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**ANALYSIS OF INSTITUTIONAL STRUCTURES FOR  
SUSTAINABLE SOLID WASTE MANAGEMENT  
FOR THE SOUTH WEST OF ENGLAND**

**GEORGE VIGILEOS**

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**FCH LEARNING CENTRE  
UNIVERSITY OF GLOUCESTERSHIRE  
Swindon Road  
Cheltenham GL50 4AZ  
Tel: 01242 714600**

*To my beloved daughters, Winona and Cheyenne, both born during this work,*

*“Treat the Earth well:  
it was not given to you by your parents, it was loaned to you by your children.  
We do not inherit the Earth from our Ancestors,  
we borrow it from our Children”.*

*Native American Proverb*

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## **Abstract**

Waste management has become one of the major global environmental concerns of our times associated, as it is, with the consumerist tendencies which fuel the engine of economic growth and environmental impacts. Existing policies in the UK have not yet managed to curb the problem of steadily increasing waste generation despite efforts by Central government and the European Union to set inflexible national targets for waste management. A major problem is that while central government sets the overall goals to be achieved, actual waste collection and disposal are functions of local government.

In many cases local governments lack the resources and capacity to make economically efficient and environmentally effective decisions. Waste management infrastructure must be developed for the long-term, yet economic efficiency considerations often conflict with local political objectives and with a wide range of resource constraints. Local government is not always the most suitable level to deal with problems that often have regional impacts or can be more efficiently organised within larger geographic units. The European Commission is starting to re-consider the application of its rigid waste management hierarchy in light of suggestions that sustainable solutions may vary across regions.

Changes in the regulatory environment for solid waste and the regionalisation of disposal infrastructure present economic opportunities which pose the need for institutional change in waste practices. The study examines the institutional arrangements for municipal solid waste management within the South West of England region. Using in-depth key actor interviews, questionnaires, and Force Field Analysis, key actor and stakeholders perceptions on the concept of sustainable waste management are examined, and opportunities and obstacles arising from evolving institutional arrangements are identified.

The study finds that there are significant barriers to the development of more sustainable Municipal Solid Waste Management (MSWM) in the South West Region,



especially in the areas of 'culture' (both public culture and organisational), regional institutional capacity, and related markets. Amongst the issues that need to be addressed are the interrelated issues of public awareness, participation and empowerment, parochialism and the lack of power of regional institutions to deal with Local Authority waste management contracts within an implementable strategy for the region, the (often negative) influence of the markets related to MSWM, the lack of responsibility for funding of programmes aimed at changing public behaviour, and potential conflict of interest amongst stakeholder groups. Central government, Local Authorities and the waste management industry all need to instigate significant changes in institutions and institutional arrangements in order to achieve a move towards more sustainable MSWM.

## **Author's Declaration**

I declare that the work in this thesis was carried out in accordance with the regulations of the University of Gloucestershire and is original except where indicated by specific reference in the text. No part of the thesis has been submitted as part of any other academic award. The thesis has not been presented to any other education institution in the United Kingdom or overseas.

Any views expressed in the thesis are those of the author and in no way represent those of the University.

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## List of Abbreviations

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BPEO	Best Practicable Environmental Option
BPPEO	Best Practicable Planning Environmental Option
CC	County Council
DC	District Council
DETR	Department of Environment Transport and Regions
EA	Environment Agency
EfW	Energy from Waste
GoSW	Government office for the South West
IWM	Institute of Waste Management
LA	Local Authority
LCA	Life Cycle Analysis
LCI	Life Cycle Inventory
MRF	Material Reclamation Facility
MSWM	Municipal Solid Waste Management
NIMBY	Not In My Back Yard
NGO	Non Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
PPG	Planning Policy Guidance
RDA	Regional Development Agency
RGS	Royal Geographic Society
RPG	Regional Planning Guidance
RTAB	Regional Technical Advisory Body
SMSWM	Sustainable Municipal Solid Waste Management
SQC	Status Quo Curve
SW	South West
SWM	Solid Waste Management
SWERDA	South West Regional Development Agency
UA	Unitary Authority
WCA	Waste Collection Authority
WDA	Waste Disposal Authority
WM	Waste Management
WMI	Waste Management Industry
WMP	Waste Management Planning
WtE	Waste to Energy



## CHAPTER 1 INTRODUCTION

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The increasing amounts of solid waste per capita generated in 'developed' economies (Organisation for Economic Co-operation and Development, 1995, 1997) brings waste management to the forefront of environmental problems faced by modern societies. In England and Wales alone 106 million tons of industrial, commercial, and household waste were produced in 1998. Municipal solid waste (waste collected by or for Local Authorities) amounted to 28 million tons for the same year, out of which 83% was landfilled, 9% recycled or composted, and 8% incinerated. The amount of solid waste generated continued to grow at a rate of 3% in 1999 and 2000 (Department of the Environment Transport and Regions 2000, p.10). There is widespread agreement amongst experts and key actors that both the amount of waste generated and the way it is managed are not sustainable, and that serious and far reaching changes are needed (see Royal Geographic Society 2001, DETR 2000).

Waste management legislation, formulated at the European Union level, provides the main driving force for change in the way waste is managed in the UK. The pressures are to divert solid waste for recycling, composting, and incineration with energy recovery before it reaches the landfill (EU Hierarchy for Waste; 5th Action Programme, 1993-2000). This requires investment in reprocessing capacity and raises the need to address the market for recycled materials, both of which are regional in nature (Hickman, 1993). Thus, the appropriate level (policy and spatial) at which to address sustainable waste management is not immediately apparent and it becomes important to consider both the local authority and the region (Barrett & Lawlor, 1997; Rae, 1996).

Institutional arrangements present both important barriers and opportunities for change towards the sustainability of waste management (Hickman, 1993; RTPI, 1992; Wannop, 1994) and as the case study of the South West of England Region

demonstrates, a plethora of institutional barriers and driving forces are present at the regional level.

The research question for this study is:

What is sustainable waste management, and to what extent are existing institutional structures capable of providing sustainable waste management at the regional level?

The aims and objectives of this study are:

#### Aims

1. To gain an understanding of the concept of sustainable waste management within different local and regional institutional structures.
2. To evaluate the extent to which the existing local and regional institutional structures are able to provide sustainable waste management, and how they might be made more effective.

#### Objectives

1. To explore the meaning of sustainable waste management.
2. To develop criteria to evaluate sustainable Municipal Solid Waste Management (MSWM).
3. To evaluate existing local and regional institutional structures in the UK related to municipal solid waste management (MSWM) in order to examine the role of key actors in the shaping of policy and planning for MSWM.

The premise of this work is that sustainable waste management is determined by more than just economic efficiency and the state of technology for processing waste. Aspects of sustainability that relate directly to organisational structures have to do with issues of representativeness, equity, and economic efficiency (Narayan, 1993). National and local political factors, interest groups - such as the waste management industry and environmental NGOs - the level of public awareness and participation, and issues of regional identity, all play a major role in determining the sustainability

of the waste management process. This research therefore examines the following factors:

- **The wider policy environment:** The adoption of new European Directives and their adaptation to the national level (such as the Packaging Directive and the proposed Landfill Directive) have created a changing policy environment within which waste management must operate (Commission of the European Communities, 1992).
- **Institutional arrangements:** Changing policies have meant changes in the environmental targets that Municipal Solid Waste Management has to achieve. This has created the need for improved infrastructure and a new economic environment in the waste management sector, instigating new institutional arrangements. The changing nature of regional government, and in particular waste management planning, has brought about institutional change in the form of new regional level planning bodies, and new forms of co-operation between key actors.

Chapter 2 examines the concepts of sustainable development and waste, and discusses the meaning of Sustainable Waste Management. A definition of Sustainable Waste Management is then proposed and operationalised.

Chapter 3 introduces the Institutional Economics framework, which is used as the theoretical framework for case study. The role of key actors, policy networks and regional institutions are discussed. The institutional model used in the data collection and analysis is briefly introduced.

Chapter 4 outlines the methodology that is derived from the institutional approach. The main elements of the case study are discussed, and the Force Field technique is introduced.



Chapter 5 examines the statutory environment, which draws the context for the case study, and which also provides the main driving force behind recent institutional changes in the UK aimed at achieving sustainable waste management.

Chapter 6 discusses the tool of Force Field Analysis (FFA) in more detail, and presents the FFA results from the case study questionnaire. The FFA results from two other English regions are incorporated and compared to the results from the case study region.

Chapter 7 presents the results from the in depth interviews of the key actors involved in the management and planning of Municipal Solid Waste in the case study region. Key actor perceptions of the meaning of sustainable waste management, and their preferences and perceptions on a variety of significant issues related to it are presented and analysed.

Chapter 8 draws together the results from the variety of techniques used in the case study and analyses them with the use of the institutional model.

The Epilogue presents some afterthoughts about the methodological approach and its use in this study.

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## CHAPTER 2 DEFINING SUSTAINABLE WASTE MANAGEMENT

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### Introduction

One could argue that the concept of sustainable development has emerged from changing awareness of the limited supply of natural resources and the limited ability of ecosystems to act as pollution sinks for the products of economic activity, as well as changing attitudes on the relationship between economic growth and the natural environment.

The main purpose of this chapter is to examine the concept of sustainable development and to derive from that the meaning of sustainable waste management. The chapter looks at both theoretical and operational approaches to sustainable development, and focuses on the relationship between economic growth and 'development' within the context of changing environmental values and social priorities.

Following the discussion of sustainable waste management, and its links with sustainable development, a theoretical set of criteria for sustainable waste management is then proposed.

### 2.1 Sustainable development: Definition

Before discussing the meaning of Sustainable Waste Management, it is necessary to examine the concept of sustainable development. Ever since the United Nations Conference on Environment and Development (UNCED, Rio 1992) the concept of sustainable development (already defined by then in many different ways - see Pearce *et. al.*, 1991) has been used prolifically by national and local government, NGOs, industry and commerce, scholars and others. There is a growing diversity of

existing definitions, which represent an underlying disparate hierarchy of values. Perhaps the most commonly used has been the definition by the Brundtland Commission in Stockholm, 1987 (Ibid):

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

There are at least two possible approaches to the definition of sustainable development. The theoretical approach to the definition would be to analyse the meaning of the words ‘sustainable’ and ‘development’ and then attempt to derive meaning from the composition of the two concepts. The operational approach to the definition would be to analyse existing definitions used by the people and organisations involved in the implementation of sustainable development, and attempt to derive the definition of the concept based on its operationalisation (taking the position that it is the actions which matter, not the intentions).

Most economists perceive economic growth as an integral part of economic development (Pearce, 1993: p. 4), and some economists still perceive the two concepts as synonymous. Development however can mean much more than growth, fuelling a debate amongst economists, which has persisted for the past thirty years.

### *2.1.1 Economic development and growth debate.*

Development is associated with progress towards a set of social goods. As Pearce (1989) rightly points out, “real” development is a normative or “value-laden” issue. Economic development according to Kindleberger and Herrick (1977) includes improvements in material welfare, especially for the lowest income groups; eradication of mass poverty and the illiteracy, disease and early death which accompany it; shifts in the structure of production from agriculture to industry; employment for the many rather than the few; and greater participation of broadly based groups in decision making about how to improve their welfare.



Although social goals like those mentioned above tend to change over time, and are different for countries in various stages of development, few would argue that economic development does not involve a combination of the structural changes in the economy with a rise in real incomes, a better distribution of income, gains in the provision of health and other services, and a higher degree of citizen participation in the decision making process.

This set of socio-economic goals could be assumed to be adequate for the attainment of economic development, especially in the meaning given to development prior to the 1970's. After the *Club of Rome* published *The Limits to Growth* (Meadows *et. al.*, 1974), the concept has been defined differently. It has changed from meaning continued economic growth, to 'development within resource limits'. Preoccupation with the fulfilment of basic needs and other socio-economic goals is seen as inseparable from the growing concern about the mounting degradation of the physical environment. Thus the state of the environment enters the set of variables considered in the development equation.

To emphasise the importance of the environment in this new direction, and to differentiate it from the existing meaning of development, the term 'sustainable development' emerged. Development (of human society) is not adequate on its own, reflecting the growing awareness that it is dependent upon the continued existence of the natural environment – both in terms of availability of material resources and of pollution sinks. The Stockholm Conference on the Human environment which led to the establishment of the United Nations Environment Program (UNEP), was one of the first products of this shift in the conceptualisation of development. According to Pezzoli (1997) it was the seminar on Patterns of Resource Use, Environment and Development Strategies convened by the UNEP together with the United Nations Conference on Trade and Development (UNCTAD) at Cocoyoc (Mexico) in 1974 where the two strands of the development movement come together, and the term

sustainable development takes centre stage in the debate over the relationship between economic growth and the natural resource base upon which it depends.

The realisation that a degraded environment limits the prospects for economic *growth* has brought to the sustainability debate a whole new set of interest groups, those representing the interests of industry and commerce. The realisation that the state of the environment is related to the attainment of *development* goals and vice versa, brings into the sustainability debate a very different group, that of environmental NGOs, community development groups and other locally based citizens' interest groups.

The Earth Summit on the Environment in Rio in 1992 has seen the birth of Agenda 21, and many of the concerns over the relationship between the environment and development have become integrated in the 'new' global sustainable development movement under the motto 'think globally - act locally', and institutionalised in a diverse array of organisations (such as, for example, Vision 21 and Forum for the Future in the UK). It is no surprise then that in an effort to categorise the literature on sustainable development, Pezzoli uses political ecology as the guiding principle. Renn and Goble (1996) categorise the sources of differences in definitions of sustainable development as related to intended usage, underlying values and interests, academic tradition, and a sense of time and space (see Figure 2.1).

Figure 2.1 Categorising the definitions of sustainable development

Sources of difference in definition - Categories	Subcategories			
Intention of user	For motivation	As a label: to assign value	As a guide to behaviour	As a set of concepts for viewing the world
Values and interests in the players concerned	Anthropocentric - Utilitarian perspective	Anthropocentric - Protectionistic perspective	Biocentric - Nature as the unity of all creation	Biocentric - Nature as a place for creatures with equal rights
Perspectives of academics discipline or research tradition	Studies of the physical world	Studies of biological interactions	Studies of human interactions relating to their environment	
Sense of time and space	For diagnosis Is it sustainable?	To describe futures which might be sustainable	To identify possible paths toward improving sustainability	

Adapted from Renn and Goble, 1996.

It is a goal of this study to identify possible paths towards improving sustainability in the area of Municipal Solid Waste Management. As far as this researcher is concerned the meaningful goal for sustainable development should be social welfare<sup>1</sup>, with the understanding that environmental integrity is part of what constitutes this welfare. In terms of achieving this 'development', a change in social values, and a change in the

<sup>1</sup> What constitutes social welfare is of course debatable. According to the Neoclassical approach, the maximisation of the utility that society (considered as the sum of individuals' utility) derives from the consumption of goods and services constitutes social welfare, and happens automatically under perfect competition.



institutional arrangements necessary to achieve social welfare given these values, is a necessary step in the process.

### 2.1.2 *Changing social priorities and environmental values*

The Brundtland definition of sustainable development underlines the conflict between existing consumerist tendencies, upon which the present system of economic growth is based, and the expressed goal of meeting the needs of the present and future generations. According to Agenda 21, this involves maintaining and developing the natural and human resource base and developing new institutional arrangements which intensify and broaden citizen participation in the development process.

In an era of privatisation in many parts of the developed world, and a renewed emphasis on markets as the allocative mechanism for scarce resources, the use of the term 'needs' is significant because it seemingly opposes the existing economic development reality. Advanced economies produce more and more 'things' that appear to satisfy ever increasing 'wants', and although marketing has an element of informing the consumer (and thus creating more efficient markets), it also creates demands for products that are well beyond people's basic needs<sup>2</sup> (see for example Pietrykowski, 1995, on the influence of markets on people's expressed needs, identities, and lifestyles). To add to the complexity of the situation, people also discard things that others need. Waste has to do with what one does not want anymore, not with what nobody needs<sup>3</sup>. Clearly, in today's market based economy, 'the wants have it'. The 'advanced' industrialised countries account for a highly disproportionate share of both the consumption of natural resources, and the

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<sup>2</sup> What people need is difficult to determine in any economic system. The failure of centralised planned production system in the communist Soviet Union, where even the basic needs of people were not met is one example. In contrast, the market system will produce almost anything people want and can pay for, regardless of its usefulness.

<sup>3</sup> Although waste consists of things that have served their purpose for the individual, such as packaging which is designed to protect a product in transit, much of this resource use could be avoided altogether, materials reused, or substituted by easily recycled materials

production of waste and pollution of ecosystems<sup>4</sup> which accompany it (see the UN world development report, 1998). For example:

Globally, the 20% of the world's people in the highest-income countries account for 86% of total private consumption expenditures – the poorest 20% a minuscule 1.3%.

The richest fifth:

- Consume 45% of all meat and fish, the poorest fifth 5%.
- Consume 58% of total energy, the poorest fifth less than 4%.
- Have 74% of all telephone lines, the poorest fifth 1.5%.
- Consume 84% of all paper, the poorest fifth 1.1%.
- Own 87% of the world's vehicle fleet, the poorest fifth less than 1%.
- The fifth of the world's people in the highest-income countries account for 53% of carbon dioxide emissions, the poorest fifth for 3%. Per capita emissions are for example 3.9 metric tons a year in Mexico and 2.7 in China, compared with 20.5 metric tons in the United States and 10.2 in Germany.

(UN World Development Report, 1998)

The growth in consumption (see Figure 2.2) is also distributed unequally as the industrialised countries of the world continue to consume a disproportionate amount of the world's resources (from 81% of the total in 1970 to 76% in 1995).

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<sup>4</sup> A certain amount of pollution is always present in the management of waste in modern economies. Recycling, incineration, and composting all produce some polluting air emissions. Landfills produce leachate, and even in the case where that is recycled and rendered harmless, there is the pollution associated with the transport of waste to consider. Arguably, some traditional societies – such as Nepal a few years ago – where everything is recycled and there is no mechanical transport involved, manage their waste without creating any pollution.

Figure 2.2 Growth in consumption

Growth in total consumption expenditures, 1970 to 1995, in trillions of U.S. dollars (1995 prices)				
	1970	1980	1990	1995
Industrialized countries	8.3	11.4	15.7	16.5
Developing countries	1.9	3.6	4.3	5.2

Source: UNFPA 2001

At the heart of this consumerism, Barkin (1998, p.16) places a productive system which 'thrives by generating new demands for goods to continue growing rather than by attempting to define a socially desirable package of individual and collective goods that would satisfy basic needs'. One could thus argue that the fundamental problem with the system is that it is founded on expectations of continued growth. There are two main outlooks on how the needs of the present can be met under these existing patterns of distribution:

1. The existing economic development paradigm, in which economic growth (as traditionally measured) coupled with economic efficiency will raise the standard of living in developing countries through the creation of jobs, and the increasing levels of investment in human made capital. It is in fact the shift from natural capital to human made capital which is seen as the key to economic development.
2. A new perception of the underlying economic theory related to economic development. Criticism of the assumptions of Neo-classical economic theory has led to the development of new branches of economics, such as Evolutionary Economics and Ecological Economics, and the resurgence of interest in some old, such as Institutional Economics. Some would say that this is an indication of an emerging new paradigm. What the existing paradigm does not recognise is the complementarity rather than substitutability of human and natural made capital



(Daly in Goodland *et. al.*, 1991). Thus, in his journey from 'empty-world' economics to 'full-world' economics, Daly makes the point that we are passing into an era where the remaining natural capital (including the capacity of the environment to absorb wastes) has become the limiting factor to economic development<sup>5</sup>. This shift from an economy constrained by human made capital to one constrained by natural capital (the natural resource base, which in this case is comprised of renewable and non-renewable materials used in the production process together with the capacity of the environment to regenerate itself and its capacity to absorb pollution and wastes from human activities) challenges the neo-classical economists' view of the world, and has its expression in the shift of societal values concerning the natural environment. According to Paehlke (1995), not only are present economic assumptions and policies not able to deal with sustainability related tasks, but also people who deal with sustainability issues often conclude that the long-term viability of industrial society as it is currently constituted is in doubt.

One of the significant effects of economic growth is the generation of large amounts of waste. The management of this waste, because of all the negative environmental impacts which it produces, has become an important consideration in the pursuit of sustainable development.

## 2.2 Waste: Definition in the UK, EU

Waste in the UK is defined in Schedule 2B of the Environmental Protection Act (EPA) 1990 as: any substance or object, which the holder discards, or intends to, or is required to discard. This definition is based on the definition of waste in Directive

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<sup>5</sup> Almost thirty years ago, the 'Club of Rome' advocated the position that the world was on a course where, within the next fifty years, natural resources such as oil and coal would be exhausted. Today, new technologies have led to new discoveries of such resources, as well as advancing the extraction process to the point where some sources have now become technologically feasible and economically efficient to extract. Also, more efficient production systems have reduced the amount of raw materials required per unit of output. Ironically, the limits to growth are related to the overexploitation of renewable resources (such as wood, fish, and water), and the limits of the capacity of the environment to assimilate waste and pollution flows rather than the exhaustion of non-renewable resources.



91/156/EEC, which is the Waste Framework Directive (Schedule 2B reproduces Annex I of the Waste Directive 75/442 as amended in 91/156).

Schedule 2B lists a variety of categories of waste, starting from the category of 'residues from production and consumption', to the catch-all category of 'any materials, substances or products which are not contained in the above categories'.

Thus the definition can be simplified as:

*Waste is any substance or object which the holder discards, or intends to, or is required to discard ('holder' being the producer of the waste or the person who is in possession of it).*

It is important to note that this is a much broader definition than the one in force before the Environment Act 1995, and that it includes both agricultural and mining waste. Directive Waste (referring to the EU Directives on waste, and roughly equivalent to what in the UK is classed as Controlled Waste, i.e. household, industrial, commercial and clinical waste that requires a waste management licence for treatment, transfer and disposal) is based on the same definition, but it excludes from the categories considered, waste from mining or quarrying operations and natural waste from farming (but not non-natural waste such as empty pesticide containers). The distinction is an important one because the total weight of mining and agricultural waste for the UK accounts for 48% of total annual waste arisings (DEFRA, 2001). Therefore, municipal waste for the UK constitutes 12% of total Controlled waste, and only 6% of total waste (see Figure 2.3).

Figure 2.3 Estimated total annual waste arisings by sector for the UK Source: DEFRA 2001

Estimated total annual waste arisings by sector							
United Kingdom							
Sector			Annual arisings (million tonnes)	Date of Estimate	Status <sup>1</sup>	Source	Percentage of total arisings
Agriculture		2	87	1999	NC	DETR	20
Minerals (Mining & quarrying)		3					
	colliery	3	15	1997	NC	DETR	4
	coal	3	9	1997	NC	DETR	2
	china clay	3	26	1997	NC	DETR	6
	clay	3	14	1997	NC	DETR	3
	slate	3	7	1997	NC	DETR	2
	quarrying	3	47	1997	NC	DETR	11
Sewage sludge	4,5		1	1998/9	C	Water UK	0
Dredged material		6	41	1997	C	MAFF	10
Municipal waste		7	30	1998/9	C	DETR	7
	of which household		27	1998/9	C	DETR	6
Commercial		8	25	1998/9	C	EA	6
Industrial		9	50	1998/9	C	EA	12
Demolition & construction		10	72	2000	C	EA	17
<b>Total</b>			<b>424</b>				<b>100</b>

1. NC = Not classed as a controlled waste under the terms of the Environmental Protection Act (Controlled Waste Regulations) 1992; C = controlled wastes under the terms of the Environmental Protection Act (Controlled Waste Regulations) 1992

2 Estimate is for Great Britain, derived from a survey of agricultural waste commissioned by DETR

Includes all waste streams, e.g. excreta from all livestock (both housed and grazing animals) and other wastes including straw plastics and packaging, animal carcasses and slurries.

3 Minerals waste estimates based on ratios of waste to product, detail set out in table 7.5. 1997 estimate used as 1998 estimate is still provisional

4 Dry weight arisings. Wet weight can be estimated on the basis of 4% solid content on average giving a total of 26,450,000 tonnes

5 Water UK (formerly Water Services Association and Water Companies Association)

6 The data are for all UK waters

7 UK estimates based on returns made by Waste Disposal / Unitary Authorities in England and Wales to a DETR/National Assembly for Wales survey.

8 Estimated from EA survey. Figures only cover England and Wales.

9 Estimated from EA survey. Figures only cover England and Wales

10 Provisional estimates from DETR/EA survey. Figures only cover England and Wales

### 2.3 Sustainable waste management

“Not one speaker could define what it [sustainable waste management] is really supposed to be. It reminded me of an elderly aunt who used to exhort us to be ‘Good’ without telling us about her concept of goodness”; N.C. Vasuki, C.E.O of the Delaware Solid Waste Authority commenting on the ISWA 25th Congress in Vienna, 1996.

One could argue that within the context of sustainable development the meaning of sustainability has to do with the threat posed to the environment and people by the continuation of the existing model of economic growth, rather than with the continuation of economic development *ad infinitum*. In attempting to explore the meaning of sustainable waste management therefore it is important to address comprehensively the underlying goals of sustainable development (those indicated in the UN Program of Action from Rio – see UN 1993- which include social goals such as combating poverty, its importance based on the fact that it was supported by 167 member states) and not only protecting public health and the immediate environment.

Although it might be difficult at first to see the connection between poverty and the management of wastes in a ‘developed’ economy, a look at the relationship between the accumulation of wealth, consumption levels and the exploitation of natural resources offers a few clues. Waste can be seen as the end product of a consumptive life cycle, a symbol of the imbalance between people and nature. The rationale offered by the Earth summit in Rio (UNCED, 1993) on the inclusion of such ‘socio-economic’ variables in a global environmental action plan – Agenda 21 – is that people who are impoverished will out of necessity attempt to fulfil their immediate needs using the available natural resources in any possible way, without concern for the long term survival of the ecosystem in which they live (UN, 1993). One could argue that it is the



concern of the more affluent citizens of the industrialised countries over the global dimension of environmental degradation which is expressed, rather than any concern over the more equitable distribution of resources and opportunities (which would constitute issues related to development). This separation of poverty from development is evident in the Agenda 21 document itself:

“An effective strategy for tackling the problems of poverty, development and environment simultaneously should begin by focusing on resources, production and people...” (UN, 1993, p.32).

Thus we can infer that the meaning of development here is more related to economic growth, and that in terms of economics, a Neo-classical interpretation of reality is implied.

However, poverty and issues of distribution in general, have an immediate connection with the management of wastes. The logic for this argument is simple. Wastes are (positively) related to the production process. The bulk of the production of goods and services globally is for the consumption by the industrialised countries, and even more so for the affluent part of the population in these countries. Less ‘developed’ countries (LDCs) are forced to sell their natural resources as raw materials for production of goods, with little - if any - processing and therefore with little value added, in exchange for hard currency which is necessary for the importation of capital. Thus, while the industrialised world is consuming at ever increasing rates, the LDCs are struggling to develop their productive base (and with that employment opportunities for their population) whilst the natural resources on which they could base future growth are being eroded.

The production of wastes (which can be influenced by waste management to a certain extent) can be related to consumption, and that in turn to resource (both natural and human) allocation and to exploitation. The management of wastes can be related to

(local and) global environmental degradation, both in terms of pollution and resource depletion. Waste management therefore does have a role to play in addressing the problem of poverty (and other social issues). If nothing else, the increase of value placed on natural resources implied by recycling alone has a positive contribution to make to the whole issue of development. Obviously this is not a comprehensive explanation of why waste management has a social dimension, but rather an illustration of how such seemingly unrelated concepts as poverty and waste management can be significantly interrelated.

It is important therefore when considering 'sustainable waste management' to a) explore the social dimensions of waste management, and b) to separate the local and global dimensions of the consequences of any particular set of waste management alternatives. This second consideration is related to the distribution of 'social costs' (the 'externalities' identified by Pigou, 1912), one of which could be the effect of waste management on the quality of life (for example through environmental degradation), and the opportunity cost of allocating resources for the alleviation of the environmental impacts of increasing quantities of waste produced. In industrialised countries such as the UK, and in today's climate of local authority budgetary constraints, this opportunity cost is likely to be significant.

### *2.3.1 The need to look at waste management from the resource point of view*

Some would argue that the application of the term sustainable to any waste management strategy is inappropriate because within a truly sustainable system there is no scope for waste (Wye Cycle in House of Commons inquiry into sustainable waste management, 1998). Instead, resource use should be a cyclical and renewable closed loop. Commenting on the meaning of a strategy for sustainable waste management, the inquiry report indicates that the goal of such a strategy should be a more sustainable resource use, 'of which waste production and its management is a

part'. The use of life cycle analysis in considering waste options is strongly advocated as part of this material resources approach throughout the report.

Clearly, there is the need to keep this material resources approach in mind when making waste management decisions. Sustainable resource use is a significant goal, and appears prominently in the discourse on sustainable development. Neo-classical Economic theory argues that, under certain assumptions (perfectly competitive markets and absence of externalities), sustainable resource use would coincide with maximising economic efficiency, and would be consistent with maximising the social welfare function (Jevons, 1871, Walras, 1874). However these simplifying assumptions have been challenged as unrealistic, and the externalities associated with resource use have proven difficult to quantify. The market failure in the natural resource markets, caused by the use of prices which do not truly incorporate environmental and social costs, means that sustainable resource use cannot be economically determined without an economic policy which addresses and corrects this market failure. Economic externalities, such as the cost of environmental effects related to waste management "which may be borne by society at large rather than by the producer of waste", and possible market failures leading to inefficient use of resources, have been identified by the government as the main two reasons for government involvement in the production and handling of waste (DETR, 1998).

It is important to keep in mind the existing tension between what is perceived as economic sustainability, and sustainable resource use<sup>6</sup>. The term economic sustainability is often used by politicians and commercial interests to express a desire to maintain the existing economic structure and development paradigm, and in practical terms to safeguard the interests of big companies. This is consistent with standard economic theory on sustainability, such as the Hartwick model (Pearce and

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<sup>6</sup> A distinction has to be made between renewable and non-renewable resources. Renewable resource use implies harvesting a resource while maintaining an adequate stock for its regeneration. Sustainable non-renewable resource use is a more relative concept, since it involves a priori knowledge of future generations' demand for the resource (see Jacobs, 1991 p. 90).



Turner, 1990) in which following the efficient time path of resource extraction, and investing the rent from resource extraction (capital accumulation substituting the used up resource) are necessary (but not adequate) conditions for sustainability. Common (1995), criticises this economic conceptualisation as anthropocentric (in that sustainability is focused on constant consumption by humans), and unrealistic (in that although substitution possibilities are identified as having a key role in economic sustainability, economists have paid little attention to the actual possibilities afforded by nature). Although sustainable resource use is an important consideration in sustainable waste management, it should not be seen as synonymous to it.

### 2.3.2 Sustain what? The nature of waste.

If one was trying to define sustainable forestry, for example, one would be asking the question of whether the goal is to sustain a stream of forest products (where the goal is anthropocentric i.e. employment and economic growth) or the forests themselves (where the goal is eco-centric, i.e. ecosystem survival) or both (Aplet *et. al.*, 1993). In discussing sustainable waste management however, if the same logic were to be applied, one would immediately run into conflict. The goal cannot be to sustain waste, waste production or its management, because ideally no waste at all would be the desired situation. No waste would mean that production of goods and services would be 100% efficient. No resources at all would be wasted, and economic life would simply be a transformation of raw materials into goods at a 1:1 ratio. In reality however this is unattainable, not only because such a production function is physically impossible<sup>7</sup>, but also because even if it were physically possible, it would still require a radical re-haul of all existing productive systems and relationships – in terms of the time dimension, we would be looking at the very long term. Obviously then, waste is not what we wish to sustain.

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<sup>7</sup> This is always a good reason to reject a hypothesis, and in this case a sufficient one! See third law of thermodynamics – the entropy principle. See also Pearce, 1993, p.78.



From an environmental point of view, the key concepts related to waste have to do with pollution and natural resources. Again, to sustain pollution (whether generated from the management of waste or not) cannot be the goal, and if it all boils down to natural resource conservation, then why not focus on that exclusively? The answer is simple: although the minimisation of pollution generated by the management of wastes, and the conservation of natural resources are both desirable goals, to look at them as divorced from the socio-economic aspects of waste management would be tantamount to ignoring the main premise of sustainable development, that the environment, society and the economy, are all interrelated parts of a greater whole. One cannot solve the problems in one area (typically that of the environment) without simultaneously addressing the other areas. The goal of sustainable waste management is then to contribute to sustainable development, and it is the relationship between waste management and the social, economic and environmental objectives implied by sustainable development which we should be focusing on.

The view that an exclusively 'technocratic' scientific solution to the problem of waste can be adequate is not widely supported. Many waste management problems are political in nature, and although science has a role to play in clarifying and detailing the environmental implications of waste management options, it is not adequate for two reasons. Firstly, as Paehlke (1995) states 'environmental policy decisions in almost every case involve a *value* as well as a *scientific* component' (italics added), and secondly because waste management has socio-economic as well as environmental costs associated with it. To a large extent, some waste management problems are related to the political cost associated with existing modes of 'economic development' (although economic growth would be a more correct term to use) invested in the present economic system, stimulation of business opportunity being a major source of political strength in the present economic environment. The solution lies partly with the lifting of this barrier, i.e. the abolition of part of the political cost, and this might be achievable through the wider acceptance of the real cost of waste as it is managed today.

