and increased self-esteem.	• Respiratory complaints in workers due to infectious agents.	• Need for strict controls on exposure.
Proposal 38- Separate collection scheme for those without kerbside collections.	• Stimulation of greener approaches to waste management.	• Reduction in demand on resources and less global warming, therefore beneficial for global health and well-being.		
Proposal 39- Composting of park waste.				
Proposal 40- Composting at markets.				
4F: Recovery				
Policy 21- Investigation of recycling and composting before energy recovery.	• Stimulation of greener approaches to waste management.	• Reduction in demand on resources and less global warming, therefore beneficial for global health and well-being.		
Policy 22- Current incineration only uses waste that cannot be reused, recycled or composted.				
Proposal 41- Development of heat distribution networks.	• Energy recovery.	• Less demand on other forms of energy so less demand on natural resources and global warming resulting in improved global health.		
Proposal 42- Results of monitoring on internet.				

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
Proposal 43- Only Bottom ash to be reused in building material.				
Proposal 44- 49	.			
4H: Reuse and Recycling Centres (Civic Amenity sites)				
Policies 27-28Proposals 53-57	• Increased numbers of sites and complexity of activity should provide increased employment			
4J: Street Cleansing and Litter				
Policies 29-34 and Proposals 58-68	• Improvement in the perceived environment should contribute to feelings of well being.. Decreased population of vermin. • Increased employment.	• Decreased injuries. • Potentially fewer diseases transmitted by vermin.		
4K: Hazardous Waste Policy 35 Proposals 69-71	• Decrease in cross-contamination from hazardous wastes..	• Decreased teratogenicity of waste sites		
4L: Waste Electrical and Electronic Equipment Policy 36 Proposals 72-73	• Improvement of the perceived environment, increased employment.			
4M: Clinical Waste Policy 37 Proposals 74-75	• Increased employment.	• Decreased public exposure to clinical wastes. Decreased Toxocarosis through disposal of dog faeces.	• Risk to waste workers	• Enforcement of health and safety guidelines
Proposal / Policy				
4N: Education and Promotion / Awareness of waste and recycling Policy 38 Proposals 76-79	• Effect on determinants of health	• Beneficial effects on health		
4P: Leading by example Policies 39-40 Proposals 80-82				
4Q: Markets Policy 41 Proposals 83-85	• Increased employment.			

Proposal / Policy	Effect on determinants of health	Beneficial effects on health	Adverse effects on health	
			effects	possible mitigation
4R: Planning the Waste Infrastructure in London Policy 42 Proposals 86-87	• Increased community involvement in planning.			
4S: Transport of Waste Policy 43 Proposals 88-92	• Decreased waste traffic on roads..			
4T: Costs and Funding Opportunities Policy 44 Proposals 93-95	• Potential for economic regeneration.			
4U: Waste Collection and Disposal Contracts Policies 45-46 Proposal 96	• Potential for decreased noise, emissions and traffic volume.			
4V: Joint Municipal Waste Management Strategy Guidelines Policy 47 Proposals 97-98				
4W: Long term measures and legislation changes Policy 48 Proposals 99-104				

Annex 2 Other options

Other Options	Effect on Determinants of Health	Beneficial Effects on Health
Development of policies around the extraction of Biogas from landfill and other waste processes and its utilisation as fuel.	Decreased greenhouse emissions and toxicity/explosion risk at waste sites. Promotion of zero carbon fuel.	

Annex 3 Participants in policy appraisal workshop

Draft Municipal Waste Management Strategy
Health Impact Assessment Workshop

Date: 10th October 2001

Confirmed attendance ... *in alphabetical order by organisation*

name	*organisation*
Susie Rabin	Age Concern
Roger Chapman	Association of London Government
Jackie Spiby*	Bromley Health Authority
Adrian Eddleston	Bromley PCT
Andrea Davies-Brochocka	Cabinet Office
Crispin Truman	Cabinet Office
Edward Gretton	Cabinet Office
Virginia Murray	Chemical Incident Response Service
Steve Humphrey	Environment Agency
Chris Peters	Environment Agency
Niall Machin	Greater London Authority
Lesley Mountford	Greater London Authority
Liza Cragg	Greater London Authority/ Health Development Agency
David Hutchinson	Greater London Authority
Katherine Higgins	Greater London Authority Municipal Waste Management
Rob Quigley	Health Development Agency
Caroline Lowdell	Health of Londoners Project
Douglas Millar	House of Commons
Marsaili Cameron	Independent consultant
Ben Cave	Independent consultant
Peter Forsdick	Infraco JNP London Underground
Oliver Morgan	Kensington, Chelsea and Westminster Health Authority
Karen Jochelson	King's Fund
Robin Stott	Lewisham University Hospital
Stephen Didsbury	London Borough of Bexley

* facilitators of small group work

Richard Adam	London Borough of Hammersmith and Fulham
Jason Searles	London Borough of Lambeth
Malcolm Smith	London Borough of Newham
Richard Hobbs	London Borough of Wandsworth
David Fell	London First
Mick Holder	London Hazards Centre
Ranjini Beveridge*	London Health Commission
Caron Bowen*	London Health Observatory
Giovanni Leonardi	London School of Hygiene and Tropical Medicine
Derek Smith	London Underground Limited
Sue Atkinson	NHS London Regional Office
Steve Hajioff *	NHS London Regional Office
Vicky Hobart*	NHS London Regional Office
Gifford Batstone	NHS South West Regional Office
Andrew Lappage	North London Waste Authority
Janet Fyle	Royal College of Midwives
M Jokinen	Royal College of Midwives
David Tidmarsh	UCG

* facilitators of small group work

Reference list

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