The conclusion is that the term sustainable waste management becomes nonsensical if looked at in isolation, and that it becomes meaningful only when seen as part of the wider concept of sustainable development. It also becomes evident that waste management needs to be considered not only as a system in itself (as, for example, the Integrated Waste Management approach), but as comprising three distinct yet interrelated aspects; the social, the economic and the environmental.

## 2.4 Operational Definition

If the Brundtland definition of sustainable development is accepted, and if it is accepted that sustainable waste management should keep in line with its objectives, sustainable waste management could be defined as 'waste management which meets the needs of the present without compromising the ability of future generations to meet their needs'.

One could argue that such a general definition of sustainable waste management is flawed in that it does not require the selection of the 'best' or the most efficient management option, but only that which satisfies immediate needs and future opportunities. This of course depends on whether by using the term 'needs' we are referring to the need to deal with waste or if one is referring to all the needs of society. Clearly, although such a definition might be correct in the wider context, it is too general to be of any operational use. The question is then : what are the key issues that 'sustainable' waste management needs to address?

1. Environmental impacts
2. Efficient and sustainable resource use<sup>8</sup>

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<sup>8</sup> Efficient resource use is not necessarily sustainable. Even under the assumption of perfectly competitive markets, resources can be efficiently exhausted if extraction costs are too low (implying externalities), or if property rights are not well defined.

3. Distributive considerations
4. Future generations
5. Economic efficiency

Alternatively then, one could define sustainable waste management as :

*Waste management which minimises negative ecological effects, operates within the assimilative capacity of the environment, and is economically efficient and socially acceptable.*

Ecological sustainability represents the issues of environmental values, and that of future generations, in that it endows future generations with a biosphere of similar quantity and quality as that enjoyed by people at present, and thus a similar set of opportunities.

Economic efficiency deals with the viability of the management of waste, and is necessary not only because it is a necessary condition for the maximisation of the social welfare function (under the assumption that externalities can be internalised), but can also become a key component in the protection of the environment<sup>9</sup> in as far as environmental externalities can be assessed and internalised. It is also a precondition for efficient resource use.

Social acceptability deals with issues of fairness, which have to do with how the economic, social and environmental costs associated with waste management are distributed, and is directly linked to both ecological and economic sustainability, especially when it relates to implementation of waste management plans, as is the case with the siting of waste management facilities such as landfills and incinerators.

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<sup>9</sup> Economic efficiency can for example lead to a decrease in both resource use and the production of industrial waste.



### 2.4.1 Criteria for sustainable waste management

Since sustainable waste management is a subset of environmental management functions, and environmental management itself can be placed in the sustainable development picture as an integral component (sustainable development comprising of three interrelated management 'aspects': the management of the economy, the society and the environment), it follows that any criteria for sustainable waste management will have to be a subset of the criteria for sustainable development.

A look at a set of such criteria developed for sustainable development would confirm that these could apply to sustainable waste management, yet they are probably too general to be of any use. The preservation of biodiversity, for example, might be a good general criterion for sustainable development, but does little to inform the debate on home composting versus landfill gas energy recovery systems. One could argue that a set of criteria, apart from being comprehensive and as far as possible mutually exclusive<sup>10</sup>, must also be close enough to the subject studied as to be relevant to those individuals and institutions which have the power and responsibility to attain them. The criterion of democratic processes and citizen participation (a general criterion for sustainable development), for example, could be substituted by the criterion of higher public acceptance of waste management facilities siting - less NIMBYism (a function specific criterion). This would have the distinct advantage of improved transparency, since it is easier to proclaim an existence of some type of democratic process than to open a new waste management facility.

The following set of criteria for sustainable waste management has been developed based on the issues related to sustainable development highlighted in Agenda 21.

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<sup>10</sup> 'as far as possible' is an acknowledgement of our limited understanding of pollution pathways and interactions between a multiplicity of factors which influence environmental quality.

Environmental criteria

1. *The production of wastes should not exceed the capacity of the local environment to assimilate them, and should minimise the effects on the global environment.<sup>11</sup>*

Both local and global environment is of importance here. The local, based on the widely accepted proximity principle which states that wherever possible wastes should be dealt with within close proximity of their source, in order to reduce the burden to the environment associated with its transport. The global environment, in order to take into account environmental effects which are global rather than local in nature, such as the global warming effect of air pollution from incineration, landfill gases, composting, and recycling. This criterion places a constraint on the amount of waste produced with the goal of ecosystem survival in mind.

2. *The amount of waste produced per person in any industrialised economy should decrease over time.*

This criterion addresses the distribution of waste production, and aims at distributive equity. This is based on two assumptions:

Firstly, that a prerequisite for achieving sustainable development at a global scale (and can there be sustainable development in the long run if it is not global in nature?) is a more equitable distribution of the consumption of natural resources. Secondly, that the present levels of consumption of natural resources globally is unsustainable in the long run<sup>12</sup>. This leads to the conclusion that some countries (the so called more advanced ones) will have to reduce the absolute amount of waste produced, rather than just reducing the growth rate of waste production – something which might apply to ‘less developed’ countries which are trying to catch up.

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<sup>11</sup> Within the context of a ‘region’, this would lead to self sufficiency only in the case where there were no global –or interregional- pollution effects which could be attributed to the management of waste.

<sup>12</sup> This assumption lies not on the traditional measurement of known natural resource reserves, which is a function of a number of variables, including economic and technological variables.

The concept of a globally sustainable amount of waste per person is very appealing because it would allow the setting of a target which could apply to all. In practice however, an estimate of such a measure as the sustainable amount of waste per person would be a crude guess at most, based on a number of dubious assumptions on the environmental impacts of waste management. A global average would be an even more difficult proposition. If we were able to accurately measure such variables we could use them in waste management policy making. At present we could only assume that the sustainable amount of waste per person would have a value which is less than the average of waste per person in developed countries.

*3. More effort should go into the reduction of waste rather than any other management option.*

This criterion has the purpose of underlining the fact that waste avoidance is better for the environment than any other option, and as such should not be placed in a relative hierarchy of options which is not absolute but depends on existing technology and local conditions. For example, recycling might be theoretically preferable to incineration with energy recovery based on environmental criteria, but this does not necessarily apply to a small remote island community, because of factors such as the environmental burden associated with the transport of waste over long distances. Avoidance of waste creation however does apply universally and regardless of local conditions.

Although waste minimisation has been paid much lip-service, more attention has been given, and more resources devoted, to recycling. The reasons for this are undoubtedly complex, but this should not distract from the importance of waste reduction, not only because it is a better option, but also and perhaps more importantly because it addresses the need for a development paradigm shift. It supports the idea that development rather than growth should be the aim.



4. *Toxic and eco-toxic elements of the waste flow should be substituted in the production process by more environmentally benign materials.*

Again, this criterion deals with the capacity of the environment to assimilate wastes. In this instance it is not only the quantity, but also the composition of the wastes that is of importance.

5. *Final disposal and recovery of waste should take place in such a way so that it has no irreversible effect on the life and health of the ecosystem around it and visibly safeguards the health of people which could be affected by it*

The best available technology which will fulfil this criterion should be used (precautionary principle). Obviously if disposal or recovery of waste has an irreversible effect on the ecosystem, then it cannot be sustained for long. Also if it poses (or is perceived to pose) a threat to health it will not be publicly acceptable.

6. *Final disposal should take place in such a way that it minimises its effect on the environment*

Some effect on the environment is inevitable. However, the aim should be to minimise this.

### Socio-economic criteria

7. *Those directly affected by waste management activities should always be adequately represented in the planning process itself.*

This criterion aims at reducing the political barriers to waste management, by making the decision making process more participatory, and thus making the decisions reached more publicly acceptable.

8. *The waste management facility siting process should be such that it is perceived by affected communities as being fair.*

This criterion aims at increasing public acceptability of waste management decisions, and thus facilitating the siting of necessary facilities. The implication is that the process should not single out any particular type of community (by ethnic origin or economic status) as a host of such siting, and that the community which does become a host is adequately compensated.

*9. Waste management planning should be carried out at a 'regional' level<sup>13</sup>.*

Different regions have different characteristics and environmental and socio-economic priorities. The decisions on waste management options should be regional in order to reflect these priorities. For example, a river basin region with severe air pollution problems might decide to landfill its waste, although incineration with energy recovery might be in general a preferable option. In such a case, the type of assimilative capacity of the region is more important than the absolute amount of pollution generated by the choice of option. Another consideration is the distribution of productive capacity which can be used in the recycling process. Every region has a different set of mills and other installations which are necessary to recycle materials. Thus the environmental and economic functions which apply to every region's recycling plans vary, making it a more or less desirable option for every material. Although a region can aim to attract reprocessors to site facilities within its borders, this is not always feasible, and therefore the desirability of some waste management options will vary from region to region, and within a region's sub-regions.

*10. The burden of waste management should be identified and distributed according to its production.*

This criterion aims at ensuring that the social, economic and environmental costs associated with waste management are a) identified, which is a necessary first step to *internalising external costs*<sup>14</sup>, and evaluating the total social cost of waste, and b)

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<sup>13</sup> A waste management region can be any purposeful agglomeration of a number of local authorities. For the purposes of this study the planning region will be used.

<sup>14</sup> Without the correction of the markets through internalising externalities the markets would always pose a barrier to sustainable waste management.

equitably distributed, so that the polluter pays principle is applied. In economic terms this is a prerequisite for a 'Pigovian' optimisation of social welfare, aimed at the correction of market failure. As long as the market prices do not reflect the true cost of waste management services, and no compensation is paid to those suffering the effects of any inequitable distribution of the effects of waste management, the market equilibrium conditions do not lead to the socially optimum allocation of resources.

Distributional issues can be considered at a variety of levels. An obvious split is between 'developed' and 'less developed' countries. A less obvious one is the distribution of environmental burdens between the urban and rural, and between affluent and poor communities within a waste management 'region'. The burdens from the management of waste often fall on the poorest or weakest parts of society. Thus low income neighbourhoods in proximity to industrial sites are likely sites for an incinerator (low acquisition cost of land, easier planning application), and rural communities likely to host a landfill or central composting facility serving some urban centre.

*11. The combination of waste management options which has the lowest combined socio-economic and environmental cost within the assimilative capacity of the local environment should be adopted.*

This is an efficiency condition, which is extended to include social and environmental costs as well as economic. The meaning of economic efficiency itself is of dubious relevance to sustainable development when we take into account the many forms of market failure.

This of course raises the issue of how to weigh social, environmental and economic effects. This criterion merely points out that this should be a conscious and accountable part of the process.



The difficulty with this criterion is the problem of comparing dissimilar effects (for example apples and oranges, or air pollution to water pollution) and is common in many aspects of evaluation in sustainable development. In many cases this can be partly overcome by using the environment as a constraint, and optimising for the social and economic variables. Then the choice between environmental, social and economic goods would not become an issue until certain environmental conditions were satisfied.

#### *2.4.2 What does this waste management look like?*

Waste management does not operate in a vacuum, but rather within a framework of institutions (ranging from EU Regulations and Directives to regional and local planning practices). Waste management planning is carried out by a network of actors, such as government (from central government to local authorities), quangos (such as the Environment Agency), industrial interest groups, sectoral interest groups, national environmental NGOs and more temporal issue related local community groups. Furthermore all this happens within a specific operational space, which is functionally determined. For example, disposal occurs typically at the local space, planning at the sub-regional (county) and regional spaces, policy making at the national and European spaces. It is also happening within a growing global environmental awareness which influences the environmental policies adopted, especially by industrialised countries. This has led to changes in policy in the direction of promoting more environmentally friendly waste management options, such as recycling.

This changing scene is accompanied by changes in the economic variables related to waste management, primarily at present connected to demands for appropriate infrastructure (from more technologically advanced and safer for the environment sanitary landfills to increased recycling capacity), and to the development of new markets (such as markets for recycled materials and pollution abatement

technologies). One could argue that this changing economy is affecting the functional space of some waste management functions by introducing new opportunities and costs.

### *2.4.3 An emerging regional approach*

Traditionally, waste management has been a local issue. There are three main economic reasons however why the pertinent functional space for waste management is becoming the region:

1. The development of new markets, which are regional in nature.
2. Waste regulations have made it disproportionately expensive for local authorities to manage waste independently and responsibly.
3. The management of large quantities of waste, and the availability of a more reliable flow of materials makes it economically feasible to reclaim materials or energy (Hickman, 1993).

There are also political reasons for such a regional focus. Environmental concerns have made the siting of new waste management facilities increasingly difficult. Several case studies carried out in the USA have indicated that a regional approach is more appropriate for dealing with such siting issues by diffusing the political cost involved, increasing the available options and promoting a more participatory and voluntary process (SWANA, 1997).

According to Renn and Goble (1996), the region is an especially appropriate level to attain sustainable development objectives. The development of interest in regional options is evident in the UK in the new PPG 10 (planning policy guidance on waste disposal and management, 1998). The draft PPG 10 develops the concept of Regional Technical Advisory Bodies (RTABs), which are to provide technical advice to the Regional Planning Conferences and the Regional Development Agencies (launched in

April 1999), strengthening the process by which regional waste management options are identified and considered in the regional planning system.

#### *2.4.4 Evaluation of Sustainable Waste Management*

Considering the criteria for sustainable waste management, the question arises as to how does one assess whether there is movement towards or away from it? Until recently, the assumption in the EU Framework Directive on Waste, the EU Strategy for Waste Management, the Landfill Directive and the Packaging and Packaging waste Directive, is that a movement upwards in the hierarchy of options set by the Directive was a movement towards environmental sustainability. The Commission however, has come to realise that the pursuit of a rigid hierarchy does not serve the goal that it was intended. There is now the recognition that there are regions for which such a hierarchy would not work. Especially contentious has been the issue of the promotion of incineration (with or without energy recovery) over landfilling of waste. Yet, even if the use of the waste management option hierarchy were to be resolved, by allowing regions to consider their priorities and arrive at their own hierarchies, this would only address the environmental aspect of sustainable waste management. Any such partial solution would be only be socially optimal by coincidence.

The complexity of interactions between the various elements of waste management suggests that the use of a systems approach could be appropriate. A variety of methodological approaches and models such as Integrated Waste Management (IWM), Life Cycle Assessment for Waste (LCA) and the Input-Output approaches have been used to model the effects of waste management on the environment and the economy. As yet, these approaches do not address social and institutional issues, and do not take into account market failure. For example, in the case of a region with undeveloped markets for recycled materials, it could well be the case that the low prices for recyclable materials makes their collection and separation uneconomic. If however there are environmental benefits to be gained through recycling, then the



effort should be to *influence the markets* by stimulating demand, rather than resorting to final disposal.

Thus models of waste management such as the Life Cycle Assessment (LCA) model, although important for the exploration of environmental impacts generated by a variety of available management options, must be seen as inadequate for reaching decisions on sustainable waste management issues. There is no reason however why such material flow models cannot be expanded to include socio-economic variables, in a similar way as the traditional Input - Output economic planning models have been expanded to take into account the environmental effects of the production process (Leontief, 1970). Such social accounting matrices (SAMs), as those developed by Leontief in the late 1960s, could potentially provide a systematic framework to examine such environment-economy-society interactions. Another approach would be to use material flow models alongside a transparent and accountable decision making process. The role of material flow models would then be to inform strategic planning, although this might have little effect on waste management in the presence of existing decision-making arrangements.

## Summary

Sustainable development is a powerful concept in addressing the underlying tensions between consumerist tendencies (leading to high levels of consumption of goods and services, the growth in which continues to be unequally distributed between industrialised and developing countries) and the goal of meeting the needs of present and future generations.

This chapter argues that the existing economic development paradigm, which is based on Neo-classical economic theory, is unable to provide a socially optimum solution to the development problem. Waste is a powerful symbol of the failure of existing economic development strategies to tackle the imbalance between the desire

for more goods and services and the ability of the world ecosystems to survive the production processes which that entails.

Sustainable waste management is integrally linked to the generation of waste and the public and organisational attitudes embedded in existing institutions. Given that markets are imperfect and the pricing of goods and services does not reflect the total cost of economic development (including environmental and social costs), and also considering the significance of the political nature of many waste management problems, the rapidly changing governance and the emergence of new institutions for waste management at the regional level, there is the need to adopt a different approach to analysing the development of waste management. This approach is uniquely provided by institutional analysis, which is the focus of the next chapter.

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## CHAPTER 3 THE INSTITUTIONAL APPROACH: A CONCEPTUAL FRAMEWORK

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### 3.1 Introduction

A conclusion from the discussion on sustainable waste management (SWM) is that contemporary economic development policy (based largely on the Neo-Classical economics approach), with its emphasis on the market and the use of the mechanism of the price system to allocate scarce resources amongst competing uses, falls short of being able to guarantee a socially optimal solution. This is particularly true in economic sectors which have significant environmental impacts and other 'externalities', such as waste management. This shortfall is partly due to many forms of market failure, such as the existence of less than perfectly competitive markets<sup>15</sup>, and the existence of external environmental and social costs which are difficult to assess and are therefore routinely ignored by decision makers.

In addition there is a whole other set of theoretical considerations relating to the core assumptions made by Neo-Classical economics - which is the mainstream body of economic theory on which the majority of applied economic analysis for policy decisions is based. For example the assumptions relating to 'homo economicus', the rational individual whose motivation is based solely on self interest, and the assumptions of perfect information and powers of calculation so that the 'rational' individual can instantly assess the maximum utility it can derive from every 'basket' or combination of commodities (goods and services) available in the marketplace, given his or her income. This has led some economists to consider a whole new set of assumptions and develop a body of economic theory examining the role of

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<sup>15</sup> A good indicator being how busy the Monopolies and Mergers Commission and Office of Fair Trading are, as well as the growing number of cases brought against multinational corporations by various national governments, community groups and even individuals.

institutions, and the use of institutions rather than the individual as the unit of analysis.

The purpose of this chapter is therefore to introduce the conceptual framework of institutional economics, and to discuss within that framework the concepts of regional institutions and sustainable development, and their relative importance to sustainable waste management.

### **3.2 The institutional approach to economic analysis**

The institutional approach to economic analysis focuses on the analysis of institutions, and the determinants of institutional change. Institutions have been defined as narrowly as being synonymous to formal organisations and as widely as 'socially habituated behaviour' (Hodgson, 1994, p. 64). Ostrom (1986, p. 4) defines institutions as:

"sets of working rules that are used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions".

A wider definition is offered by North (1990, p. 4):

"Legal arrangements, routines, procedures, conventions, norms and organisational forms that shape and form human interaction."

Moreover, institutions have been the subject of study not only of economics, but sociology and political science as well. Thus Parsons (1995, p. 223) points out that public policy and modern political science have "tended to neglect the fact that



politics and policy-making take place in the context of institutions”, especially since the focus shifted to the ‘policy process’ with the development of the policy approach in the 1960s. He goes on to state that “the impact of institutional arrangements cannot be ignored in understanding the ‘process’ of policy formulation or how problems are defined” (Ibid, p.223). Parsons offers the following categorisation of frameworks of institutionalism:

- *Economic institutionalism*: this consists of the ‘transaction costs’ and ‘principal agent’ theories and their derivatives.
- *Sociological institutionalism*: having its source in the field of organisational sociology, and focusing on ‘how institutional arrangements within a society shape human behaviour’. The models developed by March and Olsen (1984), and Ostrom (1986) are placed in this category.
- *Political institutionalism*: focusing on the role of the state in policy making and the relationship between state and society. This framework looks at the forces that shape policy making as endogenous rather than the result of external pressures and influences.

Hodgson (1994) discusses the two main camps within economic institutionalism, ‘old’ and ‘new’ institutionalism, and focuses on the differences in the theoretical core between the ‘old institutional economics<sup>16</sup>’ and Neo-Classical theory. This distinction is important, since what is widely termed ‘new institutional economics’ is compatible with the theoretical assumptions made by the Neo-Classical economics theory, and fits well within a mechanistic or Newtonian view of the world, whilst ‘old institutional economics’ is incompatible with Neo-Classical theory, and looks at the world from an organic and evolutionary perspective. This heterodox approach can be seen as one reason why there has been a revival of the ‘old’ institutionalism, and why both ‘old’ and ‘new’ institutionalism exist at the same time. It is essential then to

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<sup>16</sup> Referring to the American school of economic thought founded by Thorstein Veblen, Wesley Mitchell and John Commons.

discuss the differences between the 'old' institutional economics (referred to as institutional economics from here on) and Neo-Classical economics.

### 3.2.1 Core theoretical differences

Hodgson (1994, p. 60) defines Neo-Classical economics as an approach which has the following attributes:

1. The assumption of rational, utility maximising behaviour by agents with given and stable preference functions
2. A focus on attained, or movements toward, equilibrium states
3. The absence of chronic information problems (there is, at most, a focus on probabilistic risk: excluding severe ignorance, radical uncertainty, or divergent perceptions of a given reality)

Hodgson maintains that institutionalism on the other hand, "expresses explicit non-conformity with the entire Cartesian and Newtonian framework of modern science" being based instead on the work of pragmatist philosophers<sup>17</sup>:

1. In terms of stable individual preference functions, institutionalism is based on an organicist ontology, in which relations between entities are internal rather than external, and therefore individual preference functions are socially formed and continuously influenced by social interaction. Therefore, they can not be 'given and stable'. Assumption 1 is also rejected by an organicist perspective in that it implies that, in terms of methodology, social or economic wholes can be explained only in terms of individuals (an atomist view). Veblen rejected the rationality assumption, criticising the mechanistic utility maximising individual of Neo-Classical theory as "a lightning calculator of pleasures and pains" (1919, cited in Hodgson 1994, p.63). Instead of the

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<sup>17</sup> As for example Charles Pierce, who attributes creativity in science to 'the spark of intellectual creativity or intuition kindled in the tinder of assimilated facts', or abduction, rather than induction or deduction (Ibid., p.61).

utilitarian pleasure-pain principle, Veblen emphasises habitual and instinctive behaviour of individuals, and rejects the notion that work is purely a disutility. This endogeneity of preferences is maintained in the institutional economics work, and has significant implications to the analysis of environmental management issues. For example this would change the way one analyses the role of consumerism in the waste management process, by looking at the role of social groups and existing habits as determinants of individual behaviour.

2. Institutional economists consider the economy as an “open system in continuous dynamic interaction with a more comprehensive social and political as well as physical system from which economic processes receive important organising (and disorganising) impulses and upon which they exert their own negative and positive influences” (Kapp 1976, p.213, cited in Hodgson 1994). This is incompatible with the closed system, mechanistic equilibrium assumed by Neo-Classical theory. Veblen viewed the economy as a “cumulatively unfolding process” rather than as a “self-balancing mechanism” (Ibid.).
3. At the time that the institutional school was founded (1890s), the issue of information had not yet surfaced as a problem. Later economists however have criticised neo-classical economics for assuming away problems of information (for example Keynes, 1936).

Thus institutional economics can be defined as an approach which has the following attributes (Hodgson, 1994, pp. 68-9):

- Holistic or organicist alternatives to economic analysis (rather than atomistic and reductionist)
- Sees human behaviour as driven by habit and routine and occasional acts of creativity, rather than rational and calculating



- Institutionalism regards self-reinforcing institutions as additional or even alternative analytical units
- Views the economy as an evolving open system subject to processes of cumulative causation rather than mechanistic equilibria
- Sees individuals as belonging to and moulded by an evolving social culture with preference functions continually adapting and changing
- Technology is also seen as evolving rather than exogenous
- Looks at the role and significance of power and at the conflict between individuals and institutions in social life
- Focus on the identification of human needs and on the design of institutions that can help in their identification and clarification rather than on a utilitarian framework

### 3.2.2 Perspectives on the rationality assumption

The discussion on Neo-Classical assumption 1, and especially the rationality aspect of human behaviour, is both extensive and important. It is extensive because it has been picked up not only by institutional economists, but by sociologists and political scientists as well. It is important because the assumptions made about the individual and individual behaviour greatly determine the normative and positive dimensions of institutional analysis.

The rationality assumption of Neo-Classical economics has its counterpart in the rational choice approach in political science. Ostrom (1991, p. 243) defines the rational choice approach<sup>18</sup> (tradition or framework) as:

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<sup>18</sup> Ostrom (ibid.) also offers the following related definitions:

*rational choice theories*: more specific assumptions about the type of information, valuation and calculation involved in individual choice

*model of a rational choice theory*: a specific formal representation of a theory

She also makes the point that several models exist for any theory, and that several theories are usually consistent with an approach.

'...all work that is based on methodological individualism' which assumes 'that individuals compare expected benefits and costs of actions prior to adopting strategies for actions'.

Ostrom (1991) reviews the work of Elster (1989), Tsebelis (1989), and March and Olsen (1989), focusing on their approaches towards rationality. Elster's argument is that all theories of social behaviour assume individual rationality. He sees rational choice theories as primarily normative theories which tell us not what are aims should be, but rather what we ought to do to achieve our aims as well as possible. In such a normative role Elster argues that a theory must treat all individuals as attempting to be rational, and this allows the theorist to specify the strategy that each actor will adopt in a variety of structured situations (Ostrom, 1991).

March and Olsen (1989) argue that action is "based on a logic of appropriateness, and justification is based on a logic of consequentiality". Political institutions are a collection of interrelated rules and routines that define appropriate action in terms of relations between roles and situations. They see behaviour as rule-governed rather than consequence-governed. Thus individuals will act 'appropriately', and later 'justify' their actions based on a means-end calculus. Although Ostrom agrees that rule-governed behaviour is important, she argues that this "does not require denying the importance of calculated choice by relegating analyses of the reasons for choice to after the fact justification of previously taken actions"<sup>19</sup>. Instead she advocates that rule-following individuals make choices from a set of permitted actions, but this choice has a different basis than the choice of which actions are permitted or not in the first place. If this is the case, individual choice can be rational, and rational choice theory can be compatible with a recognition of the importance of rules and social norms (Ibid.).

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<sup>19</sup> The distinction is made by Ostrom (1991) between strategies as 'the plan of action that an individual adopts' (which could be due to personal commitments), and rules as the 'shared prescriptions with which actions must, must not, or may, be taken' (socially shared commitments).

As a positive theory, Tsebelis, develops rational choice to explain a wide variety of empirical phenomena. However Elster, March and Olsen criticise rational choice as being limited as a positive theory. They point out its indeterminacy (lack of a unique equilibrium) and inadequacy (lack of empirical support for predictions). The theory works best in situations resembling a perfectly competitive market, with well defined property rights and few externalities (Ibid.). This comes as no surprise, since Neo-Classical economic theory was devised to address such highly constrained situations. One could argue that Rational Choice and Neo-Classical theories share this shortcoming, of being geared to work in situations which are the exception rather than the rule.

In economics, this Rational Choice notion of people as 'intending to be rational' is expressed in the concept of 'bounded rationality' which is behaviour that is "intendedly rational, but only limited so" (Simon, 1982, cited in Schlicht, 1990, p. 710). These limits exist due to the constraints imposed by cognition, in terms of the limits and costs associated with the receiving, processing and storing of information, and the constraints associated with language, as in the limits and costs associated with accuracy and detail of communication. Simon distinguishes between substantive rationality - 'the extent to which appropriate courses of action are chosen', and procedural rationality - 'the effectiveness, in light of human cognitive powers and limitations, of the procedures used to chose actions' (Ibid.). Schlicht (1990), however criticises this notion of procedural rationality on the basis that the learning and problem solving involved in reaching such procedural efficiency is enhanced by emotions, aesthetic judgements and other things 'not rational'. Emotions however, are (and should be) 'active determinants of action', they play an important part in social life, and people and firms do take them into account (Ibid.). Schlicht rejects the bounded rationality concept, not only on the grounds mentioned above, but also on the basis that it is less useful than the abstract rationality concept in institutional analysis. He defends this position by using an as if construct. This relaxes the 'homo



economicus' assumption of the rational, utility maximising person posited by Neo-Classical economic theory, and assumes instead that people act as if they were maximising a utility function. This is justified as follows: People follow strategies or rules of thumb, which have been selected because they had in experience led to the best results. Such a choice would approximate the one reached by a strategy based on abstract rationality, and might even be more rational when the costs of following the strategy are included. The precondition for this to work is being able to specify a mechanism which 'links actual behaviour to our theoretical as if construct' (Ibid., p. 705). Abstract rationality is also preferred to behavioural rationality because it is more generalizable, although Schlicht admits that performing all the complicated calculations required by abstract rationality can be impossible. Schlicht concludes that in terms of institutions making the rational assumption that institutional structures are optimally selected necessitates the consideration of feasible alternatives, something about which the rationality approach can tell us nothing. Thus he concludes that abstract and bounded rationality are not suited for institutional analysis.

Nørgaard (1996) points out that although the two main institutionalist traditions agree that "rules, routines and norms shape social and political interaction...they have disagreed on how institutions shape political action", with the conception of man and human rationality being at the root of most controversies (1996, p. 31). He attempts to synthesise the two approaches<sup>20</sup>, arguing that although there are important theoretical and methodological differences regarding the role of institutions in shaping preferences and the motivation of actors, the two approaches can be made "compatible if we accept a contextual and more reasonable conception of man, rationality, and human motivation" (Ibid., p. 32). Thus Nørgaard proposes that

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<sup>20</sup> Nørgaard is referring to the sociological tradition (March and Olson 1989; Thelen and Steinmo 1992), and the rational choice tradition (North 1990; Shepsle 1989; Williamson 1985; Ostrom 1986). The first is theoretically compatible with the old institutional economics tradition, and the later with the new institutional economics. To a certain extent the differences between these types of institutionalism rely upon whether the subject area is economics, sociology or political science. Institutionalism - one could argue - makes a good case for bridging the gaps (or chasms) between the social sciences.

rationality has three elements: (i) People are reflective, (ii) intentional and (iii) try to be cognitively consistent. 'People are furnished with the capacity and will to make conscious judgements of the world and associate it with a meaning. They learn their goals, values and perceptions through the institutional and cultural context of action' (Weber 1971, cited in Nørgaard 1996). A distinction is made by Nørgaard between formal institutions (emanating from interest struggles, and embodying power relationships), and informal institutions (evolving as a codification of established forms of interaction, and usually emanating from shared values). Thus Nørgaard (1996, p. 44) offers the following model of institutions, culture and embedded rationality:

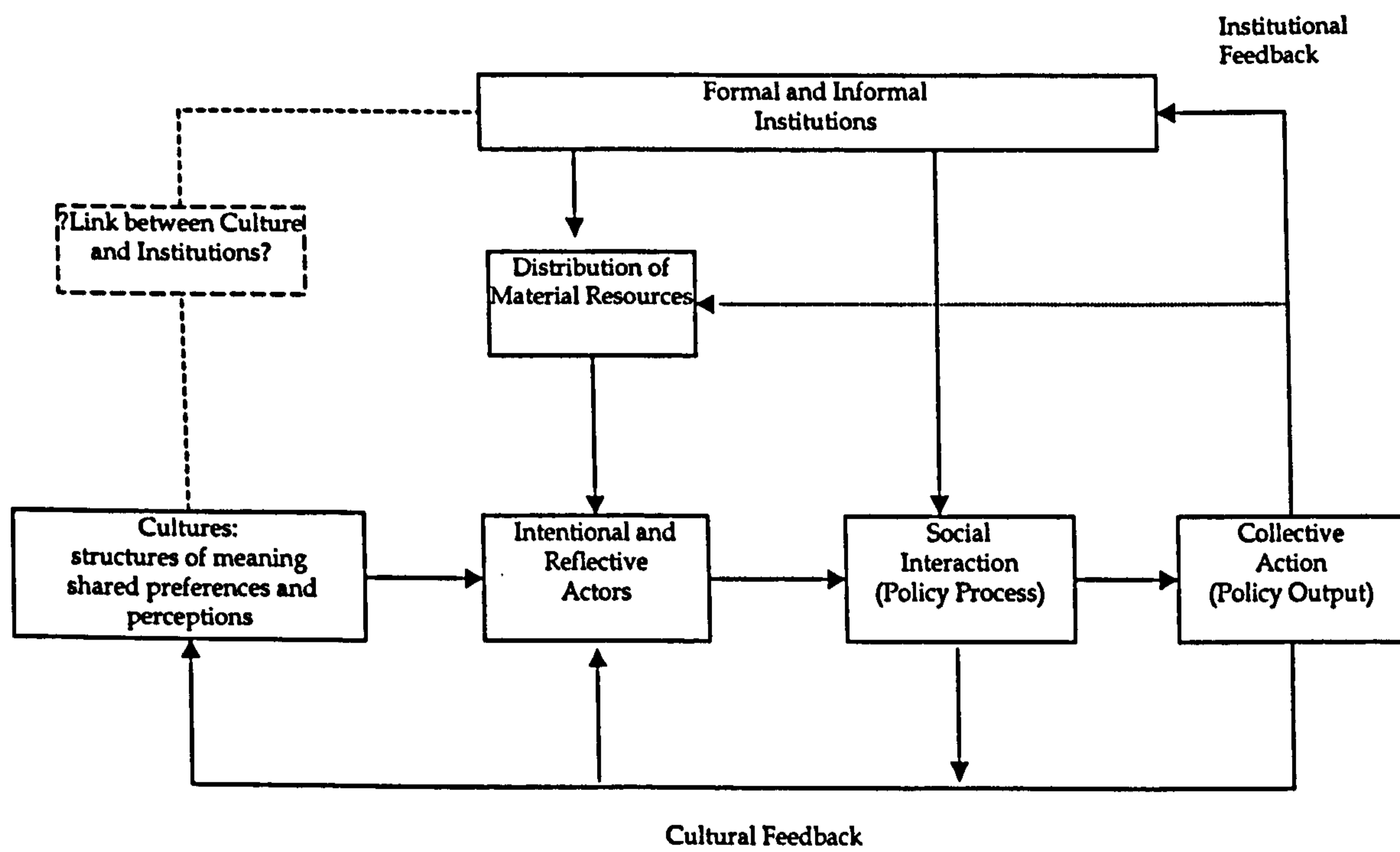


Figure 3.1 Model of institutions, culture and embedded rationality

Source: Nørgaard (1996, p.44).

According to Nørgaard (Ibid.), the distribution of material resources (through rules and structures and institutions such as capitalism, and market arrangements) impacts people's behaviour by constraining their interaction, affecting what people strive for and by creating groups which share similar social conditions and experiences.

Through experiences they also affect people's goals and values (and indirectly their preferences). But they also 'reflect and reproduce the goals and values of the groups establishing and sustaining them' (Ibid., p. 40), in part by defining feasible paths of action (for a rule following individual) thus constraining an actor's choice set (Ostrom 1991, p. 239). The intentional individual (intending to be rational by pursuing his/her goals and values) is still subject to his/her identity and preferences, which are developed in interaction with others and thus determined to a certain extent by culture<sup>21</sup> (Nørgaard, 1996).

Nørgaard's approach of reconciliation attempts to develop institutional theory in a more fruitful vein, and to move it towards a resolution of the issues pertaining rationality. Indeed it might be the case that this rationality debate has a better chance of producing a useful outcome when placed between social and political institutionalism, rather the deeply entrenched old and new economic institutionalism. Ostrom (1991, p. 238), believes that such a breakthrough may come in political science, rather than a discipline 'where commitment to a single approach has almost reached the point of religious dogma' (implying economics). However the differences within economics could be interpreted as a paradigm shift, in spite of the fact that institutional economics does not constitute a complete theory of the economy capable of replacing the mainstream Neo-Classical tradition. According to Kuhn (1977, cited in Pheby, 1988), paradigms are not necessarily monolithic structures that dominate a whole field of scientific activity, but rather a paradigm may be dominant within particular fields of specialisation in various sciences.

The model presented in Figure 3.1 can be used to analyse a specific policy process. The flow of the model will depend on the source of action, or the main driving force behind a policy change, and it can take several directions. For example, the adoption of the EU Packaging Directive (94/62/EEC) by the UK can be studied as an

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<sup>21</sup> Culture is defined here as a set of shared values and perceptions. Political culture is defined as shared preferences and perceptions.



institutional change. This change in legislation, which is a formal institution, leads to a change in the distribution of resources, i.e. funding for its implementation, as in government resources being channelled to the Environment Agency (the regulator). Companies implicated also have to channel some resources to comply with the regulations. The key actors, whose individual preferences and perceptions are partly formed by their cultural environment and partly by the organisational culture and preferences formed at the organisational level, carry their cultural influences with them into the policy process, where they interact within a procedural framework which is institutionally determined, to reach a point of collective action. In the case of the implementation of the Packaging Directive in the UK, the interaction between the key actors led to the adoption of a voluntary approach to implementation for small and medium sized companies, and a complex set of regulations for the large companies, with which are obliged to comply. The institutional feedback of this policy process has been a cycle of revisions of the regulations, whilst the cultural feedback might include a negative perception of the ability of government and regulator to implement the Directive.

#### Refinement of the model

Although the model incorporates an indirect link between culture and institutions (through the key actors), no direct connection is presented. It might however be a significant area in the analysis of environmental policy, and especially in waste management where the perceptions and preferences of the main stakeholders - the public - can often become a strong driving force (as in recycling) or a substantial barrier (as in the siting of landfills). Thus a potential direct link has been incorporated in the model (see Figure 3.1), which will be examined in the course of this research.

### **3.3 The institutional approach, public policy, actors and policy networks**

Whether institutional economics<sup>22</sup> constitutes a paradigm shift in economics or not is a matter of debate, one which is hopefully fruitful for the development of the discipline. What is certain, however, is that these theoretical differences have led to variations of the set of variables considered in the institutional analyses of policy undertaken by the two traditions. Thus the role of institutions in the policy process is seen to relate mainly to choice and decision situations in the model developed by Ostrom (1986, 1990). In this model, there are three aspects which comprise decision situations:

- Institutional arrangements
- Events relevant to the issue concerned
- The community which has a stake in the outcome

The factors explored in the analysis of decisions include variables such as the number of actors involved, who can or cannot participate, what institutions and agencies are involved and what resources they command, and how rules affect the strategies of actors (Parsons, 1995, p. 225). Actors adapt their strategies to changes in rules, institutions and resources over time. Furthermore, choice operates at three distinct levels:

- Constitutional : where choices about how collective decisions are made
- Collective : where authoritative decisions are made about an issue
- Operational : in which decisions about specific policy actions are taken

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<sup>22</sup> This includes the resurgence of the 'old' institutional economics school, and appears in some literature as 'critical' institutionalism. It is also referred to as Neo-institutionalism, although this term is best avoided as it is easily confused with the New Institutional economics.

There is a successional causal relationship between these levels of choice, in that the constitutional level frames the rules for entry and participation in governmental (collective) decision making; and the implementation of policy decisions at the collective level frames the institutional setting of the policy in operation, by for example introducing changes in legislation which constrain operational level decisions (Ibid., Jenkins-Smith 1991, pp. 158-9).

As an illustrative example, Jenkins-Smith (1991) applies this (Institutional Rational Choice) model, and the Advocacy Coalition model (an alternative model by Sabatier and Jenkins-Smith, 1988), to the ongoing policy dispute over the siting of a nuclear waste facility in New Mexico, and focuses on the different emphasis by alternative theories on different sets of concepts. The Institutional Rational Choice model (IRC) necessitates two main considerations: defining the nature of the good, and characterising the institutional arrangements.

The characterisation of the nature of the good is important because it defines “who perceives themselves as having a stake in the policy outcome”, and therefore the relevant community of affected individuals (expected winners and losers) (Ibid.). This can be complicated by the unequal distribution of perceived costs, and the fact that some issues can be central to some people yet of little importance to others (Ibid.). Both the definition of the issue and how it affects different segments of the population is likely to change over the course of the policy debate, changing thus the set of actors and the institutional arrangements.

The institutional arrangements include factors such as the number of actors, allowable actions and strategies, and others already mentioned, and focuses on the decision situation. Within this individuals act rationally by making choices and selecting their strategies based on available resources and information, valuation of outcomes and actions, and processes of calculation. Thus the IRC theory focuses on individual action and strategies, and their collective results (Ibid.). The data necessary



for the analysis requires a combination of interviews and documentary sources (to establish preferences and strategies), and also data on the characteristics of institutional arrangements and decision situations (Ibid.). Jenkins-Smith argues that because of the large number of participants and institutional arrangements, and their change over time, the necessary data would be impossible to collect, and a more realistic approach would be to collect data from participants who a) have proven to be long-lived participants in the policy process, and/or b) particularly important players in some stage of the process. Even so, this could involve a very large number of actors and therefore it would be more manageable to focus on "... specific authoritative decisions that have proven to be crucial to the development of the policy debate, and examine the involved institutional arrangements and decision-makers in detail" (Ibid., p. 162).

The Advocacy Coalition theory (AC) of the policy process emphasises 'advocacy coalitions' instead of individual actors as the unit of analysis (Sabatier and Jenkins-Smith, 1988). Advocacy coalitions consist of those subsystem players who share common "belief systems" that specify:

- The "Core", i.e. fundamental norms and values
- The "policy core", i.e. perceptions of appropriate distributions of resources and political authority in society
- "Secondary beliefs", i.e. beliefs about causal relationships and states of the world on the policy issue area

(Sabatier 1987, cited in Jenkins-Smith 1991)

These coalitions reside (and oppose each other at various belief levels) within policy subsystems which are made up of those actors who specialise and are active in a policy issue area<sup>23</sup>. Subsystems could be formed by players dissatisfied with the

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<sup>23</sup> It is important to note here that different elites have different perceptions of the pattern of coalitions within policy subsystems. Thus in the Jenkins-Smith study, the Sierra Club members saw the environmental NGOs as most trustworthy, and the nuclear power plant company, the DOE and EPA were clustered together as least trustworthy, with the university scientists somewhere in between

outcomes of existing subsystems, or from an event (or crisis) “that focuses sufficient attention and resources on a ‘problem’ that evolves into its own specialised policy area with its own subsystem” (Jenkins-Smith, 1991, p. 162). One could argue that waste management policy making in the UK has developed out of an environmental health system, into an environmental management subsystem as awareness of the risks associated with pollution pathways caused by existing practices has increased. Changes in values concerning the environment caused dissatisfaction with the way waste was handled and led to the formation of a new policy subsystem. As a result, the development of waste management policy in the UK predated and heavily influenced the development of the EU Framework Directive for Waste (75/442/EEC). More recently, the perceived solid waste crisis has led to the focusing of attention and resources, for example in the form of EU Directives on solid waste, packaging and packaging waste and national implementation strategies, in the areas of recycling and composting, thus creating policy subsystems dealing with these issues.

Jenkins-Smith (1991, p. 165) proposes that the two theories be applied jointly “at different levels of resolution of the policy process”. He claims that the IRC theory is a useful way of looking at the role of institutions because it focuses on institutional arrangements and places the attempts to alter institutional structures at a central part of the policy process, highlighting however the overwhelming data collection problems of examining a large number of decision makers in a changing institutional environment.. The strength of the AC theory on the other hand is that it focuses on a larger unit of analysis, and it considers the effects on policy development of the battles among these coalitions. The problems of this approach are related to the “difficulty in obtaining reliable and valid measurements of the belief systems of the subsystem elites over time” (emphasis in the original; Ibid.).

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(based on perceptions of trust), while business clustered the EPA together with the NGOs and the university scientists.

Policy subsystems could be likened to policy networks. For example, in a study of the variable success of environmental policy integration in the EC, Lenschow (1997) attributes the success of (an advocacy coalition of) environmental NGOs in influencing policy to 'strategic network building' (determined by the skills and resources of the coalition on the one hand, and the operational institutional framework on the other). Lenschow suggests that in order to explain the nature of (EC) policy change, one needs to examine the "complex actor constellation ... linked to decision making and connected internally by resource interdependencies" and its effect on information and ideas (1997, p. 116). The actors who specialise and are active in a policy issue (the policy subsystem of Sabatier) are the same actors who would be approached by an advocacy coalition and who would become part of a policy network dealing with this issue. The difference between institutional analysis and policy network analysis is one of emphasis. According to Pollak (1996, p. 453):

Policy network analysts focus primarily on the informal networks and resource dependencies that develop among governmental and nongovernmental actors in the interstices of formal institutions, while institutional theorists focus on the institutions themselves and the opportunities they provide for informal policy networks to develop and to influence policy outcomes.

It has been argued (by Thrift and Olds 1996, in Barnes 1998, p. 98) that "the network idea leads directly to the blurring of things economic with things non-economic", and (by Hsing 1996, *Ibid.*) that networks can be "simultaneously economic, cultural and social". In fact institutional economics has advocated this blurring of culture and economy for the past century (Barnes 1998). This is well illustrated in the model proposed by Nørgaard (see Figure 3.1), where the synergy of the institutional and cultural feedback has a direct and indirect effect on the distribution of material resources.



### 3.4 Institutional frameworks and sustainable development

Changes in structures of meaning and shared preferences and perceptions (the 'cultures' in Nørgaard's model) have an important role to play in institutional change. Although different approaches to institutional analysis focus on different units of analysis (the individual, the advocacy coalition, the economic transaction), and emphasise formal or informal institutions to a greater or lesser extent, they all acknowledge the role of culture in affecting preferences. One could argue that the movement towards sustainable development is a source of change in structures of meaning and shared perceptions and preferences, and also necessitates an expression of that change. According to institutional economic theory these changes do not occur in a mechanistic, equilibrium seeking way, determined by markets and based on fixed and stable preferences, but rather in an evolutionary way. Thus it is the conflict between institutions and routines (which are culturally determined) that bring about change. Edgell (1975, pp.272-273; in Hodgson, 1994, p. 65) summarises Veblen's view on this source of change:

"institutions that emerge during one era may persist into another and the resulting *cultural lag* is likely to give rise to 'friction' between the habits of thought generated by the new material conditions and the habits and institutions more appropriate to an earlier period of cultural development." (italics added)

In this context, environmental NGOs can be seen as being born out of such a cultural lag between the adoption of environmental values (leading to new 'habits of thought') by a more affluent population in the industrialised countries. Changes in the natural environment due to the accumulating effects of pollution, and increasing available resources in the command of people (due to increasing affluence) constitute 'new material conditions'. Old 'habits' could be the unsustainable production methods and consumption patterns (informal institutions), and the 'institutions more appropriate to an earlier period of cultural development' could be the set of policies

and regulations with insufficient emphasis on the environmental implications of economic growth, and the national government ministries and agencies assigned to implement them (formal institutions). One could argue then that environmental NGOs have emerged as a result of the need to address this friction, and the need to adjust institutional arrangements to reflect the new culture. Continuing with this perspective, it can be seen that some people have organised around such structures as Agenda 21 in a deliberate attempt to promote institutional arrangements appropriate for the pursuit of sustainable development.

These new organisations express a variety of ideological backgrounds, and combine under the wide umbrella of sustainable development to form what Sabatier would call a variety of advocacy coalitions. One could argue that such coalitions have formed along the spectrum which ranges from the existing developmental anthropocentric paradigm to an ecocentric paradigm. Redclift (1990, p. 58) lists some typical components of the two ends of the spectrum:

Dominant Social Paradigm	Deep Ecology Paradigm
Dominance over nature	Harmony with nature
Natural environment as a resource	Values in nature/biosphere impartiality
Material goals/economic growth	Non-material goals/ecological sustainability
Ample reserves/perfect substitutes	Finite natural reserves
High-technology/science solutions	Appropriate technology solutions
Consumerism	Basic needs/recycling
Centralised/large scale	Decentralised/small scale
Authoritarian/coercive structures	Participatory/democratic structures
Shallow ecology	Deep ecology

Figure 3. 2 Typical components of growth/environment paradigms

Source Redclift (1990)

It is interesting to note that what Redclift sees as components of the deep ecology paradigm are all issues which are mentioned in the Agenda 21 document (World



Conference on the Environment, Rio). Thus the move towards sustainable development would require a paradigm shift, from the dominant social paradigm to the deep ecology paradigm. Furthermore, change in components from the one paradigm to the other are either caused by, necessitate or result in institutional change of one form or another. For example, the move from consumerism to a basic needs/recycling lifestyle requires changes in informal institutions (changes in the habits of consumers so that they consume less, and changes in the habits of producers so that they create less waste and recycle a lot of the waste they do produce), and causes changes in formal institutions (the legislative environment has to change to support changes in lifestyle and promote recycling by creating markets and specifying targets). These changes will require administrative reform to the extent that the existing structures are not appropriate for the implementation of new policies<sup>24</sup>. According to Olsen (1993, p. 133) “reformers are more likely to succeed if they try to change institutions in ways consistent with long-term trends in international or national society...”, and these changes would amount to creating new agencies (in periods of slack resources, as creating new organisations is easier than changing existing institutional identities), or to changing existing institutions (in periods with little slack and in response to performance crises).

The usefulness of institutional analysis in the pursuit of sustainable development is also supported by Grabher, Haibock and Narodslawsky (1998, p. 3): “Knowing the powerful institutions and persons is a precondition for the transition towards a sustainable development process because:

- perceived players can be invited for local sustainability transition
- implementation can be accelerated by knowing the powerful decision makers
- presentation and transparency of the power structure improves the intention for the participation of citizens
- co-operation and partnership can be strengthened

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<sup>24</sup> They might not be appropriate in the sense of not being representative of the stakeholders concerned, or due to inefficiencies having to do with nonconformity of the administrative boundaries in relation with the boundaries of the environmental problem/solution being addressed.



- mistakes in planning of the transition process can be minimised”

Petit (1999) takes a more theoretical approach to draw parallels between institutionalism and sustainable development. He uses Wilber and Harrison’s (1978) attributes of institutional economics, i.e. holistic, systemic and evolutionary. Thus institutional economics is characterised as holistic<sup>25</sup> “because it focuses on the pattern of relations among parts and the whole. It is systemic because it believes that those parts make up a coherent whole and can be understood only in terms of the whole. It is evolutionary because changes in the pattern of relations are seen as the very essence of social reality.” Sustainable development is also by its nature holistic, in that one cannot consider one part of it without also considering the whole. Petit argues that the holistic, systemic and evolutionary nature of institutional economics means it is better able to address sustainable development.

Institutional analysis is also a better way to understand sustainable development because it “recognises conflict as an evident character of the social, economic and natural world, and which tried in the past to resolve these conflicts with the help of social control (rules, laws, institutions) and Collective Action<sup>26</sup>” (Petit, 1999 , p. 6). Conflict is an integral part of the path towards sustainable development, and it is present between:

- the welfare of future and present generations
- equity and other social goals
- the welfare of the individual and of the natural environment
- the value systems

(Wright and Shin, 1988, in Petit , p. 5)

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<sup>25</sup> See also Samuels, 1995: 575.

<sup>26</sup> The term comes from Commons definition of institutions: ‘Collective action in control and enlargement, or liberation of individual action’ (in Samuels, 1995 : 573).

Welfare, equity and values are all within the remit of Economics. Institutional economics however is also well suited to address issues of development pertaining to long term social change as well as short term efforts towards progress. Take for instance the definition of development offered by Thomas (1994, p. 3):

“Development can be seen either as an historical process of social change in which societies are changed over long periods, or as consisting of deliberate efforts aimed at progress on the part of various agencies including governments, all kinds of organisations, and social movements.”

Institutional analysis would examine the long term historical process of social change through the changes in institutions and institutional arrangements in a historical study (see for example Carlen, 1999), or examine a more short term issue by looking at the perceptions, preferences of and interrelations between key agencies and actors (see for example Jenkins-Smith 1991; Grabher *et. al.* 1998). This flexibility that the institutional framework offers is helpful in studies of sustainability where both long term and short term aspects of development can be of interest. At the root of this flexibility is the institutionalist concept of culture as a process of cumulative causation or coevolution. Cultural processes are important in forming social structure and individual identities, preferences and lifestyles. These have an impact on the economy and on institutional change. Culture affects individuals, and individuals affect culture. According to Samuels (1995, p. 574), “both individuals and culture matter, as does power<sup>27</sup>, which governs which individuals have greater or less impact on the transformation of culture”.

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<sup>27</sup> Max Weber (1971) defines power as every chance to carry out one's point against another's resistance within a social system.

### 3.5 Institutional arrangements for Sustainable Municipal Solid Waste Management (SMSWM) in the UK

In this section, the ideas and concepts discussed above are applied to the waste management area. Within the waste management field, following Nørgaard (1996) and Scott (1998), one can distinguish between formal and informal institutions.

#### Formal institutions

**Legislative and executive institutions:** Like all member states, the UK is bound by EU waste policy, expressed in the form of Regulations (which have direct legal application in member states) and Directives (which member states are obliged to introduce in the national legislation). The European Parliament, the Council of Ministers, the European Commission, the Directorate General and a plethora of Advocacy Coalitions involving environmental NGOs, business interests and research organisations are important elements of the institutional arrangements at this level.

The implementation of national policy is co-ordinated by the Department of Environment Transport and Regions, and at the regional level within the Government Office for that region<sup>28</sup>. The provision of waste management services is the responsibility of local authorities.

At the regional level, waste management planning guidance is informed by regional local authority planning conferences. Planning is carried out by the County Councils and waste management regulations are enforced by the Environment Agency (EA) regional offices (since the Environment Act, 1995, the EA becomes the Waste Regulatory Authority). Local authority regional organisations include the Local Authority Recycling Action (LARAC), and Local Authority Waste Disposal Officers Association (LAWDOA).

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<sup>28</sup> According to Winter, (1996: 48) although some resource allocation decisions and variations in policy implementation are made at the regional level, the complexity of the arrangements makes political participation and lobbying almost impossible. Winter does not see any long term trend towards allocation of greater responsibility for regional offices (Ibid.).



Sectoral businesses are those dealing with the collection of waste (public and private), landfill operators, materials recyclers, other reprocessors (composting, incineration with energy recovery), manufacturers of pollution abatement and power generation equipment, and environmental consultancies. Apart from informal networks, some of these interests have formed associations to represent their interests.

### Informal institutions

Consumerism: The increasing amount of solid waste generated by households and businesses due to unsustainable levels of consumption is at the heart of the problem of waste management. The move from consumerism to more of a basic needs and recycling culture involves significant changes in informal institutions. These changes would conflict with the forces which were instrumental in the creation of existing institutions in the first place, and for this reason are better considered as involving long term processes of institutional change.

### Institutional arrangements

A listing of institutions which are significant in the waste management policy networks is of little use unless the interrelationship among the institutional variables can be specified, and change therefore assessed. This can be accomplished by looking at the existing institutional arrangements.

Ingram (1984) maintains that the three important aspects of institutional arrangements are actors and their stakes in decision making, the resources at their disposal, and the biases of alternative decision making arenas through which actors may try to achieve their goals. Looking at an integrated approach to resource management, Mitchell (1987, 1990, in Smith 1993, p. 34-39) focuses on the leverage points in institutional arrangements which can bring about better co-ordination. His model is framed by the opportunities and constraints presented by the existing state

of the environment, the economic conditions, prevailing ideology and the history of existing arrangements. The leverage points are:

- **Legitimation:** Statutory powers, political commitment and administrative policies which identify agency objectives, responsibilities and powers of agencies, rules for intervention and boundary problems.
- **Functions:** Which management functions are assigned at what scale, and linked to legitimation and administrative structures. Functions include the gathering of information, resolution of conflict and development of joint strategies, and application of regulatory control.
- **Administrative structures:** Related to the desired functions. Must be flexible, accountable and efficient.
- **Processes and mechanisms:** Facilitation of bargaining, negotiation and mediation through the political processes, informal mechanisms, and provisions for representation (such as in regional planning).
- **Organisational culture and participant attitudes:** Organisational culture, attitudes and preferences of stakeholders and public opinion.

Mitchell's institutional model can be used to design changes in institutional arrangements, or to provide a descriptive schema for institutional analysis and assessment of arrangements for waste management.

### **3.6 Regional institutions**

Waste management planning in England, which up to now has been carried out at the Waste Planning Authority (WPA) level, i.e. County and Unitary Authorities, is also beginning to take place at the planning region level - primarily through the creation of the Regional Technical Advisory Bodies (RTABs). This research examines the waste management institutions in the South West of England planning region (which coincides with the South West economic development region). Thus, the discussion of regions which follows refers to a planning or political region. The EU

regions referred to do not necessarily coincide with UK political regions. However one could assume that EU policy which calls for the development regional institutions in member states does refer to political or planning regions.

### **3.6.1 *The need for regional institutions***

Many studies of sustainable development have focused on the regional dimension<sup>29</sup>. Most economic-environmental policy models are regional ‘because the analysis of environmental problems as well as environmental policy making and implementation are more meaningful and relevant to the regional level’ (Briassoulis, 1986, p. 22). Nijkamp and Vreeker (1998) maintain that this interest in regional sustainability analysis is due to the following factors:

- regions are properly demarcated areas, and homogeneous enough to allow for a more operational empirical investigation
- there is more scope for relevant policy analysis of sustainability issues due to the existence of administrative competence and control
- the statistical data available<sup>30</sup> at this level are more appropriate for modelling, analysing and monitoring the ecology and economy of an area

According to Renn and Goble (1996, p. 2) political regions “offer the best practical hope ...for developing effective political agreement on concepts of sustainable development and on operations in their support” because:

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<sup>29</sup> For a list of recent studies see Nijkamp and Vreeker, 1998. For a list of economic-environmental regional models see Briassoulis (1986).

<sup>30</sup> This might be true of the regions in the Netherlands and Germany, but not the UK. Waste statistics in particular were non-existent for the English regions until recently.



- They are large enough to include many communities and economic interests which must be reconciled
- Are small enough for the voices of individual communities and economic sectors to have significant weight
- It is at this community and sector level at which there are people and policy instruments to begin the critical move towards sustainability
- They offer homogeneity of population and agricultural and industrial practices
- They generally have suitable political institutions and regulatory mechanisms for legitimising sustainability
- Smaller units (cities and counties) have too much exchange with the outside (which makes it difficult to measure sustainability); their political mechanisms and institutions have insufficient influence over the economy; they are likely to lack a sufficient diversity of interests, the balancing of which is essential for the pursuit of sustainable development

Wallner *et. al.* (1996), discuss the idea of regions as 'islands of sustainability' (IOS) – an area within a larger society or economy where sustainability can be reached. They maintain that these islands have a serious chance of initiating an evolution process to wider sustainable development. The key is increasing the internal connectedness of processing units (the subsystems which form the elements of the regional system) as well as the connectedness between the regional system and the ecosphere<sup>31</sup>. They consider the transition towards sustainable development as an evolutionary process, and thus 'a process of change towards higher complexity and higher levels of organisation' involving increasing the complexity of the regional system. (Ibid., 1770). This means that a region of networking economy could transform to a region

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<sup>31</sup> Thrift and Amin (1995), use the concept of *institutional thickness* to argue that a larger number or greater development of institutions and agents are necessary for a regional economy to develop. Bennett (1997) however argues that it is the *economic orientation* rather than the density of networks, number or depth of institutions, or the role of government as a network partner which is most important. Scott (1998: 110) points out that not all forms of institutional thickness provide the necessary economic dynamism for economic development. Dysfunctional habits and attitudes can also become locked in to the local economy, as in the case of many declining or stagnant industrial districts (Ibid.).

sustainable in terms of production to regions sustainable in terms of behaviour and production (Ibid, 1773). Regions, however, should not be totally self-sufficient because they would miss out exchange activities with the rest of the world, and would not make any contribution to the evolution of the whole economic system towards sustainability (Ibid). Wallner *et. al.* also make the point that a reorientation of our present values amounting to a paradigm shift from a mechanistic to a holistic worldview is a necessary precondition for sustainability to be achieved.

This increasing internal complexity of regional systems which Wallner *et. al.* talk about cannot be accounted for by Neo-classical economic theory (because of its narrow analytical focus), unless one makes the assumption that a force exogenous to the system has caused a higher degree of interdependency among sectors of the economy. This would amount to a change in technical coefficients<sup>32</sup>, which could be a result of technological innovation. An alternative view is that this increased interdependency can be attributed to the development of co-operation between the various economic and political actors and actor constellations, forming more integrated and developed regional networks. 'Research on economic restructuring has shown that co-operative milieus, in which public authorities, firms and other institutions engage in co-operative processes of sociotechnical innovation, often emerge at a regional level' (Jaeger, 1993, p. 186). Institutional analysis would then be a more appropriate approach for the examination of regional sustainability (through policy subsystems and other institutional arrangements) if the aim is to encourage those environments which create more opportunities for economic interaction at this level.

Among the main forces that increase the need for regional institutions for the UK are globalisation, the EU, and the push for sustainable development. As the world becomes one global market through trade liberalisation agreements and the World Trade Organisation (WTO) and facilitated by technological innovation such as the

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<sup>32</sup> A measure of sectoral interdependence of production functions used in Input-Output modelling.



internet, the scope and opportunities for regions to participate directly in the world economy increase. Regions find themselves competing in the international markets for their exports and at the same time trying to make themselves attractive to multinational corporations to create employment opportunities<sup>33</sup>. This involves offering economic incentives, reliable infrastructure for power and transportation, a reliable, skilled, and competitively priced supply of labour, and environmental regulation which is not too expensive to comply with (yet is adequate to carry with it a 'good environmental image' which is increasingly significant for the marketing of a region's products). To fulfil all these requirements, regions need a set of administrative and other institutions.

The EU has long promoted regional development programmes in order to attain the goal of bringing all regions to a similar level of development<sup>34</sup>. In terms of environmental policy, it has through the reformation of the framework regulations (CEC 1993, p. 29) 'created the obligation for national governments to integrate environmental authorities in the preparation of regional plans, and thus created an operational framework for sustainable planning' (Lenschow, 1997, p. 112).

Increasingly, the EU has argued the potential of environment -economy positive interactions, seeking the win-win scenarios at a regional level. DGV (Directorate General 5) has taken the position that environmental protection can be a motivating force for the restructuring of employment, so that environmental programmes not only achieve ecological aims, but also strengthen the long term competitiveness of regions and create jobs (CEC, 1990, in Gibbs, 1995).

The EU has in many ways promoted the development of regional administrative and planning institutions. In the UK, the regional development planning systems developed in answer to the EU Objective 1, 2 and 5b funds have extended the ability and scope of policy at the regional level (Roberts and Hart, 1996).

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<sup>33</sup> See also Bennett (1997: 334) for a similar argument.

<sup>34</sup> The European Regional Development Fund (ERDF) was created in 1975 to promote regional equality within the EC. See also Roberts (1997).



One of the main directions for the implementation of sustainable development in Agenda 21 is the development of bottom up solutions. The participatory approach is seen as essential in the development process. This requires institutions at an intermediate – regional – level to bridge the gap with centralised national government. Again, these institutions need to be able to adequately address the integration of community groups and forms of advocacy coalitions in the planning process. Emphasis on sustainability at the local level has also created the need to manage spillover and environmental interrelations across different administrative units (Bennett, 1997, p. 325). Thus many environmental issues are more easily dealt with at a regional level, rather than a local or national level. This again requires the development of institutions and changes in institutional arrangements at the regional level.

### *3.6.2 Sources of regional institutions<sup>35</sup>*

The main force behind the formation of, and change in, regional institutions has been and remains the impetus of economic development. It makes sense then to look at the sources of institutional change in terms of their role in regional economic development. Scott (1998, p. 107-120) examines the formal and informal institutions and discusses the roles of regional culture and local public action.

Regional cultures, apart from being a factor in the socialisation of individuals, carry significant informal knowledge effects. This 'tacit know-how' can be pooled in guilds or trade alliances which are then instruments of social contact which enhance socio-economic integration. Regional agglomerations of producers become places where social rituals, cultural conventions, and routines help (by developing trust) to channel

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<sup>35</sup> This section follows closely Scott (1998). The focus is on institutions which play a significant role in regional economic development.

behaviour towards a more effective sharing of skills and resources to improve regional competitive advantage. Also regional cultural assets embedded in local production networks, the local environment, and local labour markets are central in creating the distinctiveness of regional products.

Formal regulatory institutions, such as the regional planning system, play an important part in the development process. Scott (1998) argues that planning is increasingly complemented by public action which seeks to enhance regional competitive advantage through the promotion of entrepreneurship, labour skills and technological excellence. He distinguishes five categories of public action which lead to a variety of institutional arrangements in economically advanced regions:

1. **Provision of new technology and design services:** Market failure due to the difficulty of firms to internalise benefits from investment in technology, and from firms inability to fully reap the benefits from (easily copied) design innovations, leads to under-investment in necessary research. Instead, this type of investment can be organised on a collective level (where the regional economy is sufficiently specialised), and thus any public effort in providing the institutional context for this to happen would accrue significant economies of scale.
2. **Worker education and training:** Again, market failure in this area (difficult to reap the benefits because people move jobs, and in a regional economy where there are common labour pools the problem becomes more acute) leads to under investment. Thus the case can be made for worker training a collective level, involving labour unions, trade associations, local government and other agencies.
3. **Collaborative networks:** The underlying value added networks present in regional economies offer important opportunities for institution building to

support collaborative interactions and high levels of interdependence, and to ensure that all resources held by firms are fully utilised.

4. Regional marketing services: Collective marketing services can overcome the limitation imposed on smaller producers by their resources, and provide information gathering, market development and advertising.
5. Other services, such as investment facilities for small firms, accounting and payroll preparation, private/public joint ventures and others.

### 3.7 Summary

A plethora of institutional factors not considered in mainstream economics can account for both opportunities and obstacles in the attainment of sustainable development goals. The Institutional framework provides a better set of concepts with which to examine these institutional factors, and to assess necessary changes in institutional arrangements for the movement towards sustainable waste management. In its break from the orthodoxy of economic theory, and its interdisciplinary approach pulling closer to sociology and political science, institutional economics offers a vehicle for analysis which is more compatible with the concept of sustainable development (as discussed in chapter 2). The different approaches discussed, although in many instances incompatible with each other on the theoretical level, provide the opportunity for the adoption of greater methodological flexibility. This is desirable in the area of sustainable waste management, because it provides avenues for very different types of studies in a field where the institutional arrangements are particularly complex. This is especially true for the regional level, where the 'organisational pattern can be described as a maze only at the cost of some simplification' (Rhodes, 1988 , p.153, cited in Winter 1996). The synthesis provided by the Nørgaard model provides a good tool for



conceptualisation of important relationships between cultural factors, policy communities and formal and informal institutions. It is this model that will be used to examine UK waste management in the South West region, and based on the case study the model will be refined. Finally, the Mitchell model provides a good framework for the analysis of institutional arrangements and their effect on resource management.

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## CHAPTER 4 FROM INSTITUTIONAL THEORY TO CASE STUDY METHODOLOGY

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### 4.1 Introduction

Following the discussion of the Institutional approach (see Chapter 3), it becomes apparent that institutional economics has a distinct advantage over the Neo-classical tradition in the examination of environmental management issues, in that it examines the sources of structure and of change underlying the economic system. It does so by focusing on institutions (formal and informal) as well as individual behaviour of stakeholders and actors in the formation of policy outcomes and the formation of collective and individual preferences and perceptions (see section 3.3). By focusing on institutions, the institutional approach not only fills a gap in existing mainstream economic theory, but also promotes and develops an alternative 'evolutionary' perspective on the economy expressed through an alternative body of economic theory. It also promotes a more interdisciplinary attitude which brings economics closer to political science and sociology. It is understandable then that the growing awareness of the nature of environmental problems, and the more widely accepted relationship between the environment, economic development and social issues which finds its expression in the discourse on sustainable development, have renewed the interest in institutions and institutional analysis.

Furthermore, the institutional approach offers great flexibility in the choice of methodology. The conciliatory approach promoted by Nørgaard (1996) allows the consideration of both individuals and institutions in the analysis. Although the theoretical differences between the institutional economics and the new institutional economics traditions are significant, there have been attempts to reconcile them, and these attempts underline the applied advantages in finding the 'middle ground'. Alternatively one could stress the importance of these differences in that the



paradigm shift in economics espoused by many economic schools at present is necessary and reflects to a great extent the paradigm shift discussed by proponents of many conceptions of sustainable development (see Chapter 2).

This chapter examines the methodological issues that arise from using the institutional approach to study the development of sustainable waste management, in particular the appropriateness of using both individuals and institutions as the unit of analysis, the issues involved in assessing institutions and existing practice in the study of waste management issues. The chapter then sets out the objectives of the case study, introduces the techniques used, and describes the methodological approach used for the case study.

## 4.2 What to analyse

This research explores the meaning of sustainable waste management and evaluates existing local and regional institutional structures in England related to municipal solid waste management (MSWM) in order to assess whether the existing local and regional institutional arrangements are flexible enough to accommodate the changing economic and regulatory scenes in the waste management sector, and whether there is adequate consideration given to issues of participation and representation to render them sustainable.

The flexibility offered by the institutional framework raises some methodological questions for the study of sustainable waste management. Firstly, there is the question of the unit of analysis. Secondly, there is the choice of criteria for analysing the institutions involved (economic efficiency, agreement, equity, accountability and adaptability, which are discussed in section 4.2.2). Thirdly, there is the choice of focus; i.e. considering the set of criteria, and the inherent limitations in resources and

time which apply for any study, one needs to focus on that criteria which are the most significant - in this case for the study of waste management institutions.

#### **4.2.1 Unit of analysis**

Efficiency and appropriateness are two concepts which are useful as criteria for the selection of the unit of analysis for a study. Efficiency can be seen as the extent to which the choice of unit of analysis will in practice provide the type of data which is needed. Appropriateness has to do with whether it is valid to use the data collected to answer the questions asked by the study.

This study is based on the hypothesis that individuals and institutions involved with waste management are interrelated to such an extent that it becomes necessary to consider both units of analysis as appropriate. This is particularly true in the study of environmental management issues and within the context of sustainable development because the changes brought about by a heightened environmental awareness are institutional in nature and require institutional change, which is initiated by innovative individuals. Commons (1934, in Biddle 1990, p. 37), one of the founders of the school of institutional economics, refers to the role of gifted individuals in driving the process of institutional change. The following explanation of Commons ideas on the relationship between the individual, society and institutional change (his theory of institutional evolution through purposeful action, which he calls 'theory of artificial selection') is based on Biddle (1990).

Individuals participate throughout their lives in social entities such as the family, church, business, state, which Commons terms "going concerns". These concerns are characterised by "working rules", which are patterns of behaviour<sup>36</sup> expected of and followed by group members. The collective will and purpose of the going concern are revealed by the working rules and the actions of individuals in enforcing them.

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<sup>36</sup> From unwritten customs to state laws; enforced by moral, economic or physical sanctions.

Individuals learn the working rules and the justifications for them. These rules give the individual a sense of choices which are feasible in any situation, and thus help to stabilise individuals' expectations. Apart from constraining the individual and shaping his/her preferences, working rules also provide rights and liberties. These Biddle terms an individual's "field of opportunity", within which the individual can pursue his/her private purpose, and within which (in a changing world) new possibilities of action arise. Thus, according to Biddle (*Ibid.*, p. 23) "the field of opportunity is the seedbed for new working rules and institutional change". So long as individuals purposeful but habitual behaviour results in an outcome which does not conflict with the collective purpose of the group (going concern), those empowered to change the rules have no need to do so. Change in the environment of the going concern<sup>37</sup> creates new opportunities and barriers for individuals, who respond by devising new practices or patterns of action. Innovative individuals will be able to synthesise new situations and old working rules. The variety of responses to the new situation is then weeded out<sup>38</sup> by the representatives of the collective will (the officials of the going concern), who alter the rules to support the new practices which best serve the collective purpose. Biddle makes the point that such collective wills often need to comply with a superior collective will. For example, the collective wills of labour unions and businesses are both subject to the state (the superior collective will). Thus state officials will respond to changes in practices by unions and businesses by permitting those actions compatible with what the officials see as the purpose of the state.

Thus, individuals and institutions (including the working rules mentioned above) are intertwined. The action of those empowered to enforce the will of the collective (the

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<sup>37</sup> According to Commons, the forces behind such changes are pressures of population and technological change, both of which can change the relative scarcity of resources and thus their allocation through markets.

<sup>38</sup> Based not on their intention but rather on their consequences. Commons makes the point that action, although purposeful, can lead to unintended consequences, and it is both the intended and unintended consequences of a particular practice which are of relevance. One could argue that this is of importance in relation to environmental issues, since pollution is rarely intentional, but rather a by-product of activities or practices which intend to bring about economic development.



officials) reveals the purpose of the collective. The action of innovators brings about institutional change, legitimised by the state (and other representatives of the 'superior collective will'). One could argue therefore that in the study of sustainable waste management from an institutional economics perspective, it is appropriate to examine the perceptions and preferences of state officials, representatives of various groups (environmental and business concerns, advocacy coalitions), and innovators (key actors not included in the previous group), as well as the institutional arrangements that relate them to each other. The barriers and opportunities towards sustainable waste management perceived by these key actors are important in that they can indicate the direction of the institutional changes necessary for the achievement of an environment which will promote sustainability goals.

Remmer (1997, p. 59), suggests that in order to enhance our understanding of contemporary development issues it is necessary to address the sources of institutional change. She argues that broader societal forces are neglected in institutional analysis in favour of formal institutions, and that this could be 'hazardous' when trying to address institutional change. She also argues that the emphasis placed on the role of state actors is exaggerated in a time when other societal forces are gaining in prominence<sup>39</sup> (Ibid., p. 58):

"Especially in an era of political and economic liberalisation, policy is likely to reflect the diminishing scope of public-sector authority and the expanding organizational and/or economic weight of firms, business associations, political parties, and other sets of social actors".

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<sup>39</sup> Meyer and Scott (1992; in Barnes and Morris, 1997) attribute this emphasis on the state to the organisational approach. According to them, organisational theorists believe that the state organisations through their legal and administrative systems have profound influence on what can and what cannot happen within an institutional environment. The institutional approach however looks at organisations as elements in the institutional environment, and it is that environment which defines and legitimates organisational structures and their activity. Fowler (1992, Ibid.: 189) states that "Today emphasis is being given to the creation of an 'enabling environment' for development action by all sections of society, not just the state".

It is important therefore to focus not only on state actors and formal institutions, but a variety of actors and stakeholders. Thus apart from public administration, the study will examine the perceptions and preferences of actors from environmental NGOs, and waste management business associations.

#### 4.2.2 Assessing Institutions

Ostrom *et. al.* (1993) discuss successful service oriented institutional environments and contend that institutions need to be assessed on the basis of efficiency, equity, accountability and adaptability.

##### *Economic Efficiency*

Economic efficiency is meaningful in the case of waste management in the comparison of alternative programs for the attainment of the same goal. Obviously then it would be a waste of resources to chose a more expensive option when two or more alternatives provide the same result. When it comes to define the alternatives however, economic efficiency can be a misleading concept. Bromley (1993; in Vira 1997) makes the point that when dealing with issues of redistribution (referring to social security measures) it is inappropriate to use the language of efficiency. What is efficient after a redistribution of relative income shares is Pareto non comparable to the efficient allocation under the *status quo*. Rather than efficiency, it is the social legitimacy of the processes that generate the new arrangements which needs to be looked at (Ibid.). The same argument applies for the re-distribution of costs and benefits associated with waste management, and that the concept of efficiency is therefore of limited use.

The other argument is that for economic efficiency to be meaningfully consistent with a social welfare optimum, it must be reached with the use of true valuations of

environmental and social costs<sup>40</sup>, or in other words, externalities must be internalised *a priori*. In a study of the social costs and benefits of waste disposal, Powell and Brisson (1994, p. 12), present the following equation:

$$\text{Waste disposal externality} = \text{Site disamenity cost (£ per site or per household)} + \text{Net variable external costs (£ per tonne of waste)}$$

Where Net variable costs = Global pollution costs + Conventional air pollution costs + Air toxics + Leachate costs + Transport related costs – Displaced pollution benefits

The scenarios examined include new or existing urban landfill with energy recovery, new or existing rural landfill with and without energy recovery, and urban and regional incinerator with energy recovery. The authors point out that their results need to be qualified by the fact that: no estimation of the disamenity of landfill or incineration were carried out; certain estimations were based on 'clearly unsatisfactory' assumptions, leading to a considerable degree of uncertainty; the estimates do not include the congestion costs of transporting waste to the waste disposal facilities (Ibid., p. 15, 17, 25). The results favour incineration with energy recovery over landfill, but the picture changes if the disamenity effects are taken into account (the public fear associated with incinerators is generally higher than that of landfill), or if the assumption, that future costs of incineration will stabilise whilst costs associated with landfills will increase, does not hold<sup>41</sup>.

Such qualifications of results are not uncommon in economic analysis. When dealing with the economic valuation of waste management externalities, there are three sources of uncertainty which limit the validity of the results. First there is the uncertainty associated with future relative prices amongst the factors of production

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<sup>40</sup> Meyer (1993, p. 194) makes the point that "...private return from institutional innovation is quite different from social return. Thus on both the supply and demand side, the forces do not necessarily tend toward efficiency".

<sup>41</sup> The imposition of an energy from waste (EfW) tax for example could lead to increasing incineration costs, thus invalidating this assumption.



used in the production processes<sup>42</sup>. Thus in order to produce waste disposal, there are a few options of combinations of processes such as landfill and incineration with or without energy recovery in a rural or urban setting, and these options rely on different combinations of capital, labour, and raw materials. The relative prices of the inputs required to carry out the task at a certain regulated standard are dependent on a number of variables, which are determined by local, regional, national and international economic conditions, and thus difficult to predict. The second source of uncertainty is related to the uncertain knowledge of the pollution pathways of various pollutants present in the waste stream, and related to waste management processes (for example leachate, air emissions and others), and uncertain knowledge of the possible interaction between the various elements of the waste stream. This makes the environmental effects difficult to assess. The third source of uncertainty is related to changing preferences for goods (or bads) for which there is no market (or there are markets but there is presence of significant market failures), and are therefore difficult to compare. These preferences are also culturally determined and difficult to assess at any point in time<sup>43</sup>.

The economic efficiency of the markets related to waste management is also questionable, due to the way with which these services are financed. Pearce and Turner (1992, p. 3) argue that since waste disposal and collection of MSW is paid by general taxation, 'there is no price tag for the individual waste generator which corresponds to the marginal social costs of disposal and collection, and therefore the assimilative capacity of the environment is under-priced' (in fact the marginal cost to

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<sup>42</sup> These relative prices can be instrumental in the choice of one alternative over another, yet they only reflect the relative scarcity of resources in the unlikely case where there is no market failure in *any* of the resource markets.

<sup>43</sup> A distinction should be made here between actual and perceived risk. The actual risk (in terms of the probability of an event happening) is difficult to calculate given the limited knowledge of the environment, and is determined by physical conditions (related to the receiving environment) and the management of the production process. Perceived risk however is largely based on habits of thought emanating from past experiences, and also relates to the trust the public places on the adequacy of existing processes and regulatory standards, and trust placed on the institutions which have been set up to monitor and enforce these standards. For a definition and discussion of risk see Rodricks (1992, p. 183).

the individual is zero). This has led Pearce and Turner, and other economists and politicians, to advocate the use of market based instruments (MBIs) to correct existing market failures, and thus to make the resultant distribution of resources closer to some socially desirable solution. This has also been promoted by the apparent inability of traditional command and control approaches to waste management. However the case must be made that preferences play a significant role in what is or what is not acceptable, possible and sustainable.

### *Agreement*

Whether the institutions involved in the delivery of sustainable waste management do so in an economically efficient way is therefore difficult to evaluate. It can be said however that a prerequisite to any claims to efficiency is the agreement amongst actors and stakeholders as to what the meaning and aims of sustainable waste management are. Without the basis of agreement on its meaning, the efficient pursuit of sustainable waste management could mean different things to different interest groups, and there would be no yardstick for the evaluation of its attainment. Trudgill (1990) calls this an 'agreement barrier'. In the pursuit of a better environment he sees the movement from environmental problem to solution as being impeded by six distinct barriers. These are the agreement, knowledge, technology, economic, social, and political barriers.

Agreement barriers "include the difficulty of achieving consensus about the scope of solutions and the means of achieving them and about ultimate goals. There are also arguments over whether a problem actually exists at all, what its significance is, what the nature of the problem actually is and whether it matters or not. What one person sees as the problem, another may not; what is seen as reasonable and as an acceptable practice to one group can be unacceptable to another" (Ibid., p. 5).

Lack of agreement gives rise to situation uncertainty, problem denial, and problem rejection. Situation uncertainty can be clarified by further investigation, observation



and measurement. To a certain extent, this is being addressed in the UK by the Environment Agency and county authorities through funding a series of studies to improve the quality and quantity of waste management statistics. “Problem denial and problem rejection stem from perspectives, value systems and vested interests, which could be tackled by information about effects of actions, education of awareness and legal enforcement” (Ibid., p. 110, italics added).

Accountability and adaptability are more straightforward. Obviously, the decision making process needs to be transparent enough for the individuals and groups involved to be held accountable to the public, the ultimate stakeholder. Waste management decisions are often very political in nature and therefore involve directly or indirectly a number of actors representing a variety of interests. Who participates and who is left out (out of the set of stakeholders), is as important a consideration as any in the institutional arrangements. Adaptability is also important in that institutions need to change in order to enable emerging collective preferences to be realised. A case in point is the need for changes in existing patterns of behaviour (both in production and consumption) to promote the growing preference for recycling over disposal of waste.

### *Equity*

This study will also focus on issues of fairness<sup>44</sup>. The criterion of equity is especially important in dealing with the distribution of environmental goods and bads (see for example Lekakis, 1990). Fairness should be part of the institutional arrangements for sustainable waste management. Thompson (1998) goes as far as to suggest that when it comes to waste management, egalitarianism is the third institutional arrangement, an alternative to the institutional arrangements of markets and hierarchies. He argues that within these three sets of institutional arrangements, distinctly different ideas of fairness are embedded.

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<sup>44</sup> Fair: free from discrimination, dishonesty, etc.; just; impartial (Collins English dictionary, 1991, Harper Collins, Glasgow).



“Equality of opportunity, therefore, is the market actor’s idea of fair process, with outcome fairness being the matching of reward to contribution” (Ibid., p. 65).

Hierarchists’ ideas of fairness are “outcome by rank and status, process according to who has the right to do what and to whom”<sup>45</sup> (Ibid., p.66). The egalitarian idea of fairness is one of absolute parity (before, during and after the implementation of the policy), and egalitarians are therefore “bitterly critical of all the inequitable things that go on in the other two arrangements – markets and hierarchies” (Ibid.).

Thompson argues that this idea of fairness is important in waste management, and is evident in the prevailing attitude that people (communities, countries) should be responsible for their own waste and the implications of its management. This is a significant contributing factor to waste being managed locally.

The public’s preferences related to these ideas of fairness are of great importance to policy making. If the public perceives the process, and/or outcome of the policy process as unfair, it will lose its trust in the institutions that put them in place. Thus Thompson suggests that in order to arrive at robust and effective waste management policies, there is a need “to ensure that all three solutions [market, hierarchy and egalitarian] are granted legitimacy and given due consideration in the policy process” (Ibid., p. 70), and this can be achieved by using the threefold typology of ideas of fairness mentioned above.

The most comprehensive environmental justice<sup>46</sup> study to date on waste management has been carried out by Been and Gupta (1997). In this study, they analyse the claims of the environmental justice movement that low income and minority

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<sup>45</sup> Thompson uses as an illustration the developed countries argument in the international negotiations for climate change, that they should have higher carbon quotas than those of developing countries because their economies are more energy intensive. This would give the developed countries the right to pollute the globe more, because of their status as being already bigger polluters.

<sup>46</sup> Justice can be categorised as follows (Audi, 1995, p. 395):

*formal justice* is the impartial and consistent application of principles; *substantive justice* is associated with rights (what individuals can legitimately demand from one another and their government); *retributive justice* concerns when and why punishment is justified; *corrective justice* concerns the fairness of demands for civil damages; *commutative justice* concerns the fairness of wages, prices, and exchanges; *distributive justice* concerns the fairness of the distribution of resources.

neighbourhoods are exposed to greater risk (than other neighbourhoods) from environmental hazards, and this is due to:

- Racism and classism in the siting of locally undesirable land uses (LULUs)
- The promulgation of environmental and land use regulations
- The enforcement of these regulations
- And the effort spent on cleaning polluted areas

(Ibid., p. 3)

The study examines questions related to the evidence related to these claims, in order to help establish a basis of agreement on the problem, and thus move forward the debate on “how best to factor concerns about distributional equity into the decision making process” (Ibid., p. 35). Environmental justice is perceived as such a major issue in the USA that President Clinton signed an Executive Order (February 1994) that requires federal agencies to “make achieving environmental justice part of their mission”, the EPA has set up an Environmental Justice Office, and there is now a National Environmental Justice Committee with regional departments (Ibid., p. 3). The sources of environmental injustice in waste management can be seen as embedded in formal and informal institutions<sup>47</sup> (regulations, their implementation, and cultural factors). It is not only the injustice itself that needs to be addressed, but also (and this is evident from the high profile given to the issue in the USA) the perceptions of injustice<sup>48</sup>.

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<sup>47</sup> Stretesky and Hogan (1998, p. 284), state that “[environmental injustice] ...is more than the result of bigoted individuals and their choices...equity policies adopted by the EPA may be largely ineffective as those policies do not deal with larger social-structural issues...”. Furthermore their findings indicate that environmental injustice may be intensifying.

<sup>48</sup> According to Lober’s study of the siting of a recycling facility (1995, p. 499), “...behavioural opposition [to the siting of the facility] is motivated not only by the perceived costs from a facility, but also by *perceptions of fairness* of the siting process” (italics added). In fact, the study shows perception of fairness of the process as having the highest correlation with attitudes towards the siting than any other variable.



It is also evident from this study that overcoming the agreement barrier (see Trudgill 1990, preceding subsection) is necessary for the process of change towards sustainable waste management to be successful.

Issues of fairness in waste management however go beyond the siting of facilities in racial minority or poor neighbourhoods. They also apply to a host of other areas such as those listed below:

- Distributive, substantive, and corrective justice related to the allocation of goods and bads between urban and rural areas.
- Commutative, distributive, substantive and corrective justice related to the regional, interregional, and global distribution of environmental effects from waste management.
- Substantive and distributive justice related to the rights of future generations to assimilative capacity for waste of the environment, and the distribution of resources between present and future generations.
- Commutative justice related to the financial burden of waste management imposed on various groups in the present, and between present and future generations.

The distribution of resources, financial burden and assimilative capacity between present and future generations is of particular interest in terms of the pursuit of sustainable development and sustainable solid waste management. The distribution of natural resources, and especially the focus on supply uncertainty, has been an issue which has been central to discussions about the environment since the publication of the 'Limits to Growth' (Meadows *et. al.*, 1972) The spurious exploration of the planet and investment in new technology following political events such as the oil crisis in the mid '70s however have put in abeyance the fears of the early '70s that the world will soon run out of resources. Yet, increasing awareness of the environmental impacts of extraction and harvesting of non-renewable and renewable natural



resources, together with the social consequences which often accompany such activities in less developed countries, have led to changing preferences away from the use of virgin materials, and emphasis on recycling as a necessary component of any waste management strategy. The realisation that future clean-up costs can be more than any one generation can handle has led to the establishment of clean-up funds (such as the Superfund in the USA), and of international agreements and European Union regulations prohibiting and/or limiting the movement of waste through national or community boundaries. The need to provide intergenerational equity in terms of the capacity of the environment to assimilate solid waste has led to waste minimisation and recycling initiatives, with an emphasis on the diversion of waste from final disposal, and especially away from landfill.

### *4.2.3 Existing practice*

Within the evolving waste management institutional environment, research has gravitated towards the development of quantifiable parameters which can aid the decision making process by providing a politically neutral scientific basis for choice amongst competing alternatives.

In the EU, the necessity to overcome the knowledge barrier has resulted in the development of basic waste management statistics (quantities and composition of solid waste generation, geographically and by type of source), questioning the adequacy of existing methods of generation of these statistics, and their compatibility across national borders. Parfitt and Flowerdew (1997, p. 231) cast a shadow over the validity of the results of the UK National Household Waste Analysis Programme (NHWAP), and conclude that "a national research programme based on household samples is required in order to understand the relationships between household waste arisings and socioeconomic, institutional, spatial and temporal variables".

These statistics are not only sought after in order to establish the magnitude of the solid waste problem, but more so to provide the necessary data to run material flow decision support models, such as life cycle for waste models (for example the Life Cycle Inventory model by White *et. al.*, 1995). The significance that is placed on such models in the UK is underlined by the development by the EA of its own LCA model for waste, which it is promoting to local and county authorities. In general, there are LCA models for individual products and LCA models for particular processes, such as waste management. The former seeks to evaluate the environmental impact of a product, from the extraction of raw materials to its disposal, and as such offers the consumer a guide by which to make environmentally less damaging choices. The latter provides an estimation of environmental impacts associated with a specific set of waste management options<sup>49</sup>. The variables considered by the model include type of collection and sorting method, rates of recovery of materials, distance of waste transport, population, waste generation per person, and method of disposal. System inputs include waste entering the system, energy, and raw materials. The system outputs are amounts of recovered materials, amount of compost produced, energy recovered (the products), emissions to air (quantities of pollutants, such as CO<sub>2</sub>, methane, nitrogen and sulphur oxides) and water (suspended solids, organic compounds, heavy metals, and emissions resulting in biological and chemical oxygen demand), and final solid waste. According to Powell *et. al.* (1998, p. 230) although the site specific level environmental effects not considered by the LCI model (such as traffic generation, noise, landscape and visual amenity, impacts on health and safety, social and economic effects) would have to be taken into account, the technique “provides a much broader scope for the analysis of environmental effects at the strategic level... However, it will often remain difficult to make final [strategic waste management] decisions due to a wide range of diverse and disparate environmental, social and economic concerns which may need to be considered together”, which leads to the need for decision support tools.

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<sup>49</sup> For an application of LCA to waste see Powell *et. al.* 1998.

The weakness of the LCA method is that (like other input-output applications) it assumes linear relationships between the variables used, and it does not consider institutional variables, which can be significant. In addition it is limited by its requirement of data inputs in forms which are difficult to obtain with any consistency across administrative boundaries, and relies on assumptions like the uniformity of processes and practices used across wide geographical areas.

This study aims to fill that gap, by examining the institutional variables which can be used to qualify LCA results, providing a more realistic picture of the effects of waste management decision making.

The objectives of the case study are therefore the following:

To examine and describe the existing institutional arrangements for MSWM for the South West of England. This will be done by analysing the regulatory environment, the organisations involved at the regional level, and existing advocacy coalitions.

To examine the agreement barrier in terms of the definition, and therefore the goals, of sustainable solid waste management. This will be done by examining the perceptions of key actors and stakeholders (the operational variables) in the South West Region of England.

To examine the perceptions of the key actors and stakeholders on fairness, and the role of participation and representation in the waste management decision making process (as related to solid waste management).

To analyse other driving forces and barriers to sustainable waste management, and assess their relative importance.

To examine the implications of the findings for institutional change at the regional level.



## 4.3 How to analyse

### 4.3.1 The Case Study

The case study approach<sup>50</sup> is used for the empirical part of this study (see Figure 4.1 for a schematic representation of the case study methodology). The object of the study is sustainable municipal solid waste management, and the data is collected from the UK. The interview method is used to collect data from the South West of England planning region (see Figure 4.2). This is complemented by a questionnaire survey across two more regions of the UK. According to Robson (1993, p. 54) “the combination of survey and case studies (both institutional and individual) provides useful complementary information giving valuable insights into the issue”.

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<sup>50</sup> The definition offered by Robson (1993, p. 52), is that “case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence”.



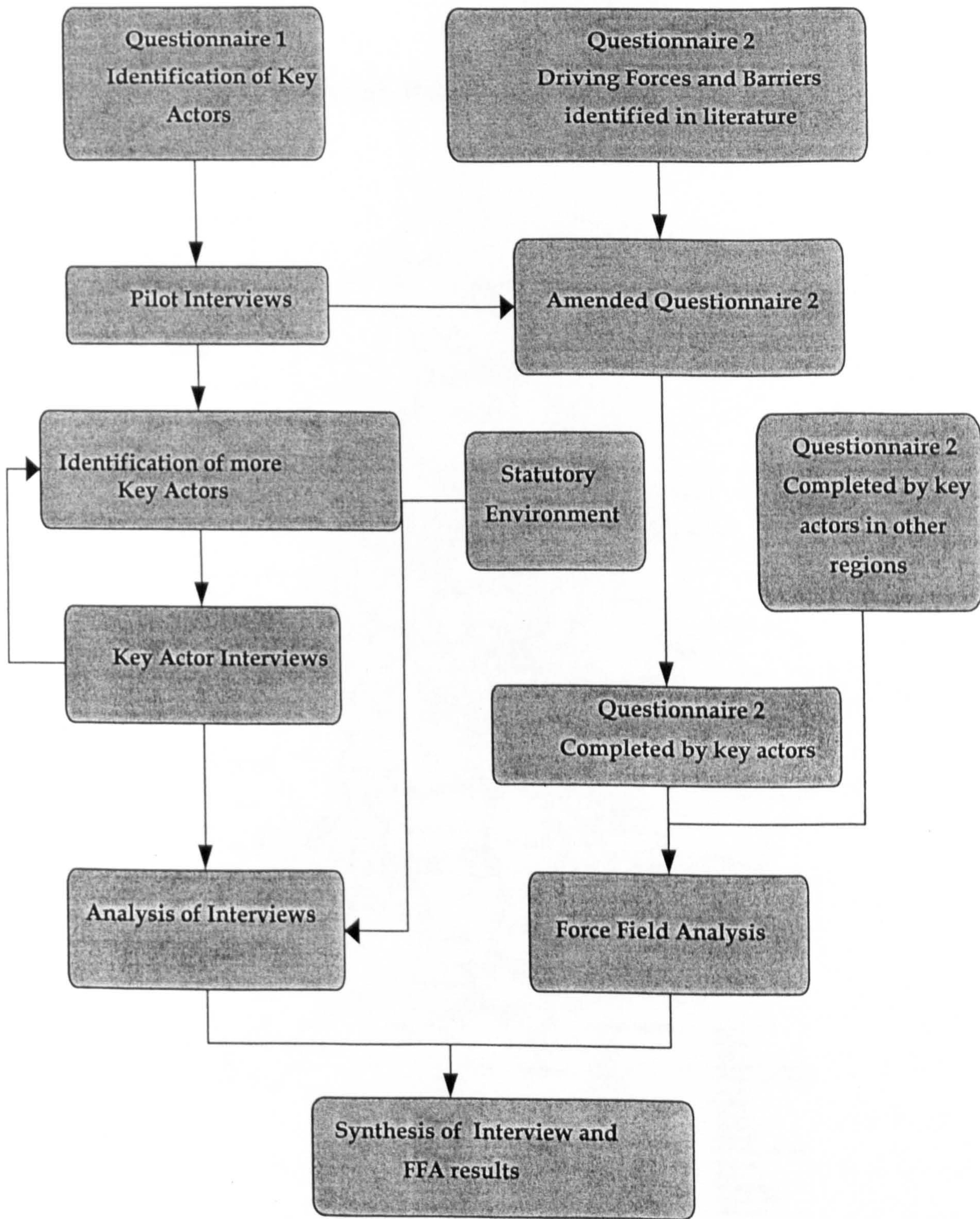


Figure 4.1 Case study methodology



# Regional Planning Areas

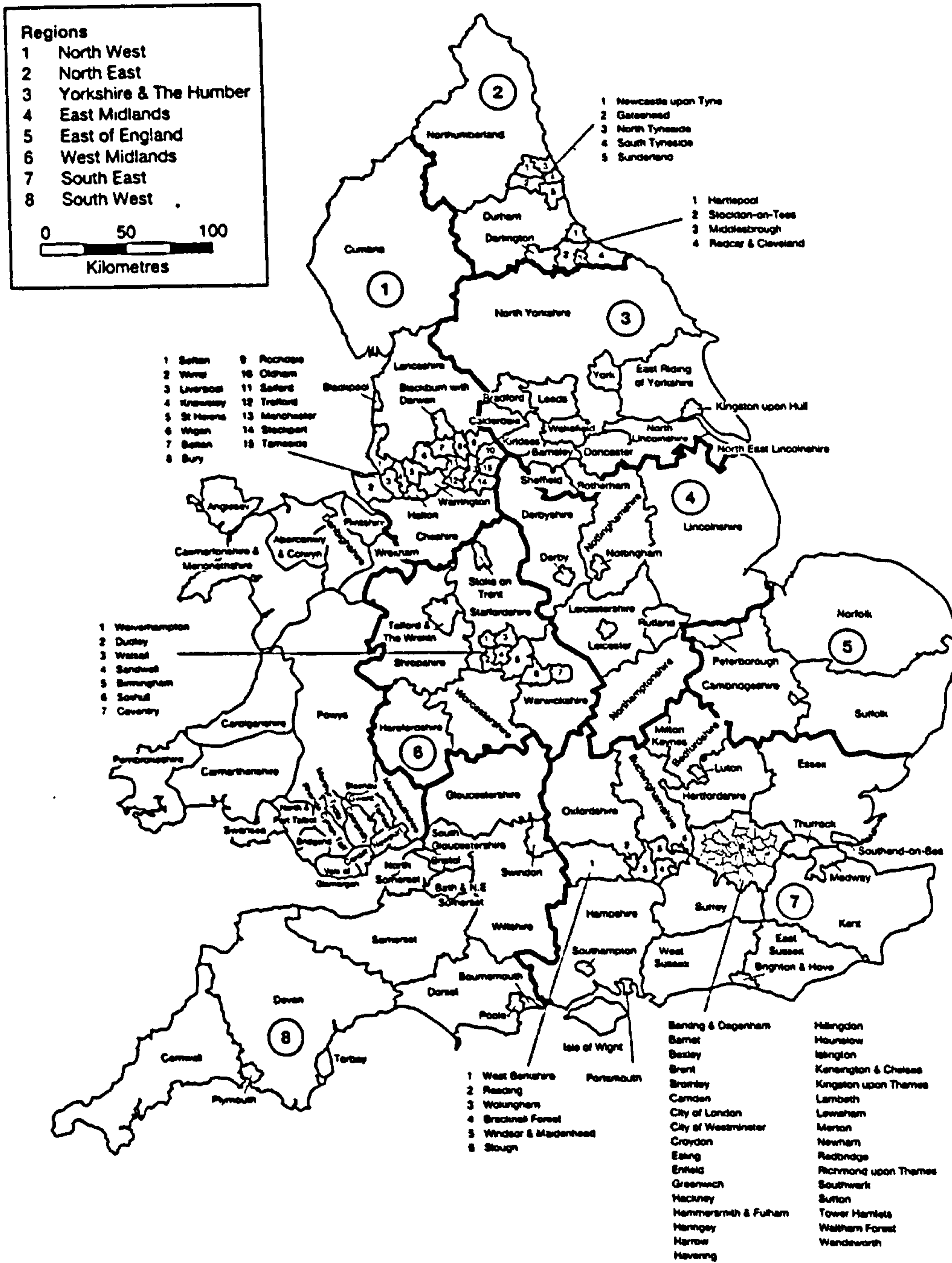


Figure 4.2 UK Regional Planning Areas. Source: Planning Policy Guidance Note 10: Planning and Waste Management (September 1999)



### Choosing the (region) case study areas

The criteria used were:

The region for the interviews must comprise of a balance of rural and urban areas so as to offer the opportunity to discuss dichotomies of the urban/rural type.

The region must be (for logistic reasons) close to Cheltenham, the base of the researcher.

The region must be experiencing significant problems in the implementation of sustainable waste management policies, and also demonstrate activity towards the resolution of these problems.

The South West of England was chosen on the grounds that it fulfils the above criteria.

### Force field analysis

Force field analysis is a technique first introduced by Kurt Lewin in the 1950s (see Lewin and Cartwright 1952). It allows researchers to analyse and act on problems that cannot be measured in ordinary ways (Bennis *et. al.*, 1987). The technique looks at forces that drive towards problem resolution, and those which restrain problem resolution. Increasing drives or reducing restraints lead to the resolution of the problem. Lewin believed that it is better to address the barriers rather than increase the drives, because increasing the driving forces attract more restraints, whilst decreasing the restraining forces permits existing drives to prevail (Ibid, p. 78). The FFA technique provides a useful tool for analysis in a range of studies, from strategic level to plan implementation (see for example Watts 2001 for an application of FFA to biodiversity planning) The usefulness of the technique for addressing barriers in

sustainable waste management is obvious. The technique can be used to focus interviewees on the issues, and also provides the opportunity for using some type of scaling of the forces behind the barriers. The interaction between the driving forces (or opportunities) and the restraining forces (or barriers) results in the status quo. Using some of the factors identified by the University of Louvain-la-Neuve Business School (1998, p. 18) that influence waste management system development, a preliminary force field could be represented schematically as follows (see Figure 4.3):

### FORCE FIELD ANALYSIS

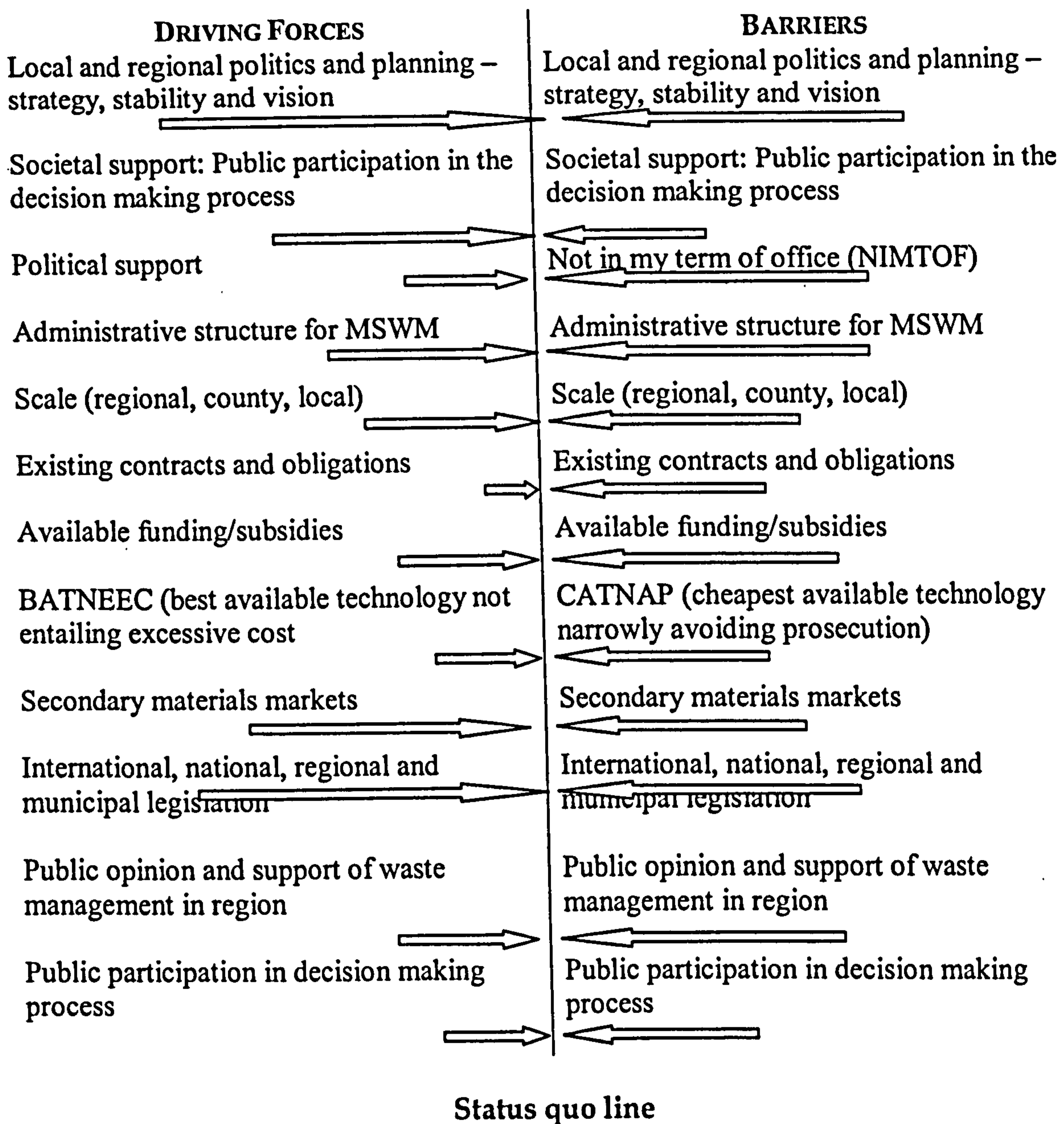


Figure 4.3 Force Field Analysis

During the pilot study, the above representation was shown to the interviewee after an introductory discussion of the meaning of sustainable waste management. The interviewee was then asked to comment on the driving forces and the barriers, and to suggest additions to the list as well as draw associations amongst them. Finally, the



interviewee was asked to rate the forces in terms of strength on a scale of one to five. This allows some statistical analysis of the results. The listing of forces used in the main body of the empirical work includes forces identified by the pilot study. This force field representation then also formed the basis of the questionnaire survey, thus allowing the results to be checked by a different method.

### **Institutional arrangements**

It is a goal of this study to examine the institutional arrangements for municipal solid waste management for the South West of England. The statutory environment, which provides the main driving force for change in existing waste management practices will be examined, with focus on key UK and EU legislation. The method will be document analysis.

Document analysis and input from in depth interviews with key actors will be used to arrive at a schematic representation of the network of key organisations involved in solid waste management in the region.

#### **4.3.2 Methodology**

The methodology used is depicted schematically in Figure 4.1. Following the discussion earlier in this chapter, individuals and institutions are intertwined, and the action of those empowered to enforce the will of the collective reveals the purpose of the collective. Thus the perceptions and preferences of the key actors, including central and local government officials, business concerns, innovators, and regulators are of central importance to institutional analysis. Not only do these actors have the potential to influence the existing waste management system because of their command over human and capital resources, but also their preferences reflect the changing social perception of waste management and therefore re-define what could

be done, and thus the direction of waste management strategic thinking. The first step is then to identify the key actors.

#### **Identification of key actors (Questionnaire 1)**

Two techniques were used in this study for the selection of key actors. Firstly, a questionnaire was sent out to seventy practitioners in the field (see Appendix 4). These consist of recycling officers (members of the Local Authority Recycling Action for the South West of England), county waste disposal officers, Environment Agency managers, and representatives of environmental NGOs and sectoral associations. The questionnaire was designed to identify the key actors in the field. The questionnaire asks of the respondents to identify the people in the area of waste management with whom they interact most frequently, whom they take advice from, which waste management company they use, and who they perceive as the key regional actors in the field. The results produced a few names, five of which were more frequently quoted and thus constituted a natural first group of key actors for the pilot study.

Secondly, a snowball approach was used, starting from the already identified actors, and asking them to identify other key actors. This process continued until all key actors for the region had been identified and interviewed.

#### **Driving forces and barriers (Questionnaire 2)**

These were identified in the literature and formed the first draft of Questionnaire 2 (see Appendix 1), which forms the basis for the Force Field Analysis. This first draft was used in the pilot study interviews of key actors, and was then amended for two reasons. Firstly, the wording was amended in some questions in order to clarify what was being asked and avoid misinterpretation by the respondents. Secondly, some questions were added to cover any key issues which had not been identified in the literature.

The amended Questionnaire 2 was presented to, and completed by, the key actors. It was also sent to, and completed by key actors from two other regions (the North East and the West Midlands planning regions). For these two regions, the key actors approached were the members of the respective RTABs for the region. The results provide a check on the validity and generalisability of the results from the South West region.

The data from Questionnaire 2 forms the database for conducting the Force Field Analysis. For reasons of simplicity and to make the questionnaire easier for the respondents to fill in, the questionnaire was divided in four sections, which are as follows:

1. *Operational*: This section of the questionnaire examines (the attitudes and preferences of key actors on) operational issues such as the scale of operations, composition of the waste stream, cost of non-compliance, availability of facilities, and the influence of urban or rural location.
2. *Policy, management and administrative structure*: This section addresses the influence of European, UK national and local legislation, the existence of support and mechanisms for development of strategy at the regional level, public support, local and regional politics, and the role of pressure groups.
3. *Economics*: Examines the availability of funding for waste management options at the top of the EU waste hierarchy, secondary materials markets, attitudes of managers on least cost versus investment in better but more expensive options, the pricing system for municipal solid waste management services, market conditions for environmentally friendlier waste management options, regional level funding, and fair compensation.
4. *Social considerations*: Examines public attitudes and habits, participation in decision making processes, representation, and issues of equity such as inter-regional equity, global considerations and fairness (of the distribution of the



economic and environmental burden related to waste management) between present and future generations.

At the end of the questionnaire, the respondents were asked to note any forces (driving forces or barriers) that they thought should be included for consideration.

#### **Compilation of FFA data**

The results from the questionnaires were grouped in four different groups:

1. Local Authority: County and Unitary
2. Local Authority : District, Borough, and Unitary
3. Regulators: Environment Agency and Government Office for the Region
4. Waste Management Industry

The distinction between County and District was necessary due to the difference in responsibilities. The County is responsible for the disposal of MSW, and planning for disposal. The Districts and Boroughs are responsible for collection of MSW and also recycling planning. The Unitaries combine these functions under one roof, and in this case the questionnaire was grouped according to the functional role of the particular interviewee, i.e. whether they were involved with the disposal or the recycling/collection side of things.

Force field curves were produced for each of the above groups separately. Curves were produced also for the RTABs as one group which includes a combination of participant groups, and for the Region as a whole, which is the combination of the results from all of the groups. This allows comparison not only between groups within the region, but also allows for interregional comparison. It also allows the comparison of the results from each group with the Regional amalgamation.

Initially twenty-eight categories were used to group driving forces, and twenty-eight categories to group barriers. These were taken directly from the questionnaires.

Although this provided a great deal of detail, it resulted in FFA curves that are difficult to compare (see appendix 2 for the detailed FFA results). However, these fifty-six forces and barriers have been devised to address a much smaller number of issues, and were easily combined to produce a FFA curve with eight driving forces and eight barriers (see chapter 6 for composite FFA curves and analysis). These driving force and barrier categories are:

- Legislation
- Regional
- Public participation
- Political pressure
- Economic
- Sustainable development
- Siting of WM facilities
- Management

A key to the composition of these composite forces appears in Appendix 3.

The Force Field Analysis stage then used the data from the questionnaires completed by the key actors of the South-West region and the two groups of key actors participating in the RTABs of another two regions, the North-East region and the West Midlands region.

### **Key Actor Interviews**

These were in depth interviews, lasting from one to two hours, and covering a wide range of issues, those identified in the literature and in the pilot study as the key issues surrounding the development of sustainable Municipal Solid Waste Management (MSWM) at the regional level. The interviews were semi-structured, based on a series of questions designed to address the key areas of interest. The complete set of questions used during the interviews appears in Appendix 5. The interview questions cover such issues as the meaning of sustainable MSWM, the way

forward, stakeholder participation, fairness, decision making influences, waste management options, and regional institutional issues. All the key interviewees were asked to address these questions. The semi-structured nature of the interviews provided the flexibility to focus on related issues that the interviewee wanted to discuss because he/she thought the issue to be significant.

The interviews were then transcribed, and used as data files in a software programme designed for qualitative data analysis, called NUDIST. This programme allows the user to highlight sections of text from the database, and categorise it in categories which the user has already defined. Therefore, for example, one could compile all the responses (from all interviewees) to a particular question together, or create other categories, which can be linearly related to each other, or independent from any other category. In this case, the data was compiled by group, and also by issue, such as for example responses on the issue of recycling versus incineration. This allows comparison of responses by group and also provides a simple and readable tree diagram of all categorised information. The NUDIST software was thus used to place information in categories of issues. Although one can use the software further to search for key words, and to create a linear model of data exploration, this capacity was not used in this case. The reason was that the model used here is a circular model (the model appears in chapter 3), something the NUDIST software is not designed for.

The content analysis was therefore carried out by group and by issue (see chapter 7 for interview results), and later on combined with the FFA results and fed into the circular amended institutional model, which appears in chapter 8.



**Synthesis of interview and FFA results**

The synthesis of the qualitative data from the key actor interviews and the quantitative data from the FFA yields a set of significant driving forces and barriers, which are then related back to the model. These forces are integrated into the model and related to an area of the institutional framework. Guidance for this inter-relationship was provided from the content analysis of the key actor interviews. Again, the categories used to analyse the interview and FFA data were used for this purpose. In other words, all the significant forces related to, for example, stakeholder participation are related back to the institutional model and placed in the model according to the findings from the interview analysis. This gives an idea of the influences of various forces, and the likely effects, direct and indirect, of any changes in the institutional arrangements.

This leads to an assessment of which areas of the institutional model need to be addressed first, and what institutional changes are necessary in order for MSWM to develop into more sustainable system.

**4.3.3 *Validity and Generalizability***

It is appropriate at this stage of the research to address questions regarding the validity and generalizability of the enquiry.

“Validity is concerned with whether the findings are ‘really’ about what they appear to be about. Are any relationships established in the findings ‘true’, or due to the effect of something else? Generalizability refers to the extent to which the findings of the enquiry are more generally applicable, for example in other contexts, situations or times, or to persons other than those directly involved.” (Robson, 1993, p. 66).

Cook and Campbell (1979) make the distinction between statistical conclusion validity, construct validity, internal validity, and external validity (or generalizability). The definitions used in the following discussion of these concepts are drawn from their work (1979, pp. 37-94).

Statistical conclusion validity refers to the validity of conclusions about covariation between the independent and dependent variables (which are made on the basis of statistical evidence). In other words, is the presumed relationship between the cause and the effect of a 'treatment' being measured statistically valid<sup>51</sup>? In this case, the dependent variable would be sustainable municipal solid waste management. The independent variable would then be the agreement barrier, and the equity barrier, both of which would be expected to be negatively correlated to the dependent variable. Thus, the bigger the barrier, the smaller the value for sustainable waste management should be. This study does not aim however to prove or disprove the assumption that these barriers exist. It is taken as given that they do exist, based on existing waste management disputes, especially in the area of facility siting. The study rather aims at assessing their significance, and at exploring the institutional issues related to their resolution.

Construct validity refers to "the possibility that the operations which are meant to represent a particular cause or effect construct can be construed in terms of more than one construct, each of which is stated at the same level of reduction" (Ibid., p. 59). For example, do the perceptions of fairness of actors measure the equity barrier (and only that), or do they also measure the agreement barrier? Cook and Campbell (1979, p.61), assess construct validity based on two criteria. Whether different measures or manipulations of the same 'thing' converge, and whether measures and manipulations of related but conceptually distinct 'things' diverge. Construct validity is best addressed at the pilot stage of an experiment, "when attempts are made to fit

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<sup>51</sup> The error would be to arrive at a false conclusion about covariation, i.e. concluding that a relationship exists when it does not, or concluding that it does not exist when it does.

the anticipated cause and effect operations to their referent constructs, whether these are derived from formal social science theory or from formal policy considerations” (Ibid, p.60). In this study, construct validity is pertinent on two different levels. The first relates to whether the interview questions actually measure the actors perceptions of sustainable solid waste management and their perceptions of fairness. The second relates to whether these perceptions actually measure the agreement and equity barriers. Cook and Campbell (Ibid, p. 69) emphasise the need to use multiple measures for the same construct, and also to present the measures in different delivery modes. These issues will be addressed by carrying out interviews, and also conducting a questionnaire survey using a different set of respondents in order to triangulate the results. The questionnaire presents the opportunity to ask questions of the data other than those addressed by the interviews. For example, on the issue of fairness in relation to the burden of waste management carried by urban and rural areas, the interviews will aim at discovering how (if at all) perceptions differ, based on whether the actors belong to the private sector, public administration, or some civil group, and thus to assess the significance of the equity barrier. The questionnaire, could be used to examine whether these perceptions vary based on how urbanised or not a region is, as well as to verify or not the differences by actor group.

Internal validity deals with whether the study can demonstrate the causal relationship between the treatment and the outcome (Robson, 1993, p. 69). According to Cook and Campbell (1979, p. 50), the essence of internal validity is accounting for third variable alternative interpretations of presumed A - B relationships. Assessing in other words the possibility that A and B are related only through a third variable C. Assuming A causes B, when in reality A causes C and C causes B would lead to false conclusions about cause. Cook and Campbell (Ibid., p. 54) also state that “ambiguity about the direction of causal influence is a problem in many correlational studies that are cross-sectional”. This study, apart from being cross-sectional, is also focused on institutional variables. The presupposition in institutionalism that policy



outcomes and the policy process itself has institutional and cultural feedback (see Nørgaard, chapter 4, section 3) creates a closed system, which means that causality is difficult to assess. Also, consideration must be given to the fact that the study will focus on two types of barriers, whilst sustainable waste management is a function of a number of barriers, many of which are interrelated. These interrelationships, therefore, need to be addressed.

External validity (or generalizability) has to do with generalising to particular target persons, settings and time, and generalising across persons, settings and time. According to LeCompte and Goetz (1982, in Robson 1993, p. 73), there are the following threats to external validity:

- Selection: findings being specific to the group studied.
- Setting: findings being specific to, or dependent on, the particular context in which the study took place.
- History: specific and unique historical experiences may determine or affect the findings.
- Construct effects: the particular constructs studied may be specific to the group studied.

## Summary

It is appropriate to use both the individual and institutions as the unit of analysis for the study of sustainable waste management. The data provided, i.e. the institutional arrangements, organisational culture and key actors perceptions and preferences, make it an efficient choice, but also appropriate because it helps to address the question of whether the existing institutions and institutional arrangements are adequate and what changes are needed to progress towards more sustainable waste management at the regional level. Individuals and institutions are intertwined, and thus both need to be addressed, together with the sources of institutional change, including cultural forces, and formal and informal institutions.

The case study methodology relies on key actor interviews and questionnaires. The data collected can be most efficiently analysed by categorising it around the significant factors used in assessing institutions and institutional arrangements. For this study, these are: economic efficiency, agreement on the meaning of sustainable waste management and the scope of solutions, fairness, accountability, and the distribution of resources amongst key actors and organisations.

Out of the formal institutions, the statutory environment provides potentially the most significant source of institutional change, and thus it is examined in the next chapter.

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## CHAPTER 5 STATUTORY ENVIRONMENT

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### Introduction

The development and implementation of any EU member State municipal solid waste strategy is largely influenced by the waste management objectives and targets set in EU legislation. The development of this legislation can be seen as a product of conflict and conciliation amongst the major economic interest groups and environmental advocacy networks.

This chapter looks at the statutory environment that applies to the management of municipal solid waste for the UK. First the waste policies set by the EU, and then the implementation of the EU waste policies in the UK are examined. The waste management statistics for the South West of England region are then detailed in order to set the context for the case study.

### 5.1 EU Waste Legislation

The development of the EU environmental policy was initiated in 1973 with the launch of the first Environmental Action Programme. A major development occurred in 1987 with the ratification of the Treaty of Rome through the Single European Act, in which article 130 (r, s, t) provided an explicit legal underpinning for EU environmental policy. This article introduced the principle that 'environmental protection requirements shall be a component of the Community's other policies'. The Maastricht Treaty (Treaty on European Union) in 1993 introduced the promotion of 'sustainable and non-inflationary growth respecting the environment', further strengthening the role of environmental policy within the EU (Haig, 2001).

Throughout the Environmental Action Programmes a series of Regulations and Directives on waste have been adopted. The Framework Directive for Waste (75/442/EEC) was introduced in 1975 and amended in 1991 (91/156/EEC)<sup>52</sup>, and it placed the responsibility on Member States to encourage the prevention and recovery of waste, ensure that waste disposal and recovery do not endanger human health or cause harm to the environment, and establish an 'appropriate and adequate' network of disposal installations. Specific issues are dealt with in other Directives, such as the Directive on Hazardous Waste (91/689/EEC) and the Directive on Packaging and Packaging Waste (94/62/EEC).

The main principles related to waste management are:

*Polluter pays*: responsibility for the cost of clean-up rests with the polluter.

*Proximity*: waste must be disposed of "in one of the nearest appropriate installations".

*Self-sufficiency*: waste that is generated within the Community should not be disposed of outside the Community.

The hierarchy of principles for waste management first appeared in the Community Strategy for Waste Management (SEC/89/934) in 1989, and was confirmed by the Review of the Strategy for Waste Management and Council Resolution on Waste Policy in 1996 (COM/96/399). Essentially, prevention of waste is the first priority, followed by recovery and safe disposal of waste. The implementation of the hierarchy must (according to the document) 'be guided by the best environmental solution taking into account economic and social costs' (emphasis added). This hierarchy was re-emphasised in more detail in the Directive on Packaging and Packaging Waste, as a hierarchy of waste management options. There, it appears as: prevention, recovery [re-use, recycling (material recovery), incineration with energy recovery], and final disposal (incineration and lastly landfill).

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<sup>52</sup> Both Directives were heavily influenced by UK waste management legislation, and in particular by the 1974 Control of Pollution Act (COPA) and the 1990 Environmental Protection Act (EPA)..



Waste management legislation in the EU (Directives, Regulations, Decisions and Recommendations) can be categorised in a variety of ways. For the purposes of this study it is useful to separate the legislation that sets the general policies on waste management and waste management options from that which addresses specific materials or processes.

The left column in Figure 5.1 lists decisions aimed at establishing a framework or to address general issues on waste management, such as recycling, landfill, and incineration. On the right hand column are decisions aimed at dealing with specific problematic solid waste streams (such as batteries and waste oil) including toxic and dangerous wastes and processes.

Waste framework and general issues	Problematic / Hazardous / Radioactive wastes and processes
Waste disposal and recovery Directives 75/442/EEC and 91/156/EEC	Disposal of PCBs and PCTs Directives 76/403/EEC and 85/467/EEC
Packaging and packaging waste Directive 94/62/EC	Disposal of spent batteries and accumulators Directive 91/157/EEC
The landfill of waste Directive 99/31/EC	Disposal of waste oil Directive 75/439/EEC
Waste incineration Directive 2000/76/EC	End-of-life vehicles Directive 2000/53/EC
Incineration plants Directive 89/429/EEC	Removal and disposal of disused offshore oil and gas installations COM (98) 49
New incineration plants Directive 89/369/EEC	Use of sewage sludge in agriculture Directive 86/278/EEC
Competitiveness of the recycling industries Communication COM (98) 463	Waste electrical and electronic equipment Proposed Directive: COM (2001) 315 and COM (2001) 316
Waste management statistics Draft Council Regulation COM (99) 31	Incineration of dangerous waste Directive 94/67/EC
Supervision and control of transfrontier shipments of waste Regulation 259/93/EC	Controlled management of hazardous waste Directives 78/319/EEC, 91/689/EEC and 94/31/EC
Civil responsibility for damage caused by waste Draft Directive, COM (91) 219	Supervision and control of the transfrontier shipment of hazardous waste Directive 84/631/EEC
	Basel Convention on the control of transboundary movements of hazardous waste Directives 93/98/EEC, and 94/721/EC
	Titanium dioxide/ Disposal /Surveillance and monitoring Directives 78/176/EEC, 82/833/EEC, and 89/428/EEC
	Transfer of radioactive waste: supervision and control /Shipments of radioactive substances Directive 92/3/Euratom

Figure 5.1 EU Waste Management legislation<sup>53</sup>

<sup>53</sup> See <http://europa.eu.int/scadplus/leg/en/s15000.htm> for a link to EU waste management legislation.

Council Directive 75/442/EEC of 15 July 1975 on waste  
(25.07.1975)

(Official Journal L 194,

Amended by the following measures:

Council Directive 91/156/EEC of 18 March 1991 (OJL 78, 26.03.1991);

Council Directive 91/692/EEC of 23 December 1991 (OJL 377, 31.12.1991);

Commission Decision 96/350/EC of 24 May 1996 (OJL 135, 06.06.1996);

Council Directive 96/59/EC of 16 September 1996 (OJL 243, 24.09.1996)

The Framework Directive on Waste was introduced in 1975 (amended in 1991) and it placed the responsibility on Member States of a) waste prevention or reduction, b) recovery of waste (reuse, recycling, energy recovery), c) protection of human health and the environment from the effects of waste disposal, and d) establishing an integrated and adequate network of disposal installations (Haig 2001). More specifically the 91/156/EU Directive (OJ/L/78/32, 1991) introduced some new objectives (and re-iterated some old ones from the 75/442/EU Directive) to the EU waste legislation:

- **Self-sufficiency:** The EU and each Member State itself should strive to be self-sufficient in waste disposal.
- **Transport of waste:** Member States must take measures to reduce the transport of waste.
- **Minimization:** Member States must take measures in order to avoid and reduce the production of wastes and the reduction of the hazardous nature of wastes. To this end the use of clean technologies, appropriate product design, and appropriate techniques for the disposal of wastes must be implemented.
- **Recycling and reuse:** As a second step, wastes should be reused, recycled, or used for energy.
- **Disposal:** Needs to be carried out without creating danger to human health, soil, air, water, and flora and fauna. Member States must prevent the un-monitored disposal and illegal tipping of wastes.
- **Infrastructure:** Member States must provide an appropriate network of disposal facilities considering the Best Available Technology Not Entailing Excessive Cost (BATNEEC).



- Member States must appoint an appropriate authority to plan and monitor the management of wastes, and to control such activities by keeping a register and dispensing permits.

Policy framework is provided by the Action Programmes on the Environment. The Fifth Environmental Action Programme (OJ/C/138/1993), which covers the period 1993-2000, departs from tradition by developing a new approach to environmental protection. It promotes the use of a range of policy instruments (beyond the 'command and control approach'), and it emphasises that government, public and industry must share the responsibility for the achievement of sustainable development (Haig, 2001).

**Council Directive 94/62/EC of 15 December 1994 on packaging and packaging waste (OJL 365, 31.12.1994)**

The Packaging Directive follows a series of other Directives on specific waste management issues. It is a natural consequence of the increasing environmental awareness of consumers in the EU, and national initiatives aiming to deal with the problems posed by an increase in packaging and packaging waste.

The Directive follows the waste management hierarchy laid down in the Fifth Environmental Action Programme. Firstly priority is the avoidance of the creation of packaging waste, followed by reuse, recycling, and other forms of recovery, such as EfW (Energy from Waste, or incineration with energy recovery), and therefore the reduction of quantities of packaging waste going to final disposal. The targets set for recovery and recycling for the first five year period (ending in 2000) are 50% and 25% respectively, with no less than 15% of every material (paper, glass, tin, aluminium and plastic) to be recycled. These targets have yet to be achieved in the UK and other EU member states, providing a significant implementation challenge (see Vigileos and Powell, 1997).

**Council Directive 99/31/EC of 26 April 1999 on the landfill of waste (OJL 182, 16.07.1999)**

This Directive aims at setting standards for landfills, to reduce the adverse effects of landfill on surface water, groundwater, soil, air and human health. It also sets targets for the diversion of the biodegradable portion of MSW, to 75% of 1995 levels by 2004, 50% of 1995 levels by 2007, and to 35% of those levels by 2014. In England, where over 85% of MSW is landfilled, and where the production of MSW is increasing by 3% annually, this poses a very serious challenge to Local Authorities (LAs).

The Landfill Directive underwent many changes in its development, and there was significant pressure from the UK to amend the proposed targets. Most participant organisations (apart from the European Commission and FoE) perceived the targets to be unrealistic, and objected to the requirements of pre-treatment of waste and the ban on co-disposal of hazardous and non-hazardous waste, a common practice in the UK (House of Lords inquiry into the draft Landfill Directive, 1998). At the end, the high targets remained, although the base date was changed from 1993 to 1995, and Member States with more than 80% of MSW going into landfill in 1995 (which includes the UK) were given an additional four years to comply.

Problems with the development of recycling and MSW derived compost markets have led many to believe that this directive gives the green light to substantial investment in incineration with energy recovery in order to meet the recovery targets (see chapter 7, and also Jackson 1998, and Birtles 1997).

Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste (OJL 332, 28.12.2000)

The realisation that incineration (with energy recovery) of MSW is likely to play a significant role in the management of waste for the next two decades, and the strong public mistrust of incineration plants, which have led in the past to pollution of the local environment with Dioxins, Furans and other hazardous substance, led to the development of the incineration Directive. This sets higher standards for the emissions allowed from incineration processes, including the EfW plants. The Directive on the incineration of waste (2000/76/EC) updates the existing Directives on incineration (89/369/EEC in OJL 163, 14.06.1989, and 89/429/EEC – new and existing municipal incineration plants, in OJL 203, 15.07.1989; 94/67/EC – incineration of hazardous waste, in OJL 365, 31.12.1994), and sets higher emission standards to account for technological improvements in incineration. It also applies to EfW plants, previously excluded from legislation, and also to the incineration of non-toxic non-municipal waste (such as tyres, hospital waste and sewage sludge), and hazardous waste not previously regulated (such as waste oils and solvents).

Although a necessary improvement on existing incineration legislation, the Directive does not seem to have alleviated public fears of the incineration process.

## 5.2 Implementation in the UK

EU waste management legislation provides a significant driving force for changes in the way MSW is managed at present in the UK. Early efforts to implement this legislation by the Conservative government, which was based on voluntary schemes and market based instruments, was not very successful. According to Entwistle, “the introduction of both the landfill tax and the packaging regulations spawned arrangements of bewildering complexity, but left the underlying waste management system untouched” (Entwistle, 1998: 384). Entwistle advocates the reconfiguration of



the structure of the waste management system, favouring the creation of new networks for recycling and minimisation, which at the moment are functions entered voluntarily by households, businesses and LAs, whilst removal and disposal are required and regulated (Ibid).

### Packaging Waste Regulations

The UK initiated the implementation process of the Packaging and Packaging Waste Directive in 1997 through the Producer Responsibility Obligations (Packaging Waste) Regulations. This obliged companies with more than £5 million turnover, and use of 50 tonnes of packaging per year to recover 38% of packaging waste in 1997, going up to 52% by 2001. Smaller businesses (over £2 million turnover) were to enter the scheme after 2000. After a faltering start to the scheme (ENDS, 1998), the government decided to toughen the regulations: at least 16% of packaging waste would have to be recycled and 45% recovered by the year 2000, including a minimum of 13% recycling for each material (*Environmental and Waste Management*, 1999, Vol.2, No. 2, p.80). The recovery of packaging waste actually achieved in 2000 reached 42%, with recycling levels of 36%. Only plastic recycling (at 12%) failed to meet the material specific target of 13%. The targets for 2006, however, which are expected to be proposed by the Commission, are 60% recycling of packaging waste, which poses a serious challenge to the regulatory system (see Figure 5.2).

Figure 5.2 Likely 2006 packaging recycling targets and current UK achievements

Materials	Directive's recycling targets for 2006 - Commission option	Recycling achieved in 2000 (tonnes)	Recycling achieved in 2000 (% of total packaging in the waste stream)	
Paper	60%	1,879,680	49%	
Glass	70%	715,037	33%	
Plastic	20%	204,430	12%	
Steel	50%	239,047	32%	30%
Aluminium		16,299	15%	
Wood	-	296,557	44%	
Total	60%	3,351,050	36%*	

36% recycling only, 42% recovery when energy from waste is included.

Source: DEFRA (2001)

Implementation relies on a non-statutory system of tradeable certificates (Packaging Recycling Notes or PRNs) leading to the emergence of a 'complex mixture of legislation, official guidance and market forces', which obligated businesses have to wade through. Obligated companies must register with the Environment Agency, and need to prove compliance through PRNs. The existing system has led to increased revenue for MSW incineration firms, without managing to secure these funds for needed investment to expand and upgrade reprocessing capacity (ENDS, *Ibid*). This failure of economic instruments to target necessary improvements seems to permeate the UK SWM regulatory environment (see chapters 6-8).

### The Landfill Tax

Diversion from landfill is an aim sought by the government, and for which it had already introduced an economic instrument in 1994 (first effective in October 1996), the landfill tax. The explicit objectives of the tax were 'to ensure that landfill waste disposal is properly priced' to promote greater efficiency in the waste management

market, and to apply the Polluter Pays principle, and thus promote a more sustainable approach to waste management by making the options higher in the hierarchy more competitive (HM Custom and Excise, 1995). Initial research funded by the government concluded that the tax would have an insignificant effect in the short term, and in the longer term -at £10/tonne- it would lead to a significant shift towards incineration, while it would have to reach £20/tonne to have any effect on recycling (Coopers and Lybrand, 1993, in Powell and Craighill, 1996). The tax is presently set at £11/tonne for controlled waste, excluding construction waste, which is taxed at a rate of £2/tonne. The tax is set to rise to £15/tonne by 2004.

### The Waste Strategy for England and Wales

The Waste Strategy for England and Wales (Waste Strategy 2000) introduced by the Labour government, although very detailed in the coverage of waste management issues and the challenges they present to the existing system, can be similarly criticised for its failure to attempt any significant restructuring of the existing system. The Strategy, which fulfils the requirements of the EU Framework Directive on Waste of Member States to produce a waste management plan, also sets the recycling and recovery targets for MSW. Local Authorities (LAs) must strive to recycle or compost at least 25% of household waste by 2005, 30% by 2010, and 33% by 2015 – these targets becoming a statutory obligation for LAs. Recovery targets (which also include incineration with energy recovery) are set at 40% for 2005, 45% for 2010, and 67% of MSW for 2015. The most preferred alternative, minimisation of waste, ‘will be a priority wherever practicable’ (Waste Strategy 2000, p.23), and LAs are required to set targets under the Best Value policy (these have been established for every District for recycling at double the existing rate). It must be noted however, that the indicators set by the Best Value programme for waste management are inadequate and in some cases misleading or conflicting with sustainable waste management<sup>54</sup>. Indicator BV82b for example -%of MSW composted- excludes home composting, which is more

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<sup>54</sup> Defined in chapter 2.



sustainable than windrow composting, due to the environmental burden of transport associated with centralised composting. Similarly BV87 – cost of waste disposal/tonne- which is essentially an economic efficiency criterion targeting the prudent use of taxpayers' money by Local Authorities, is misleading since in waste management the environmentally friendlier options are usually the more expensive ones<sup>55</sup>. Furthermore, such indicators designed for LAs disregard the potential for regional solutions, which might be developed through a Regional Strategy and any sub-regional goals that might arise from that.

The Strategy refers to the reduction of waste being the 'prime objective' (Ibid p. 15), and recognises the link between economic growth and the increasing amounts of waste (Ibid). Reduction of waste is defined as "reducing the quantity *or* hazardousness of solid and sludge wastes" (Ibid, italics added). The 'or' in the definition allows incineration to be considered as waste reduction since it reduces the volume of waste going to landfill but not the hazardousness.

Householders are expected to have an impact on the amount of waste produced through purchasing decisions (Ibid, p.16), although there is no reference as to how these choices will be evident to the consumer without some waste generation grading on products (similar to energy efficiency for example).

In terms of reducing household waste, the Strategy places responsibility on 'individuals, manufacturers, retailers and government bodies' (Ibid, p.23). Again, the government passes the responsibility for influencing householders on the LAs. The role of government in household waste minimisation is restricted to the 'are you doing your bit?' campaign and support for the National Waste Awareness Initiative (Ibid, p.51).

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<sup>55</sup> The presence of significant externalities in Solid Waste Management renders such indicators non-sensical.

Energy from Waste (EfW) should be considered where 'it does not make sense to recycle' (Ibid, p.18). Incinerators "should be appropriately sized, and ...contracts sensitively designed to avoid 'crowding out' recycling" (Ibid, p.19). Implicitly, the government favours recycling to EfW in these statements. Apart from the set recycling targets however, there is no guidance as to how the levels of recycling should be set, and little concrete evidence<sup>56</sup> as to how the government will help to address the problem of funding more expensive waste management options.

The failure of the Landfill Tax credit scheme to assist the delivery of sustainable waste management is evident in section 3.33 where specific reference is made to reviewing projects approved by the scheme to "reflect the Government's priority of sustainable waste management", 'increasing the proportions of contributions going to sustainable waste management activities' and helping LAs to raise recycling levels, implying that the scheme has allocated too many funds to activities unrelated to sustainable waste management. Even so, the qualification is made that these activities "must not unreasonably restrict landfill site operators' discretion and should complement or support activity in a way that makes sense in business and commercial terms". The guidelines for the distribution of funds are to be drawn up by Government with the waste management industry, to meet Local Authority needs.

This reliance of the Government on the private sector (Waste Management Industry) and the markets to deliver sustainable waste management reveals a laissez-faire attitude that runs contrary to statements made in the document, such as "we must not underestimate the scale of the change needed" (Ibid, p.20), and "we need a significant change in the way we manage our waste" (Ibid, p.9).

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<sup>56</sup> The Strategy does refer to bolstering the recycling markets through a Waste and Resources Action Programme, which will be a public-private sector partnership able to receive funds from the Landfill Tax Credit Scheme (Strategy 2000p.26). It also amends the acceptable uses of ENTRUST funds to include schemes which will help to increase recycling of household waste (Ibid, p.31).

Public participation in waste management decision-making is an issue not adequately covered in the document. Public participation is the responsibility of the Waste Planning Authorities in that they are expected to "promote informed debate with the public and businesses in their area about the need for waste management facilities and the options available to produce the Best Practicable Environmental Option" (Ibid, p.44). There is no change proposed in the document in the way public participation occurs<sup>57</sup>, or in what areas of decision making, which is then limited to reaction to planning applications and comments on the Waste Local Plans of their Local Authority. The importance of public participation and the inadequacy of the present approach have also emerged as issues in the recent conference on Sustainable Waste Management in the UK (Royal Geographic Society and Institute of British Geographers, March 2001, London). The Summary Statement refers to "the agreement of the public to solve waste management problems, and engaging the public in the delivery of solutions" as the "important issues in achieving SWM beyond the operational and technical concerns" (RGS Summary Statement 8, p. 6). Furthermore, the greatest barrier to public involvement is that waste management in the UK remains overly fragmented (Ibid).

Environmental NGOs are not mentioned as such. There is reference to the 'community sector', but again no vision of such organisations having a say in strategic development.

### Regional Planning Guidance

The revision of Planning Policy Guidance Note 11: Regional Planning Guidance (PPG11), means that Regional Planning Guidance is prepared (since 1999) by Regional Planning Bodies together with the Government Offices and other

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<sup>57</sup> According to Petts (1995: 519), one of the factors presenting a barrier to siting of waste management facilities is the "failure of decision systems to involve the public earlier in fundamental discussions of need and alternatives". "Effective public involvement is about empowerment...a means of enhancing effective decision making through an opening-up of the decision process..." (Ibid: 533).



stakeholder organisations. To assist the Regional Planning Conferences to prepare regional planning for waste, the government created through Planning Policy Guidance Note 10: Planning and Waste Management (September 1999) the Regional Technical Advisory Boards (RTABs).

The role of the RTABs in developing regional strategies for waste is outlined in Annex B of PPG10. It includes regional data collection on waste arising, movements of waste, existing facilities and capacity, implications of developments in waste management options for a 10-15 year period, identification of options for meeting future requirements, monitoring changes and reporting to the Regional Planning Bodies. The regional strategy that emerges, and the technical findings of the RTAB<sup>58</sup> will be 'material considerations' to planning applications for new facilities. The regionalisation of strategic waste planning revolves around the RTABs, and it is important therefore to note that the membership of these bodies include LA planners, the EA, the Government Office, and waste management industry, yet excludes environmental NGOs<sup>59</sup>. According to Davoudi (1999: 23), the exclusion of environmental groups from the highly political process of identifying sites for waste management facilities will most likely lead to 'end-of-pipe adversarial debates in public enquiries and appeals'.

The Regional Development Agencies (RDAs) are also expected to play a significant role in the provision of necessary facilities by attracting investment identified by the RTAB into the region. It is expected then that eventually the RTABs and the RDAs will develop an active link<sup>60</sup> in order to align economic development and waste management needs for the region.

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<sup>58</sup> To be produced as the Technical Report on Waste Management Policy

<sup>59</sup> The provisional inclusion of English Nature and various Wildlife Trusts in the RTABs might seem to confuse this issue. However, results of the case study presented in chapters 6 and 7 indicate that representatives of these organisations do not have expertise in waste management, and in fact those approached declined to complete the questionnaire on these grounds.

<sup>60</sup> Probably through Sustainability South West for the SW region, whose role is to advise the RDA on matters for inclusion in the economic development strategy.

## Strategic Waste Management Assessment (SWMA) for the SW

The first task of the RTABs has been to assist the EA in the compilation of regional waste management data. The EA has now published the results of this data collection for each English region and one for Wales. The Strategic Waste Management Assessment for the South West divides the region into nine sub-regions: Former Avon, Cornwall, Devon, Dorset, Gloucestershire, Somerset and Wiltshire (see Figure 4.2, chapter 4). Unitary Authorities have been included with the county in which they are situated.

In 1998-99, out of the total Municipal Solid Waste (MSW) produced in the region (2,501,000 tonnes), 15.7% was recycled, and a further 84.2% was landfilled. There was no energy derived from waste, and a negligible amount was incinerated (see Figure 5.3).

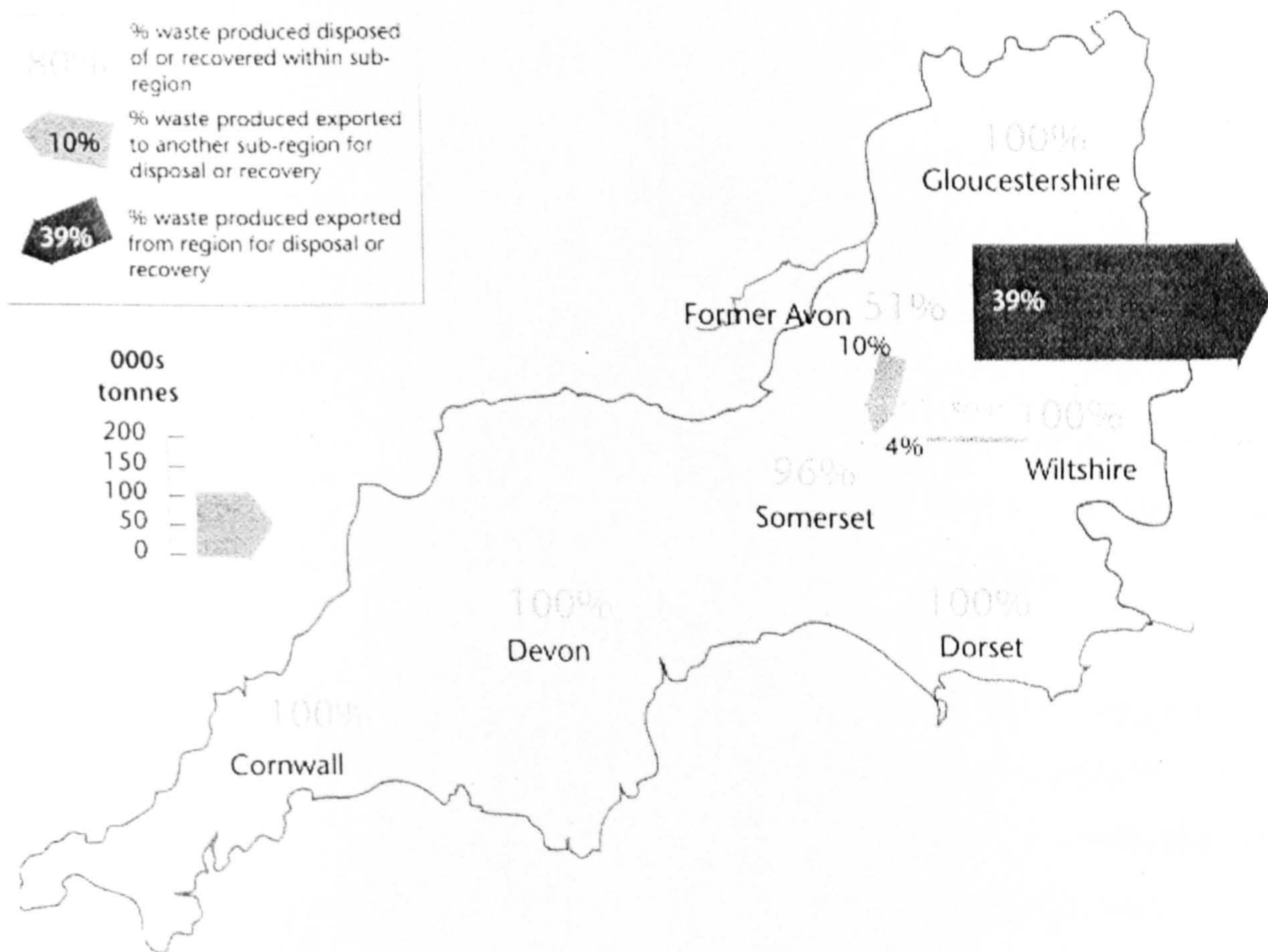
Figure 5.3 Amount and composition of MSW produced in the South West (000s tonnes) 1998-99

Sub-region	Collections				Recycled	Waste management method		
	Refuse Collection	Vehicles	Other household	Civic amenity		Non household	Landfilled	EfW
Former Avon	320.3	14.9	100.3	5.4	47.0	438.0	0.0	0.0
Cornwall	145.7	40.7	40.4	14.6	15.0	239.0	0.0	2.6
Devon	327.1	27.1	101.2	13.5	88.0	469.0	0.0	0.0
Dorset	214.0	14.0	35.4	2.2	139.0	265.0	0.0	0.0
Gloucestershire	189.0	0.0	30.8	8.9	34.0	229.0	0.0	0.0
Somerset	157.2	0.0	64.5	0.0	35.0	222.0	0.0	0.0
Wiltshire	227.4	5.7	17.9	0.7	34.0	245.0	0.0	0.0
<b>TOTAL</b>	<b>1580.6</b>	<b>102.5</b>	<b>390.6</b>	<b>45.4</b>	<b>392.0</b>	<b>2107.0</b>	<b>0.0</b>	<b>2.6</b>
% collected England & Wales	6.2%	0.4%	1.5%	0.2%				

Source: Environment Agency (2000) Strategic Waste Management Assessment 2000 South West



According to the document (p. 12), out of the nine sub-regions of the SW seven are totally self sufficient in terms of disposing of their Municipal Solid Waste (MSW). Somerset exports just 4% of its MSW to neighbouring Wiltshire, and only the former Avon sub-region exports MSW out of the region (see Figure 5.4). This amounts to 175,000 tonnes of MSW, or just over 8% of the regions' total MSW. The current situation is however pressing, as the region as a whole has just 5.6 years of licensed landfill capacity left at current input levels (p. 40 - updated).



**Figure 5.4 Movement of municipal waste between South West sub-regions**

Source: Environment Agency Strategic Waste Management Assessment 2000; South West.

The low level of licensed landfill capacity remaining in the region suggests that most Waste Disposal Authority waste management contracts will be up for renewal in the next five years, well before the development of a regional strategy and before the next



round of Regional Planning Policy Guidance for the South West. In the meantime, Waste Planning Authorities will continue to produce Waste Local Plans (WLPs), according to the requirements of the Town and Country Planning Act 1990. The WLPs then become the basis for further development, as they identify potential sites for the location of waste management facilities, and form the basis for MSWM contracts. Since these are typically long term contracts (20-25 years), this can have serious counterproductive effects on the development of a regional waste management strategy (see chapter 8 for further discussion).

## Summary

More than twenty-five years ago, the EU Framework Directive for waste (75/442/EEC) placed responsibility on the Member States for the prevention, reduction, and recovery of waste, as well as the responsibility for the provision of an adequate network of facilities for the management of waste. A substantial array of EU statutory instruments has attempted to address the issues surrounding the management of waste, from material or process specific issues to those aiming at promoting the higher options in the waste management hierarchy.

The implementation of these policies in the UK has led to the packaging regulations and the landfill tax, which have created new institutional arrangements. These, however, have not led to a restructuring of the existing system, which still relies heavily on the private sector to deliver sustainable waste management.

At the regional level, the creation of the RTABs, and the pursuit of regional waste strategies is expected to bring about some changes in the way waste is managed by Local Authorities, and significant institutional change to the extent that the government decides to move towards more power at the regional level.

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## CHAPTER 6 FORCE FIELD ANALYSIS

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### 6.1 Introduction: About Force Field Analysis (FFA)

FFA is a technique centred around problem solving developed by Kurt Lewin in the 1950s (Lewin and Cartwright, 1952; see chapter 4). One of its first applications was in a study which examined smokers perception of forces which drive them towards quitting, and of the forces which are an obstacle to quitting. Moving from the present situation towards the 'ideal' of Sustainable Municipal Solid Waste Management (SMSWM) can be envisaged as a process of problem solving as well. In general, the 'solution' of a FFA exercise is to identify and reduce the strength of the barriers which stand in the way, allowing the existing driving forces to bring about the desired changes. The usefulness of FFA for policy implementation studies is easily apparent. Once the aims of policy are clear, FFA can be used to clarify those component forces which will interact to achieve the specified goals. However, in a study of a concept such as Sustainable waste management, where the concept itself lacks a generally accepted definition, and where there exists a plurality of views on the appropriateness of existing policy, FFA is more useful as a follow up to interviews of key actors, where their perception of concepts related to SWM are elicited.

Thus, for the purposes of this study, the use of FFA aims at the systematic collection and analysis of data designed to shed some light on the perceptions of various groups of key actors on issues relating to SMSWM and how this can be better approached. The objective is to clarify the driving forces and barriers, and to assess their (perceived) relative strength in order to identify the barriers which need to be worked on. The interaction between these forces means that it is not necessarily the strongest barriers that should be focused on first, but rather those which will 'release' the

driving forces in an appropriate (effective and efficient) sequence. In this way (planning the sequence of action programmes to address the existing barriers) one could avoid bottlenecks in implementation of strategy, resulting in a more balanced development process<sup>61</sup>. For example, it may be counterproductive to address the barriers to siting of MSWM facilities before the development of a regional strategy which would assess and co-ordinate such siting throughout the region. It is the function of the interviews to examine such interrelationships<sup>62</sup>, and to answer the question of 'if we know something about the forces involved and their relative strength, where do we go from here?'. The function of the FFA is to clarify the driving forces and barriers present, to assess their relative strength, and to produce a 'status quo' line or curve. The latter is a graphical depiction of the resultant balance between forces, and as such is a convenient way of comparing results between groups or regions.

## 6.2 Administration of FFA for this study

The data for the FFA was collected using a questionnaire survey. For the pilot part of the study, the questionnaire was discussed and filled out in the presence of the researcher. This process led to some modifications in the final questionnaire used, both in terms of the wording of the questions for clarity, and in terms of the content. In the case of the interviewees (i.e. the key actors), the questionnaire was presented to each interviewee at the end of the interview. After the completion of the pilot stage of the study, the interviewees were left with the questionnaire to return at a later date. The response rate using this method was 92%. In addition, questionnaires were mailed to members of the SW RTAB who were not interviewed (response rate 40%),

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<sup>61</sup> The assumption here is that the movement towards SMSWM is a development process which is dependent on the path chosen, which is consistent with the institutional framework discussed in Chapter 4.

<sup>62</sup> These interrelationships are examined by feeding the information collected through the institutional model presented in Chapter 4.

and to the members of the NE RTAB (response rate 58.3%), and of the West Midlands RTAB (response rate 57.9%).

### 6.2.1 *The South West of England Region*

In total twenty three questionnaires were obtained from the case study region<sup>63</sup>.

These were grouped for analysis in the following categories:

Local Authority/County Council +Unitary Authorities (N=8): Key actors from County Councils and Unitary Authorities. This tier of local government was separated from the Districts because of their role in waste management planning and disposal. Although UAs also combine these roles with the role of collection of Municipal Solid Waste (MSW), the interviewees were chosen for their role in planning and their regional involvement in waste management, (such as membership in the regional planning environment committee which oversees the work of the Regional Technical Advisory Body -RTAB, or membership in the RTAB) rather than any functional relationship with collection.

Local Authority/District Councils (N=5): Key actors from the District Councils. Again, interviewees were chosen for their involvement at the regional level of waste management, for example membership in the Regional Technical Advisory Body or regional recycling action group.

Environment Agency+ Government office South West (N=4): Key actors from the Environment Agency (3) and from the Regional Government office (GoSW). The EA is responsible for enforcing Pollution Control and waste management facilities licensing Regulations, whilst the GoSW is responsible for enforcing waste

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<sup>63</sup> One questionnaire was collected from an environmental NGO in the region, however since environmental NGOs did not appear as key actors in the regional decision making process, this return was omitted in the FFA groupings, though the findings are included in the analysis.



management and Regional Planning Guidance. Both can be seen as regulators, and have a stronger link with Central government through DETR rather than with Local government, thus their responses were considered collectively under this group.

Industry (N=6): This category includes key actors from the Waste Management Industry (4) and also a senior consultant to the RTAB, and a senior officer of the regional branch of the IWM. The justification for combining these responses in one group is that all of these actors come from the private sector, and therefore represent a different viewpoint to the Central and Local government groups. Comparison of the responses from the individuals of this group also justifies this selection.

SW Regional Technical Advisory Body [RTAB] (N=11): Because of the central, and potentially important role of the Regional Technical Advisory Body in the development of a regional waste management strategy, it was considered necessary to also group the responses in this way, separating from the above mentioned groups those actors who are also members of the RTAB. This allows the comparison of the views of the RTAB with those of the region as a whole, and also the comparison between regions.

South West Total (N=23): This is the combination of the first four groups in a regional aggregate.

### 6.2.2 Other Regions

In order to check for bias in, and generalisability of the FFA results<sup>64</sup> it was considered appropriate to extend the questionnaire survey to include other English

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<sup>64</sup> The completion of the questionnaires for the SW region followed the interviews of the key actors, and might have been biased by the interviews, whilst the actors in the other regions were not interviewed, and therefore could act as a control group. Comparison of the results could then point to such bias if there was a consistent difference which could not be explained by regional factors – such as the level of regional institutional development. Also, if the results between regions led to very different

Regions, based on the extent of urbanisation and industrialisation. For this purpose the North East of England and the West Midlands regions were chosen. The NE Region is more rural in character, smaller in area and population and in a similar state of development in regards to its regional level institutions. The West Midlands is more urban and industrial in nature, more affluent in terms of resources, and more developed in terms of regional level institutions. Both are then different enough from the SW and each other to serve as reasonable comparisons. One would expect the West Midlands, for example, to exhibit stronger driving forces in the areas of regional waste management planning, and greater political support for regional solutions, than the other two regions.

For both the NE and the West Midlands, the questionnaire was distributed to the members of the RTAB of the region. Again, since the RTABs are similar in size and constitution, this is assumed to be a reasonable basis for comparison. Since the 'status quo curve' of the RTAB SW and that of the SW Region as a whole are very close in shape (see section 4 of this chapter), one could safely generalise the results as representing differences or similarities between regions rather than just between RTABs.

### 6.3 The Questionnaire

The questionnaire (see Appendix 1) was developed using driving forces and barriers identified in the literature (other academic research, policy documents, enquiries into SWM carried out by the House of Commons) and the results of the pilot study. It consists of twenty eight driving forces and twenty eight barriers to sustainable MSWM which the respondents were asked to rate in terms of strength on a scale from 0 (force negligible) to 5 (very strong). Not all driving forces have a corresponding barrier, and vice versa. This is common practice in FFA, since the degree of dis-

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FFA curves, then that would indicate that the forces affecting the regions are so dissimilar that the results could not be generalised.

aggregation of the forces considered varies depending on the focus of the study and the availability of information in any one area.

Because of the large number of forces considered, and in order to facilitate the respondents in filling out the questionnaire, the forces were grouped as having to do primarily with administrative, economic, social or operational issues. This also facilitated the compilation of the results. A complete FFA was then carried out for all groups, and for the other regions (see Appendix 2 for disaggregated results). Again because of the large number of forces considered, and to analyse the status quo curve, the forces were aggregated to form the following categories:

1. **Legislation:** This category represents the driving forces and barriers associated with EU and UK waste management legislation.
2. **Regional:** This category combines the political support or opposition to regionalisation of waste management, the presence or absence of regional institutions, and the adequacy or inadequacy of regional resources.
3. **Public participation:** As a driving force this combines positive public participation, public support for local and regional waste management strategies and implementation. As a barrier it combines negative public participation, and habits related to recycling and consumption of resources.
4. **Political pressure:** Represents the driving effect of pressure groups and the barrier posed by local politics.
5. **Economics:** Includes economic forces such as pricing of services, funding for LA waste management, markets for recycled materials, and contracts.
6. **Sustainable development:** Represents consideration of inter-regional and global impacts of waste management, future generations and stakeholder participation.
7. **Siting:** Represents the barriers to siting of waste management facilities, and the positive effect of fairness on siting.



8. **Management:** Represents the driving force of management which pursues better technology and the barrier of management which settles for the least expensive option available.

The above categories appear both as driving forces and as barriers in the 'condensed' FFA graphs (Figures 6.1-6.8 below. See Appendix 3 for composition of these categories).

## 6.4 Results

### 6.4.1 SW Region: Comparison between key actor groups

For the purposes of this analysis, the vertical line in the FFA graph separating the driving forces and barriers to SMSWM is named 'the neutrality line' (see Figures 6.1-6.8 at the end of the chapter). This line would be the result of a FFA if, and only if, all driving forces are perceived to be of the same strength as the (corresponding) barriers. This does not imply that this would be a desirable state of affairs, or that all forces and barriers are equally significant. Obviously, neutrality can be the result of a weak driving force faced with a weak barrier, or a very strong driving force faced with a very strong barrier. In the first case, the two forces might not be significant, and could be discounted for the purposes of informing strategy, whilst in the second case both forces might be significant and would then have to be analysed further to determine their potential role in strategic planning.

The curve which runs along and across this neutrality line is the status quo curve (SQC; see Figures 6.1-6.8), and is an expression of key actors' perception of the strength of forces involved at present. The neutrality line is therefore an aid to visualise which forces are greater than their corresponding barriers and vice versa.

A key feature of the results from all four key actor groups (Figures 6.1-6.4) is that with the exception of the area of legislation, the SQC lies to the left of the neutrality line, denoting that in general the barriers are seen as stronger than the driving forces. Political pressure as a driving force is barely stronger than political pressure as a barrier for two groups (DC and EA), whilst the area of management practices is close to neutrality for all groups. In all other areas, the barriers are clearly stronger than the driving forces.

### Legislation

This is the only area of the FFA where the driving force is perceived as significantly stronger than the barrier. Looking at the results for all groups, one could say that it is legislation which drives the move towards SMSWM. The strength attributed to the driving force itself is approximately the same for all groups, the differences between the SQCs being due to the perceived size of the barrier. The EA sees the barrier of legislation as very weak, compared to the CCs and Industry, which see it as weak and the DCs, which see it as strong.

The existence of such differences warrants a closer look at this significant category<sup>65</sup>. This can be done by looking at the disaggregated FFA graphs for all groups which appear in Appendix 2, and which are the source of the aggregated graphs used in this chapter. Note that Legislation is a composite category, which combines EU and UK legislation as driving forces and barriers<sup>66</sup>. All four groups perceive EU legislation as a stronger driving force than UK legislation, presumably due to difficulties in implementation. Three groups (CC, DC, EA) also consider UK legislation as a more significant barrier than EU legislation, although there is significant variability in this. In particular, the EA sees less of a barrier than the other groups for both categories.

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<sup>65</sup> The category 'Legislation' is significant not only because the forces which make it up are significant (greater or equal to 3 on a scale from 0 to 5), but also because it yields the largest net driving force.

<sup>66</sup> Local legislation was dropped from this composite because in relation to the other two it appears to be insignificant. There was also some confusion amongst some of the respondents as to whether this referred to local bylaws, or to local waste related policies.

This could be interpreted as being due to the role of the EA and GoSW as regulators, and as such having more faith in their ability to produce a more positive legislative environment. Industry sees the barriers presented by EU and UK legislation as similar in strength and both as significant. This could be due to the economic costs associated with the higher level of environmental protection which both European and national legislation are driving towards. The CCs and UAs see UK legislation as a significant barrier, much stronger than the barrier presented by EU legislation. This points to problems related to implementation of EU Directives in the UK in the area of waste management, a problem also highlighted by the inquiry into waste management (House of Commons' Environment, Transport and Regional Affairs Committee inquiry into SWM, June 1998). DCs attribute to these two barriers stronger forces than any other group. They see both EU and UK legislation as significant barriers, UK legislation in particular as a stronger barrier than driving force. This researcher believes that this is related to the DCs role as waste collection authorities, which means that the financial burden of meeting recycling targets and of final disposal of solid waste (typically in a landfill) falls upon them.

### Regional

The category 'Regional' is a composite of three different forces. As a driving force it represents a compilation of evolution of waste management planning to a regional level, political support for the regional level, and adequate financial resources at that level. As a barrier it consists of the barriers presented by the lack of regional level institutions, political opposition to the regional level, and inadequate mechanisms for the formation of a regional level strategy.

In this area, the strength of the barriers exceeds that of driving forces for all groups (and therefore the SQC lies at the left of the neutrality line in all cases). CCs and UAs see the regional aspects of SMSWM as presenting a very weak driving force at the



present<sup>67</sup>. The barriers in this area however are perceived as significant. The involvement of this group in regional aspects of waste management is predominantly with aspects of regional planning, which are only recently being developed in the region. The EA exhibits the same net result, although it attributes greater strength to both driving forces and barriers in this area. One explanation for this is that although the EA also participates in this developing regional planning process, it has been required to devote more resources to it at this early stage because it has been responsible for the compilation of regional SWM statistics (including, beyond the MSW data, data for commerce and industry). The DCs present a similar picture, although the DC SQC lies to the right of the SQC for CCs and UAs and that of the EA. The barriers in this case are weaker, possibly because of fewer problems experienced by DCs at the regional level, their experience having to do mostly with voluntary involvement in the co-ordination of recycling initiatives rather than any statutory responsibility. The EA on the other hand has experience of problems at the regional level, being that it is organised around regions, and those regions also being different from the standard planning regions for Local Authorities.

In the case of the waste management industry, the net result is significantly different to that of the other groups, with the SQC much closer to the neutrality line, showing a perceived balance of forces. Again, a closer look at the source of this difference is required (see Appendix 2). In all cases (with the exception of CCs assessment of lack of regional institutions<sup>68</sup>) the barriers are seen as strong. The main difference stems from the waste management industry's assessment of evolution of waste management planning to a regional level and the existence of adequate resources at that level, as driving forces. It could be argued that this is due to two factors,

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<sup>67</sup> The distinction between assessment of the forces at present and future potential is important. Any driving force or barrier can grow in strength or weaken, and the decision as to which ones should be targeted is an important strategic one. Examining the similarities and differences between groups and their underlying causes aims at shedding some light on potential opportunities and problems related to any set of strategic choices made.

<sup>68</sup> The CCs and UAs are those who have been primarily represented in regional level planning bodies, such as the Regional Planning Conferences, and so it is natural that they would not perceive any great absence of regional level institutions.

financial strength and the structure of waste management industry. The first one, financial strength, has to do with the amount of resources the industry controls, and its ability to generate enough capital to invest in large scale projects, from large capital intensive facilities to smaller more localised collection and recycling operations forming large regional networks. The structure of the waste management industry is one where few big multinational firms are increasingly absorbing smaller waste management companies, and thus have the ability to use waste management facilities as more regional in nature, taking advantage of the economies of scale present in the market. Thus for the waste management industry, resources are less of a problem at this level, and the evolution of waste management planning to a regional level follows their waste management planning development and falls neatly in place. It is natural then for the waste management industry to be more optimistic about developments in this area.

### **Public Participation**

This is another area where the SQC falls to the left of the neutrality line for all cases. The net result for the CC, DC and EA groups falls at approximately the same place. The main difference between groups is between Industry and the rest of the groups, with Industry attributing a stronger aggregate driving force to public participation than the rest. This may seem odd at first, with the waste management industry being traditionally the one group with bigger problems from the public, since they own the contentious waste management facilities. Yet this result is due to differences in the perception of public participation as a driving force, rather than as a barrier.

A look at the disaggregated picture indeed verifies that public participation in the decision making process, and people's habits related to consumption and recycling (all three together constituting the public participation barrier) are all seen as strong barriers to SMSWM, with small variability between groups. On the side of the driving



forces (local pressure for SWM, public support for implementation, and productive public participation) the same holds true, apart from two cases.

The CC group perceive public support for implementation as a much weaker driving force than the rest. This is likely to be because of the experience of local authorities at this level with the Waste Local Plan consultation process, where public participation is very weak. Industry on the other hand rate productive public participation much higher than the other groups. This is probably a direct result of industry's efforts in this area, where in order to facilitate the siting and operation of waste management facilities, the waste management industry has sought to involve the local people affected and thus to address any concerns related to health risks, noise, smells and other potential consequences from the operation of these facilities. Thus productive public participation is an area towards which industry has devoted more resources than the other groups.

### Political Pressure

This area examines pressure groups in the policy process as a driving force, and local political cost as a barrier to Sustainable MSWM. In this area there is a two-way split between groups. Interestingly, the SQC for the CC and the waste management industry groups fall in the same place, significantly to the left of the neutrality line, while the SQC for the DC and EA groups falls just to the right of the neutrality line (again at the same place). This is due to differences in both driving forces and barriers. Industry and CC see the barrier of local politics as much stronger than the other two groups, while DC and EA see the driving force of pressure groups present in the policy process as much stronger.

One explanation comes from looking at the functional interface between these groups and local politicians, as well as regional/national pressure groups. In terms of barriers, CCs, UAs and the waste management industry all have a significant



interface with local politicians in relation to politically unpopular issues such as siting new facilities, expanding old ones, or issues related to the economic cost of disposal. When it comes to decisions of this nature, with significant political cost, many local politicians will prefer to defer the decision to after the next elections rather than risk losing votes. The DCs, EA and GoSW have less involvement in that area, and interface with local politicians more on matters to do with recycling, such as collection systems and provision of recycling facilities. These are generally more popular, and could even be associated with political gain rather than loss. Also, it is at the District level where pressure groups tend to be more active, putting for example pressure on politicians for the introduction of recycling bins.

Similarly, regional and national pressure groups are more focused on issues around recycling, such as promotion of recycling networks, changing public attitudes towards recycling, and collection systems, areas in which DCs and EA are more involved. Thus these groups can be seen as having more interaction with pressure groups at this level<sup>69</sup>, which could explain why they attribute such strength to this driving force.

### Economic Factors

This is another area where the SQC falls substantially to the left of the neutrality line in all cases. All groups share the perception that economic barriers are significantly stronger than driving forces in this area. This driving force and barrier are a combination of a number of forces related to funding, recycling markets, pricing of services, affordability of waste management options, central government economic instruments and contracts (see Appendix 3 for more detail). These are discussed below (refer to graphs in Appendix 2).

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<sup>69</sup> Pressure groups at the local level are an entirely different story, since they have more to do with siting of disposal facilities, as in opposing planning applications for such facilities. There are indeed local groups dealing with recycling, they don't however tend to get involved with the regional or national policy process.

**Funding:** Funding for waste minimisation and recycling activities is seen as a driving force to the extent that it is available, and as a barrier in its absence. The barrier presented by lack of funding is seen as much stronger than the drive provided through available funding ( 2:1 ratio on average), which suggests that the areas highest in the hierarchy of waste management options are severely underfunded. This is consistent across groups. Inadequate local resources is also a significant barrier, more so however for local authorities than for the rest.

**Recycling markets:** These also present a very strong barrier, both in the areas of recycling prices (too low) and in terms of their reliability (unreliable). This is consistent across groups. The profitability of recycling markets is a weak driving force, more so for the local authorities, probably because of the added costs of separation and contamination which are higher for household waste in comparison to the more homogeneous waste processed by the waste management industry for other industry and commerce.

**Pricing of services and cost of waste management options:** Pricing for waste management services is seen as inadequate by all groups. This is much more a barrier according to the EA and Industry rather than for the local authorities. It could be that the EA has higher expectations of what should be done with waste in terms of processing, and Industry is better placed to know what could be done where the local authorities to increase their spending in this area. Local authorities might just have learned to do with less (or more, in the case of waste arisings). In the case of the driving forces and barriers presented by the cost of more environmentally friendly waste management options the results are again similar between groups. Although the magnitude of driving forces and barriers varies between groups, the net result places the SQC in the same area for all groups. Environmentally friendly options are too expensive, and this points to the need of some intervention in the market.

**Economic Instruments:** These are seen as a significant driving force leading to an even more significant barrier, which is the unsustainable practices generated by the imposition of some of these economic instruments, for example fly tipping as a result of the landfill tax. The results between groups are again similar, with the DC and Industry placing higher values on both driving force and barrier than the other two groups. Looking at the net results (SQC) Industry and especially CC (the Waste Disposal Authorities) are placed more on the left.

**Contracts and compliance:** The cost of non-compliance is seen as a significant driving force by all groups. Local authorities however place much greater strength to this driving force than Industry and the EA, possibly because they depend on this cost to achieve their aims set in the waste management contracts they have with the waste management industry. Existing contracts are seen as strong barriers, since they commit the two parties to carrying out options which are increasingly less sustainable. Industry, DC and EA all see this barrier as stronger than the driving force, while the CC group (which put these contracts together for the disposal aspects of waste management) sees the driving force as stronger, placing its SQC for this area just on the right of the neutrality line.

### **Consideration of Sustainable Development Principles**

On aggregate the barriers in this area are seen as stronger than the driving forces. The EA and DC groups both perceive the barriers posed by the non-consideration of sustainable development principles as more significant than the CC and Industry. There is however significant variability between groups in the strength attributed to the forces which constitute this aggregate. These are stakeholder representation, consideration of regional, intergenerational and global effects.

For the CC group, stakeholder representation, regional and global effects are all areas where the barriers are perceived to be stronger than the driving forces, whilst the



driving force of intergenerational effects is seen as stronger than the barrier. This is not surprising considering the effect that the Landfill Directive is having on waste disposal authorities. Movement away from landfill is seen as central to intergenerational equity (in terms of environmental quality, and availability of resources) not only because it represents a movement up the hierarchy of waste management options from the least preferred option, but also because the scarcity of land in densely populated countries is more tangible than the scarcity of clean air or water.

For Industry, the global effects are seen as weak both as driving forces and barriers. The non-consideration of interregional effects however is seen as a very strong barrier. Industry, which is not limited functionally by administrative boundaries since they move not only household, but also commercial and industrial waste to and from various parts of the region and beyond, have thus better knowledge of the movement of waste and the unsustainable interregional effects which accompany it. This could explain their perception of the strength of the inter-regional barrier to sustainable MSWM.

For both DC and EA global effects are not considered enough, posing a strong barrier. At the local level, global effects are generally assumed to have been dealt with by EU and national policies. For the EA the focus on global effects is part of their function as regulator, and is also instigated by the organisation's commitment to address global problems like global warming (e.g. the Kyoto Agreement).

For all groups the issue of stakeholder representation falls close to the neutrality line, the shared perception then being that for the most part stakeholders are being represented in the decision making process.

## Siting

Not surprisingly, local resistance to the siting of waste management facilities is seen by all groups as a very strong barrier. The driving force is whether the siting process is accepted as fair. In this area the barrier overcomes the driving force significantly, with the SQC for CC, DC and EA being far to the left of the neutrality line. For Industry however the driving force is perceived as strong, bringing the SQC closer to the neutrality line. Again, it is this group which is involved with getting the local population to participate in the siting process which could explain the difference in perception.

## Management Practices

This is one area where the perception by all groups places the SQC very close to the neutrality line, representing a balance of driving forces and barriers. These are however not insignificant, but rather of medium strength forces with little variability in perception between groups. The EA attributes more strength to the barrier whilst the rest of the groups favour the driving force but only marginally. This indicates the existence of both good and bad practices in the field, in similar proportions.

### 6.4.2 RTABs and Regions

#### SW Region and RTAB

Comparison of the SQC for the region as a whole, and that of the RTAB (see figures 6.5 and 6.6), reveals that the two curves are almost identical in shape. Public

participation, economic factors and siting are the big problem areas, whilst the legislation provides the strongest driving force, and management practices close to being neutral in effect.

This result could be attributed partly to the RTAB being representative of the regions views on the significance of the forces involved in the development of sustainable MSWM. This is a good sign, both for the region and for this research. For the region because if the RTAB is truly representative of the region the path to implementation will have less agreement obstacles on it, and for the research because it strengthens the case for validity of the results.

#### Comparison of SW, NE and West Midlands Regions

This part of the study is designed to examine external validity. To what extent can the results of the South West FFA be generalised to other regions.

The results show striking similarities in the SQCs for all three regions and also some significant differences. All three regions show strong barriers in the areas of public participation, economic factors, and siting of waste management facilities. Management practices are close to being neutral in their effect, and legislation provides the only clearly positive driving force.

For the SW, the barriers in the area of regional issues are seen as significantly stronger than for the other regions. This could be attributed to two factors. Firstly the region is the largest on in area and less homogeneous than the others, thus creating more problems in terms of agreement and co-ordination. Secondly the SW has only recently started to develop regional level bodies dealing with waste management.

The West Midlands region has a longer history of such involvement, which is reflected in the SQC for this force being on the neutrality line while the one for the



NE is slightly to the left (similar level of development in regional waste management, but much smaller and more homogeneous region than the SW), while the SQC for the SW is significantly to the left of the neutrality line.

The NE shows a much smaller driving force in the area of economic factors which is not surprising considering it is less affluent than the other regions. The West Midlands region shows weaker barriers than the other two regions in the areas of political pressure and consideration of sustainable development (the driving force in the latter being stronger than the barrier). This could be because of its longer history of development in the area of waste management planning at the regional level, which would help to reduce the influence of the barriers in these areas through a better integration of sustainable development principles.

### Summary

The FFA points to the existence of strong barriers and weaker driving forces in most areas which are significant in the movement towards sustainable MSWM. The main drive is provided by the legislation, and the forces in the area of management practices are close to being as much a barrier as a driving force.

The FFA for the four groups shows many similarities, and some significant differences. This, to a certain extent, can be explained by the different roles these groups play in the waste management planning process, and the different decision making areas that they participate in, the perception of the different actors being influenced by what is important to them. A better understanding of these differences and stronger awareness of the similarities between these groups could facilitate the development towards more sustainable MSWM.

The questions raised by this analysis as to how then to move forward are investigated further in the next chapter.

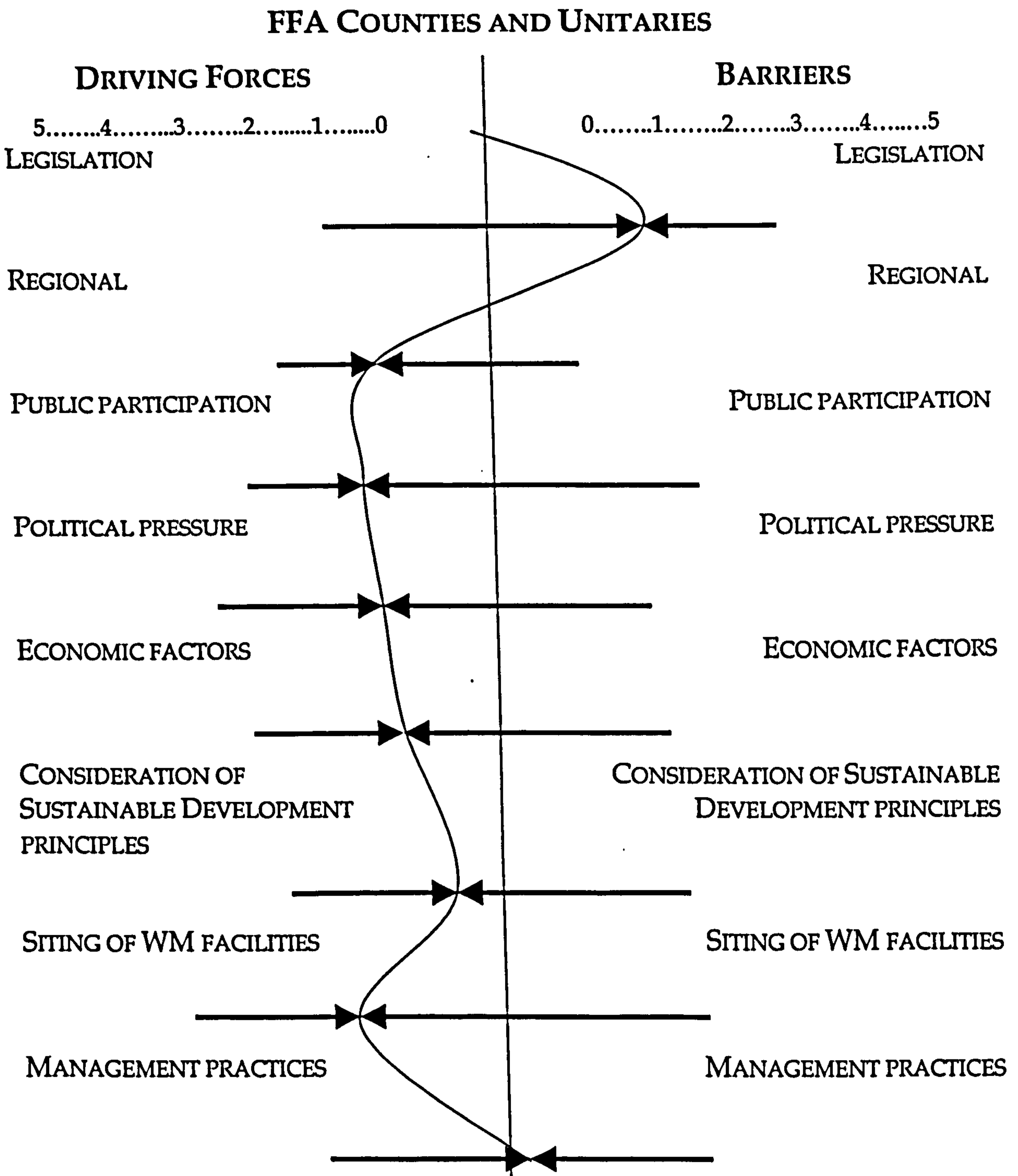


Figure 6.1 FFA Counties and Unitaries

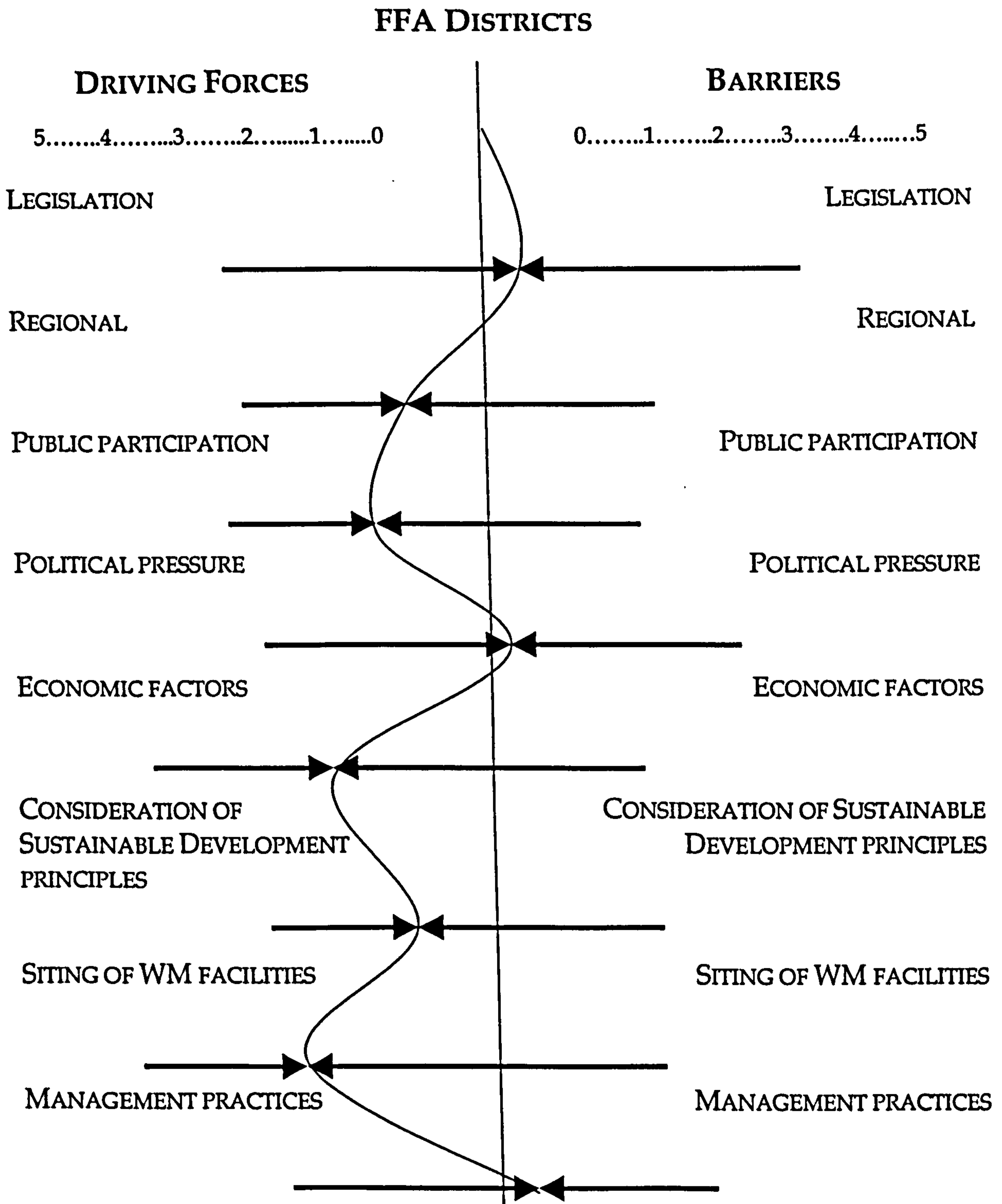


Figure 6.2 FFA Districts



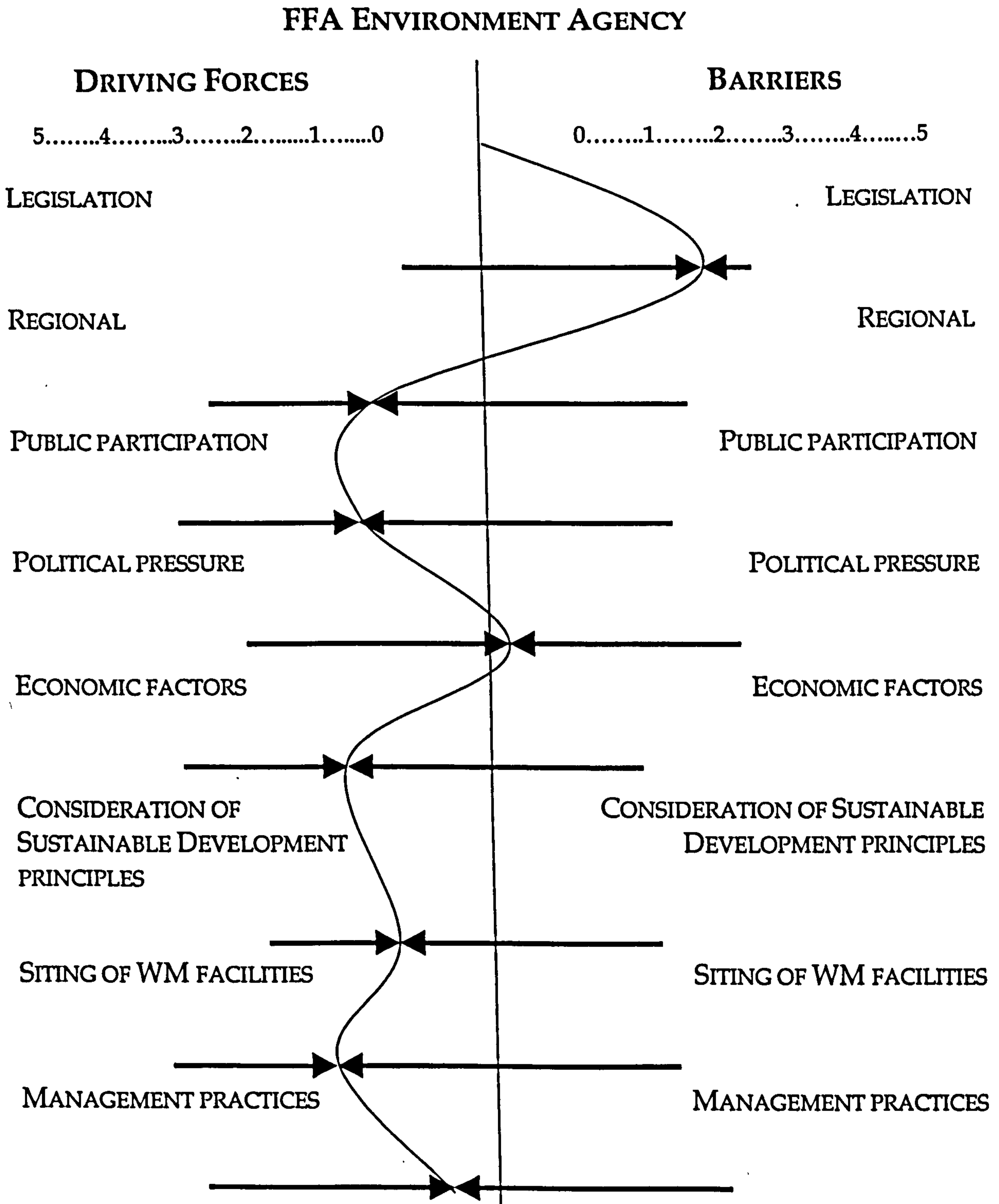


Figure 6.3 FFA Environment Agency

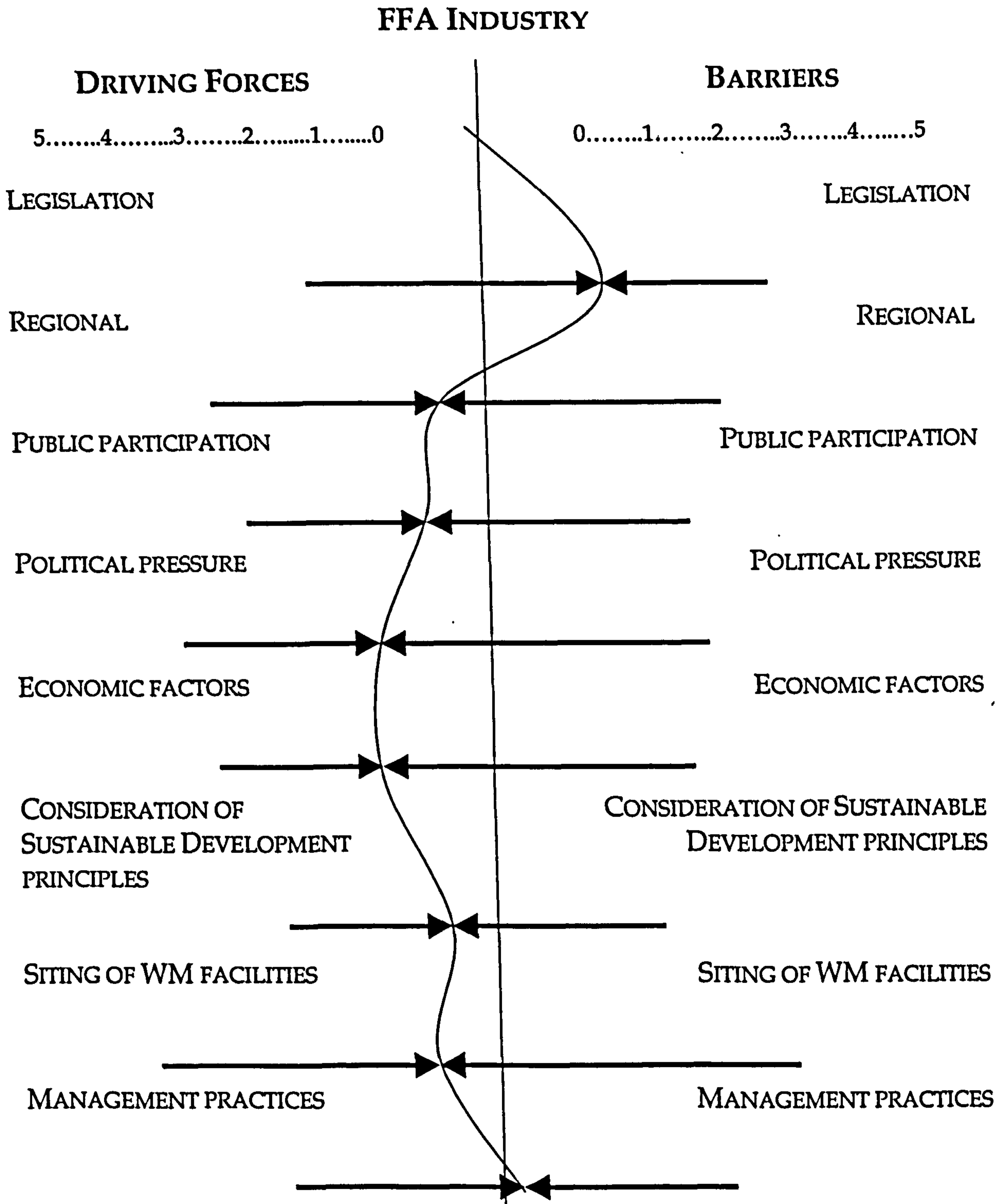


Figure 6.4 FFA Waste Management Industry

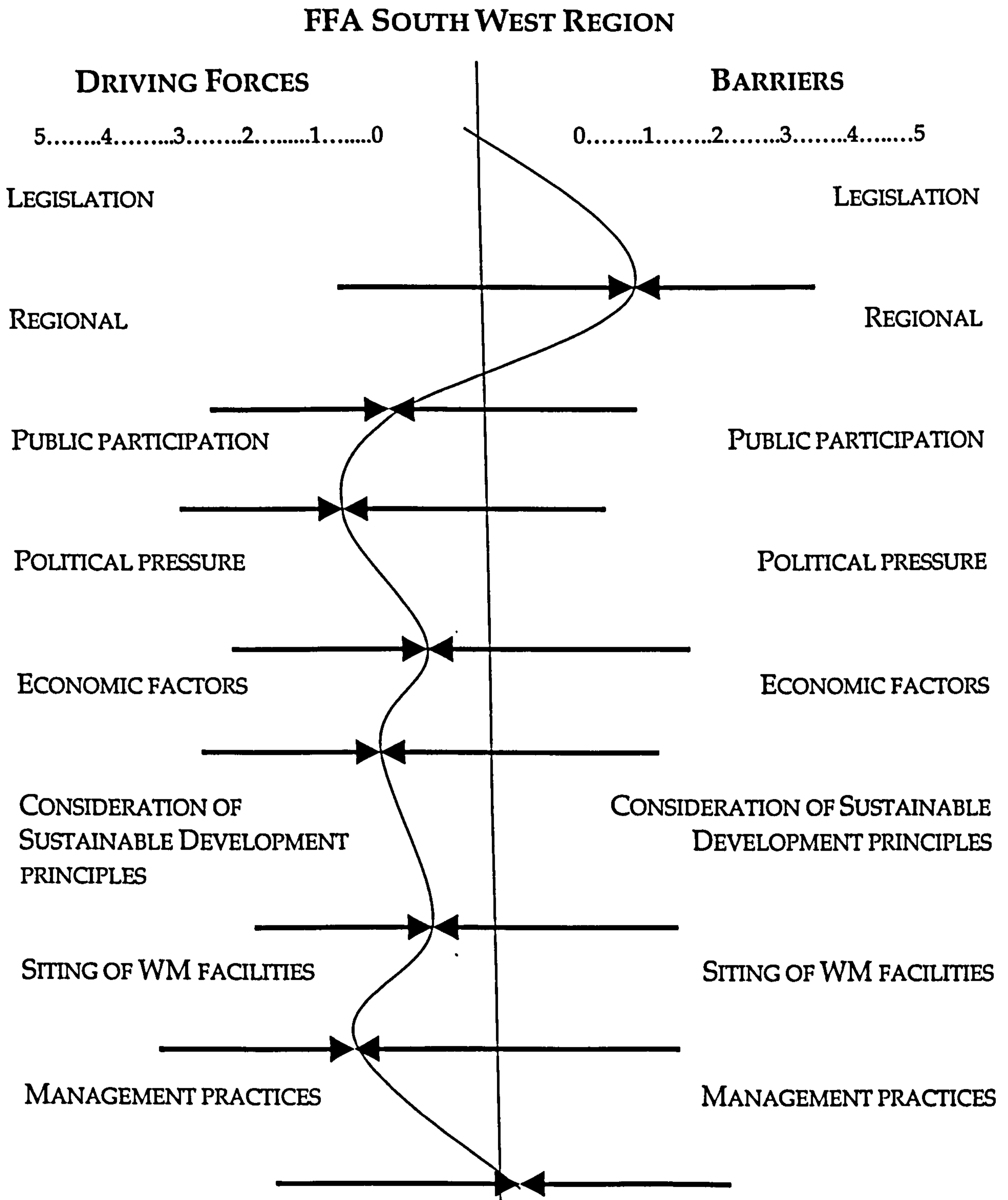


Figure 6.5 FFA South West Region



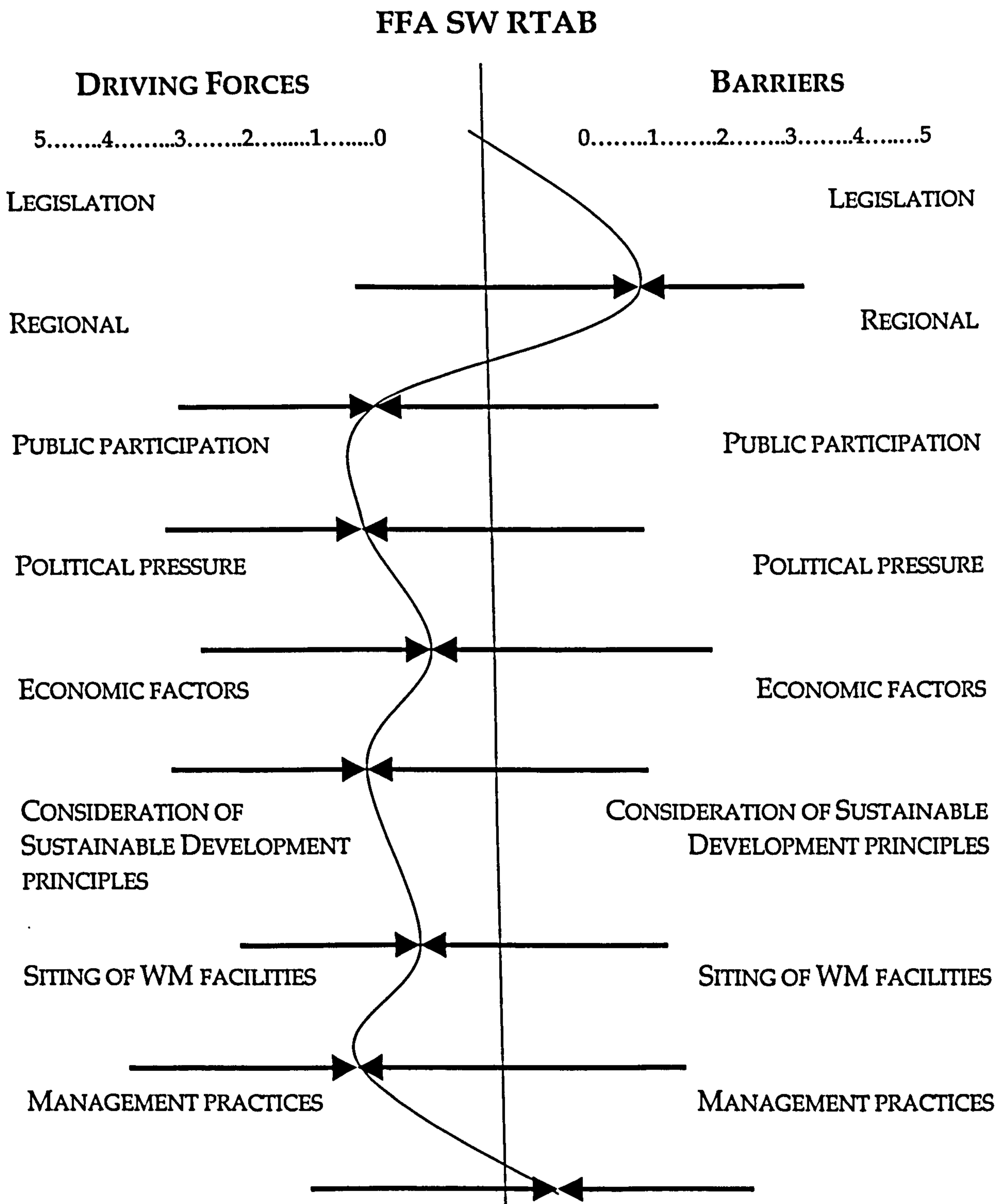


Figure 6.6 FFA South West RTAB

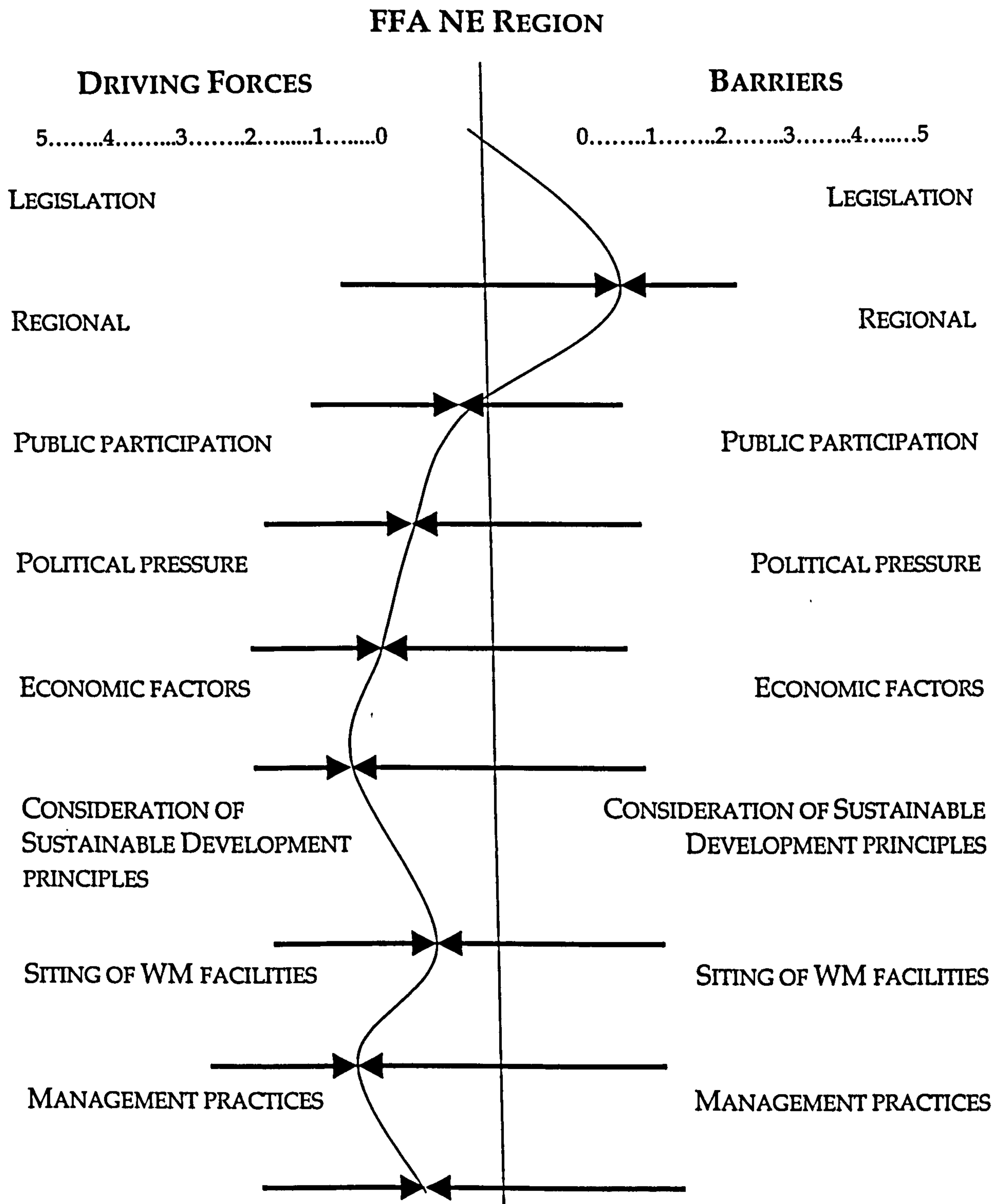


Figure 6.7 FFA North East Region

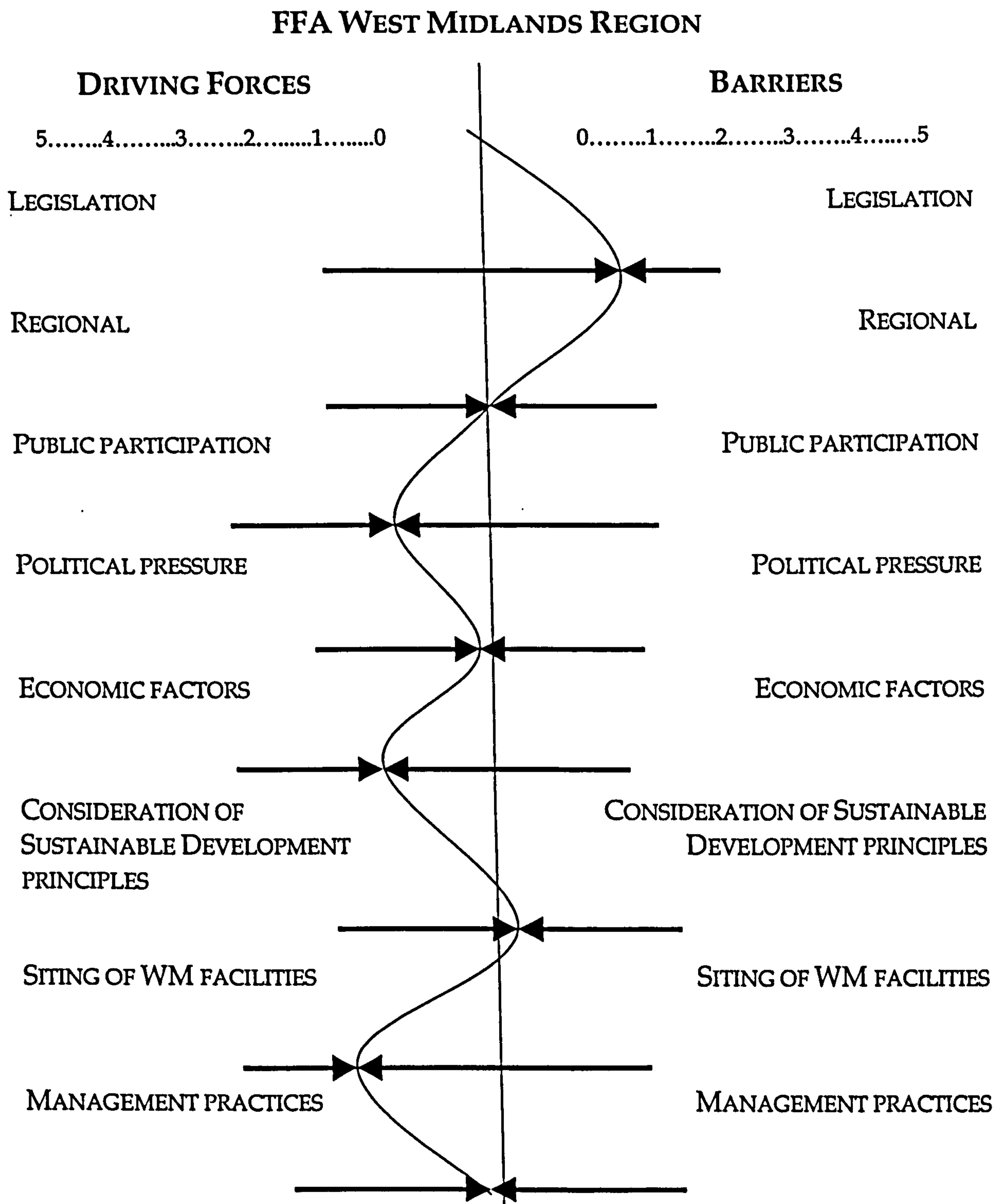


Figure 6.8 FFA West Midlands Region



## CHAPTER 7 ANALYSIS OF INTERVIEWS

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### Introduction

Semi-structured interviews were used to elicit information on issues related to Sustainable MSWM, existing institutional arrangements, institutional change and economics (see Appendix 5 for a list of interview questions). This chapter explores the perceptions and preferences of the key actors related to key issues surrounding sustainable solid waste management, such as participation, fairness, the meaning of sustainable waste management, and the optimal mix of waste management options available. It also analyses the existing institutional arrangements, the key economic issues, and the potential for institutional change given the forces (barriers and opportunities) discussed in the previous chapter.

The interviewees have been grouped in the following categories (see chapter 4):

- Local Authority/ County and Unitary
- Local Authority/ District and Borough
- Environment Agency and Regional Government Office
- Waste Management Industry
- Environmental NGOs

A listing of the roles of the interviewees, and their organisational affiliation are presented in Figure 7.1 below:

Figure 7.1 Interviewees

Interviewee	Organisation	Role
I1	LA/Unitary	Director of Planning, Transport & Env. Services
I2	LA/County	Head of Planning, RTAB Chairman
I3	LA/Unitary	Waste Planning Officer, RTAB
I4	LA/County	Waste Planning Officer
I5	LA/County	Director of Planning & Environmental Services
I6	LA/County	Waste Manager
I7	LA/County	Waste Planning Officer
I8	LA/County	Waste Manager
I9	LA/Borough	Recycling Officer
I10	LA/District	Waste Management Officer, RTAB
I11	LA/District	Waste Management Officer
I12	LA/District	Recycling Officer
I13	LA/District	Waste Management Officer
I14	LA/District	Principal Waste Management Officer, RTAB
I15	WM Industry	Director
I16	WMI	Director, RTAB
I17	WMI	Planning Manager, RTAB
I18	WMI	Consultant
I19	WMI	Director, RTAB
I20	WMI	Institute of Waste Management, Regional Chair
I21	Env. Agency	Regional WM Strategic Planning Officer, RTAB
I22	EA	Environmental Protection Manager
I23	GoSW	Principal WM Planning Officer, RTAB
I24	EA	Environmental Planning Manager
I25	NGO	Head of Regional Office

## 7.1 Sustainable Municipal Solid Waste Management

From an institutional perspective, it is important to determine:

- (i) Who participates and who is represented in the decision making process<sup>70</sup>,
- (ii) What the key players' perceptions are on issues of fairness, both in terms of fairness in the various decision-making processes involved and in terms of inter-regional and global implications resulting from these processes,
- (iii) Perceptions on the meaning of SMSWM and ways forward,
- (iv) Perceptions and preferences on the various SWM options available, and
- (v) Potentially significant drivers and barriers.

### 7.1.1 Participation and representation.

Data was analysed in order to gain perceptions on public participation. Interviewees in the Local Authority group identified the public as the major stakeholder in both the waste planning and waste management processes. There does not seem to be agreement within this group as to whether the public is adequately represented in these decision-making processes. Some argued that the public is adequately represented by the Councils they elect through the democratic process:

"...let's not forget the fact that the CC is composed of 77 elected members. They are elected by everyone (in the County) and are there to represent everyone (in the County)." (Interview 4).

Others argued that public opinion on waste management matters is very diverse and therefore not adequately represented in the existing processes.

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<sup>70</sup> For the purpose of this study, decision making processes are those related to a) the waste management planning process, and b) the municipal solid waste management process (the word disposal is commonly used, owing to the fact that even today over 90% of MSW is being simply disposed of in landfills). These two functions are separated in CCs and UAs, both because of the different skills involved, but also to avoid any conflict of interest. Some of the actors interviewed attribute the failure of the waste management system to this functional (but also conceptual) split.



Representation of other stakeholder groups<sup>71</sup> however is seen as adequate and in some cases they are perceived as being over represented:

"The single -issue pressure group are probably over-represented because they're so good at their publicity, their views probably get more prominence than Joe Public at any stage..." (I 5).

Interviewees seem to agree that the main barrier to public participation in the decision making process has to do with awareness rather than with opportunity. As one planning officer comments:

"In essence everyone is a major stakeholder, the problem is they just don't know it. They don't realise how major their stake holding is and the influence they have or could have." (I 7).

The significance of this lack of awareness by the general public in waste management matters and everyone's involvement and responsibility is emphasised by a key actor from the RTAB who talks about the importance of 'getting the message down to the general public that society is the key stakeholder'. (I 2).

As far as the decision making process is concerned, power and participation are intricately linked. This applies, whether one is talking about the power of the people to influence a waste management facility siting decision through the planning system, or - at the other end of the process- the power of those involved in the formation of regional and local waste management policy and strategy. For example, according to an EA key actor:

"...the influence is with the Chief Officers within the local authority. They have the most influence because they speak at the Council meetings, they are usually appointed because of their knowledge, experience and sage counsel, so they certainly have the opportunity to influence policy." (I 21).

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<sup>71</sup> Other stakeholders, according to the interviewees, include commercial business and industry, both of which produce waste which needs to be managed and disposed of, the waste management industry whose business is to deal with the waste produced within the policies set up by the government, local authorities, central government, and government and non-governmental agencies dealing with waste management policy making, planning and regulation, and various environmental groups.

The power of the CC is set through the Waste Local Plan (WLP), to which any proposed developments must conform in order to have a chance of clearing the planning process. The EA has influence in this WLP process as they are the main technical consultees for that document. The EA also has the responsibility to provide data for the regional waste management planning process, as well as making information available at the Waste Planning Authority (WPA) level. Information and good data are essential for participation, and the lack of it -it can be argued- can have the effect of excluding some groups from the process. The lack of data to have a debate about waste can become a barrier to the general public and environmental NGO participation, because they often do not have adequate resources to present a meaningful case for or against a planning application or policy decision. The lack of resources also presents a problem for environmental NGOs in higher level participation. For example, NGOs are not at all involved in the waste and minerals sub-group of the Regional Planning Conference (RPC) – although they do have the opportunity to participate, choosing instead to focus on the environment group, because they do not have enough people and time to participate in both groups. Industry of course has its own data and adequate resources to participate and influence various committees and processes as a consultee, and as service provider.

The trend is for LAs and the EA to promote public and small group participation in waste management decision making, and to make that process more open to representation from local interests<sup>72</sup>. As one EA actor said: “We are promoting local liaison groups so there is much more transparency to what is happening” (I 24).

Public participation is not always seen as fruitful, and the problem lies not only in the data side of things, but also public attitude:

“The people who aren’t represented are the ordinary people and too often the information they have on which to base decisions is flawed. It’s either not scientifically based, has the potential to be distorted by interest groups...and I think that people these days don’t believe in experts, whatever they say...so lack

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<sup>72</sup> For a good example of public participation in MSWM look at the Hampshire County Council Project Integra, developed in the early ‘90s; <http://www.integra.org.uk/>



of knowledge or ignorance leads to public resistance when there may not be need for it." (I 21).

The Waste Management Industry (WMI) also acknowledge the problems associated with public and environmental NGO participation, especially at the regional level<sup>73</sup>. Similar to the LA group, interviewees in this group did not agree as to whether representation was adequate. Some took the position that the democratic process was adequate guarantee that people's views will be represented, since "...LAs represent a wide range of interests, not only their disposal interests, but also the environmental concerns in their patch." (I 18). The public also has the opportunity to comment directly on regional policy and guidance through the public examination process, which the drafting of these documents involves. A counter argument is that local councillors only represent a small percentage of the population. A local politician can be voted in during a low-turnout election (increasingly the case with elections), and actually represent very few people (less than 10% of the electorate). Councillors are elected as political persons "...which means there is a party political line they follow, so you've lost any other representation of the people..." (I 20). When people manage to have some influence over the LA waste planners, these officers have to put that influence through the local councillors, and are often not able to overcome existing political barriers.

Even when the public has the opportunity to get directly involved – as is the case in a planning application case- their participation may not count for a lot since "...the local community which is having to cope with the development are obviously at a disadvantage because they don't have the resources...to support their position..." (I 19), and have to rely instead on environmental groups. The environmental lobby is perceived to have significant influence on the planning process, and at times having

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<sup>73</sup> It is interesting to note that NGOs such as the Wiltshire Wildlife Trust and CPRE do participate in the Waste Sub-group of the RPC, and also on the shadow RTAB for the SW. FoE however – who are the most active in local waste management schemes- do not. When interviewed, the key actor for FoE in Bristol said that this was due to lack of resources, but also the perception within that organisation that not much can be achieved through involvement at that level (I 25).



greater influence on the planning authority than the EA. Industry itself can secure representation through their Chambers of Commerce, the ESA, and directly as service providers. A random public response on the other hand is probably not very representative, and the alternative consultation options of citizen juries and focus groups are quite expensive to carry out. However the expectation remains that the public will be adequately consulted.

Differences in what participants expect to gain from participation can also have a significant impact on the relationships between the participant stakeholders. Controversial decisions, such as those often encountered in the MSWM planning process, requires decision makers to accept the complex 'bundle of costs' that accompanies them. Inevitably, due to limited resources available to MSWM, decisions have significant social, economic, and environmental implications. It is no surprise then that WPAs look for external institutional support in the planning process. One interviewee commented that " The planning authorities, I think, look to the Agency to get them off the hook and the Agency doesn't do that. All it does is comment on technical issues." (I 19). The costs of MSWM decisions are very much still in the domain of the LAs that make them – one reason why many such decisions are endlessly postponed.

### *7.1.2 Issues of fairness*

The data reveals that issues of fairness are not a major concern of key actors in the waste management arena. The following comment from a local authority waste manager is typical of the initial response to such questions:

"An interesting concept-fairness. I've never considered that I must admit." (I 6).

And from a high ranking planner: "What we're trying to do is find acceptable ways by which society can better manage the waste it produces. Now, I don't recognise fairness as an issue with that." (I 2).

Given some time to think about the concept however, most interviewees did have an opinion on the matter.

### **Fairness in the various decision making processes**

Irrespective of whether or not the public is adequately represented by their council, the council has to prepare its policies through the Waste Local Plan (WLP) procedure. This goes through an initial stage of consultation as a consultation draft, where key stakeholder groups such as the regulators and industry are consulted, and then it becomes a deposit Waste Local Plan which is then subject to statutory consultation, and where the public have an opportunity to comment. The local planning inspector who presumably takes an independent look at what people are saying also examines people's comments. For some of the interviewees this opportunity to participate is the basis for fairness in the whole planning process. According to a government office-actor "...fundamentally the decisions have to be made by the people who are elected to take decisions. They can be lobbied by the technical people and the environment groups or other groups, so I think that's right." (I 23). And as one local authority actor comments:

"The waste planning authority is the key issue- if you don't get planning permission you don't do anything".

Waste management facilities need a licence to operate, and the EA cannot give out a licence without planning permission. However, most actors also see the deficiency in the system. One waste planner categorically states that:

"Planning isn't fair. It's a zero sum game - there are winners and there are losers." (I 3).

Planning is about determining things in the public interest, whilst recognising that somebody may lose out, and that there is a certain cost attached to that. Yet, according to an actor from industry, the way the planning process is set up "...all a waste planning authority can do is make a judgement on a specific application that's presented in front of them...it (fairness) is not part of their remit...to say, well is this

fair?". Instead "...waste planning ought to deal with that question before any proposal" (I 19), and the regional authority should test the various options before hand, and make a decision on what facilities are needed where in the region. If then a proposal is granted planning permission, then the process would be fair because all the stakeholder groups have had an opportunity to talk about it.

Even when the planning process is seen as fair however, that does not mean there will be a fair result. According to an interviewee from a District authority,

"...when the ultimate decision is made...it would be based on more hard-bitten realities of economic cost, government regulation, statutory requirements and the practicalities of where is it going to go anyway? And then fairness may well be out of the window. It will be fairness in the sense that it will go through the planning process but someone is going to get a raw deal." (I 11).

Some emphasise the difficulty of involving the public in consultation, and although most councils go beyond the statutory minimum consultation to take on board the views of important stakeholder groups, but also of the general public, the views of the individual are very hard to elicit, and the participation of individuals outside any interest group is not present. Although special interest groups do participate in such WLP consultations, "...interest groups are just that, and they are not necessarily representing a wider view" (I 4). Apart from the public lack of awareness, there are barriers such as resources available in order to elicit their views, and also the time available since some waste planning decisions are pressing and need to be resolved in a short time period<sup>74</sup>.

Another challenge to the notion of fairness according to one high ranking local authority officer comes from "...those decisions made within a central government policy framework, or planning policy guidance notes" which suggest that certain decisions are made on a strategic level and outside the usual statutory consultation

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<sup>74</sup> This is not because waste planning decisions arise quickly or unexpectedly, but rather because typically such decisions are often postponed for after the next electoral cycle due to the political cost associated with them.



procedures; "...there can often be a strategic need and requirement versus a local reaction and objection to what's going on and there's got to be a decision somewhere in between, and the whole issue of fairness is about how that decision is arrived at.." (I 1).

Issues of fairness are also significantly influenced by factors beyond the national boundaries, such as the influx of policies from the EU related to landfill, biodegradable waste, incineration and other waste management aspects, which become material considerations in the UK planning system influencing local development control decisions on the ground. From that point of view, some see the concept of fairness changing as the consequences of the 'old' waste management practices, such as landfill, are better understood.

#### **Inter-regional and global impacts of waste management**

Interviewees stated that fairness issues related to inter-regional effects of waste management facilities are generally taken into account in the consultation process for the WLP by inviting neighbouring local authorities from adjacent regions to participate. According to the Government Waste Strategy and Planning Guidance, decisions are supposed to be made in accordance to the concepts of the Proximity Principle, Regional Self-Sufficiency and Best Practicable Environmental Option (BPEO) which again, according to some actors, covers the issues of fairness. For example, if some area is chosen to house a certain specialised waste management facility because it is considered the BPEO, then that must be seen as a fair decision. In terms of choosing between management options, although there is always a compromise to be made between environmental effects and economic cost of alternative options, so long as decision is reached in a fair way as to what is the BPEO, then the process can be seen as fair (I 10). Some interviewees however challenged that notion by stating that "...what any of those terms actually means is open to debate and is not really clarified in Government Guidance" (I 3). These

principles are thus open to individual interpretations and most people will for example accept the principle that 'you're supposed to consume your own smoke' until the facility to do so is proposed near them. Thus regional self-sufficiency deals with fairness at the regional level, but when it comes to the local level, where facilities need to be sited, "...there is bound to be seen an element of unfairness, but that's down to someone's judgement" (I 17).

Responses in this area reflect the particular geographic situation of the respondent's County or Unitary Authority. For example Cornwall, which is located at the very south-western part of the region, does not have any significant amounts of MSW imported or exported to adjacent local authorities. Others, such as Gloucestershire, Wiltshire, and the former Avon County authorities, have significant movements of waste across local authority boundaries, both within and outside the South-West Region.

Most respondents expressed the opinion that the EU/national government should consider issues related to SWM effects on the global environment in their waste management policies. "Proportionality says...you can satisfy global issues when you define national policy, you satisfy national issues when you define regional policy, and you satisfy regional issues when you decide on local issues" (I 17), anything else would be inefficient. Interviewees placed the responsibility for dealing with global issues on central Government, but qualified that by saying that consideration of global effects is a very difficult task, and one that is not normally taken into account in SWM decision making. One interviewee from a DC perspective, made the point that there is lack of information and knowledge on how to assess these impacts at the global level, and therefore "I don't like to go to a politician and say, look, this is going to cause x% increase in global warming if you take that decision, because I just don't know." (I 11). A typical comment from a County waste manager is:

"I think the Government strategy is looking at slightly the right things but if you're looking at sustainability globally, then I don't think you can have a real handle on that. No." (I 6).

And from an EA actor " I think that the global environment is best dealt with on the national level...it's difficult for councillors in Bristol, who are currently struggling with a major waste disposal problem, to consider the impact...in relation to a global picture...they are charged with a legal duty to fulfil and they need to look at the options, which will not be global options, they'll be local or regional options" (I 21).

There are however exceptions to this outlook, as for example the case of Cornwall which is driven by Objective 1 bids<sup>75</sup> to prepare strategic appraisals looking at implications for the global and local environment of waste management in the County. And from the EA, "What we are trying to do is do things that will have an impact both locally and globally...in terms of climate change, energy reduction and gassing, or at least trying to produce energy from landfill sites, we are positively promoting these within our waste management process." (I 23).

### *7.1.3 Perceptions on the meaning of SMSWM and ways forward*

In attempting to define SMSWM interviewees touched upon a number of issues. Most emphasised the relationship between environmental and economic aspects of sustainability. From the waste managers' and planners' points of view this is natural since the distribution of limited resources which local authorities control has to take into account other social services such as health and education, which often take priority in relation to the management of waste, especially after the minimum requirements for the management of waste have been satisfied.

The relationship between the waste present generations are producing and how its being managed, and the impact that will have on future generations was also a key consideration. Interviewees were keen to emphasise that the environmental and

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<sup>75</sup> The EU requires bidders for Objective 1 funds to examine the implications against the Kyoto agreement.



economic burdens arising from existing landfill centred practice should be dealt with in the present rather than deferred to the future.

There is agreement of opinion amongst interviewees that not to produce any waste would be the ideal situation. The reduction of the amount of waste produced is seen as the biggest challenge for waste management with one local authority planner stating that: "... once you start talking about waste management options, disposal options, effectively you've given up because, it's shifting the chairs on the Titanic, because they've all got problems" (I 3). The difficulty associated with waste minimisation – especially in relation to the MSW stream, is accepted by all the groups interviewed.

"...the generally accepted solution to all this is that we stop producing waste. But...we have to be realistic and pragmatic. We know that waste is actually growing, so sustainable waste management means that we try and divert as much as we can from landfill. The options are fairly limited..." (I 19).

"...4% more waste every year...therefore we have to reverse that trend, that's going to be the first thing, if it's going to be sustainable..." (I 20).

"...So long as waste output is rising, its hopeless to tackle." (I 13).

How we (society) perceive waste is also seen as a key issue. "(Sustainable) waste management is about everybody thinking about what waste they produce and how they can reduce it. It's got to be part of the blood...a lifestyle." (I 24). One interviewee perceives the term Sustainable Waste Management as a contradiction in terms and advocates instead the use of Sustainable Resource Use (a position also promoted by the National Waste Strategy). To see 'waste' as a resource before it becomes 'proper waste' is seen as a necessary change in attitude towards sustainability.

"...waste is not sustainable, because it's waste...the debate should be around sustainable resource management rather than sustainable waste management..." (I 5). "...they (DETR) shouldn't be talking about waste, they should be talking about resources, and I think what we need is a sea change in people's attitudes to consider the resources that are being used..." (I 21).

Extracting the maximum value from waste before final disposal (the 'valorisation of waste' promoted by the French government at the outset of the debates which led to

the Directive on packaging and packaging waste) is another common element in what these key actors see as a move to sustainable waste management. Thus recovery of heat and energy from the process of reducing the residual element of solid waste to a fraction of what was previously there, and the recovery of material from recycling processes are regarded as important elements of SMSWM. . "So (SWM is) getting the maximum value out of every bit of waste before anything is eventually dumped, and what is dumped should obviously be minimised." (I 5).

A wider definition is offered by the environmental NGOs:

"It means trying to minimise the amount of waste generated in the first place...looking at the effects of waste...also looking at developing waste management strategies that are sustainable from other ways in terms of looking at the job creation potential of different processes in areas where unemployment is an issue...potential for community involvement in waste management decisions but also waste management practices...viewing the social, economic and environmental impacts and how we can lay the foundations for a better quality (of life) in the future." (I 25).

Minimisation of the MSW generated presents such a big challenge to LAs that it has been mostly ignored in practice<sup>76</sup>. Reducing the total amount of waste implies reducing the amount of goods consumed, including the packaging (in the short-term at least and until practical alternatives to existing products are available in the market) and this brings up the very significant issue of the (perceived) relationship between economic growth and people's prosperity. In general, most economists would argue that economic growth is a necessary prerequisite to prosperity, as it is tied in to levels of employment, and technological innovation, both key ingredients of today's 'happiness soup'. It would take a brave local politician to tell people they need to change their lifestyle, and an even braver one to actually try to do anything about it. Thus, when interviewees talked about a mix of waste management options as necessary for sustainable MSWM, in practical terms they referred to a mix of

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<sup>76</sup> Instead, efforts have focused on the minimisation of Industrial and Commercial waste, for which there are clear cut economic benefits for the waste producers. A number of waste minimisation 'clubs' have been formed with the instigation of local Business Links, the EA, Local Authorities and Educational Institutions.

recycling, composting and incineration – together of course with the inevitable landfill of residuals from such processes. Most key actors interviewed stated that all these options have a significant role to play in the pursuit of sustainable MSWM, although of course there were differences in preference.

#### *7.1.4 Perceptions and preferences on the various SWM options available*

##### **Minimisation and Re-use**

Although all interviewees identified waste minimisation as the key element of sustainable MSWM, in practice not much is being done in this area for household waste. Apart from some occasional leaflets produced by LAs and the EA (which tend to be something to read while waiting in reception) and a nationwide waste awareness project, which has yet to materialise, there is not much evidence of concrete plans of action to minimise or re-use household solid waste. The mountain of a task of changing public attitudes towards waste looms tall, and most interviewees expect either direct action or substantial funding from central government to tackle the issue. Changes in awareness and attitudes take a long time, and LAs are hard pressed to meet recycling and diversion from landfill targets set by the EU and national government.

Some interviewees argued that the targets themselves are not sustainable, or would not lead to sustainable MSWM. This is a major issue, since it is this same legislation that provides the main driver for sustainable MSWM (see also Chapter 6 for more details on these forces).

Environmental NGOs are much more active in this area, especially in terms of re-use schemes, and often with the co-operation or in partnership with LAs. Such re-use initiatives are in operation in most large urban areas. These are however small



schemes with very limited impact. In practice, the waste management options considered for municipal waste are recycling, composting, incineration and landfill.

### Incineration and Recycling

Perceptions and preferences regarding these two waste management options and the relationship between them were markedly different from group to group. LA actors, especially at the WDA level, expressed more of a positive attitude towards incineration and less faith in recycling than actors from the Waste Management Industry (WMI) or the EA. Actors from the EA were the group most sceptical about incineration. The differences can be explained partly by the functional responsibilities of each group. LAs are those most pressed to achieve the recovery targets set by government. The EA on the other hand is more focused than other groups on climate change, and other environmental impacts. The WMI, as a service provider for the MSW stream will adapt to the demand from clients (LAs in the case of MSW), tied in by contractual obligations. Incineration with energy recovery can be a highly profitable operation, but it does require a large initial capital investment, and is not without risks. Landfill has been highly profitable as well, and for the WMI it is more important to secure the contracts for managing the waste, rather than which option is chosen by the client.

According to the LA actors, apart from recycling and composting, both of which have their problems -not least of all the lack of developed markets for the recycled materials produced- incineration provides the only other alternative for meeting the Landfill Directive targets. For recycling, in order to substantially increase the recycling rates, a move would be necessary from 'bring' systems, to separate collection or MRFs (Material Recovery Facilities). The cost involved in separate collection of metals, glass, paper and plastics makes that option a difficult choice for WCAs (Waste Collection Authorities). MRFs on the other hand are also unpopular. "We're not great believers in dirty MRFs - evidence doesn't seem to suggest that they

are ever going to have a huge future involvement in this country, so the practical alternative is, currently, incineration...I don't doubt that we will require in this country a very significant shift towards incineration within the next 20 years (because of the Landfill Directive targets" (I 2).

Some recycling would take place even if incineration were used extensively (for example metals – which don't burn- are separated during the incineration process and are then recycled so long as they have some economic value). However, the debate is between those who advocate recycling as the main waste management treatment option, and fear that the large dedicated waste flow required by incinerators will hinder recycling efforts, and those who believe that this recycling and incineration can be used together profitably. Some LAs actors supported the idea that this was up to planning, and if planned correctly – where the sizing of the incinerator has taken into account recycling targets – it would not present such a problem. However, the size of an Energy from Waste (EfW) plant is dependent on economies of scale, where 200-300k tons/yr are often quoted. "Incinerators that have been more recently established are sized to deal with substantial volumes of waste occurring in areas of high populations and there are few other options to manage those waste streams" (I 2). Large incinerators also have the advantage of being more secure in that they serve a larger geographic area, and are therefore less vulnerable to changes in waste arising or increased recycling in any particular area. Smaller facilities are easier for the public to accept, however " ...smaller facilities over a small area where significant waste reduction is achieved could be quite vulnerable to becoming unviable in a relatively short period." (I 1).

Incineration is not only preferred for urban areas, but rural ones as well. The environmental costs alone of collecting materials in more rural areas of the region and transporting them long distances<sup>77</sup> to other parts of the country for reprocessing has

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<sup>77</sup> For example from Cornwall paper goes to Kent, glass to Bradford, aluminium to Birkenhead and steel to South Wales.



gained favour for incineration. Some LA officers are convinced that incineration is at present a 'clean option', because of the new stringent emission standards set by the Incineration Directive, and argued that the main barrier is a negative public perception of incineration, based on past technologies and questionable information promoted by environmental groups. "The waste incineration Directive is really good – it's just that there's no publicity in this country about it. I heard one official describe it as virtually clean incineration...it's a quantum leap in what incinerators do, but do you hear anything in the press? Nothing. ..all you hear is how dreadful incineration is..." (I 5). " Nowadays the emission standards are so high in Europe and on the new plants there is nothing to worry about." (I 6). Public perception on recycling on the other hand, is positive, although in many cases it may not be justified environmentally. Also, this perception on recycling means that people are less concerned with consuming more resources because they can then recycle them.

Many LA actors seem to have perceptions which are much the opposite of public opinion on this matter. Faith in incineration technology must be seen in light of the lack of faith in recycling. "...I don't think recycling is actually, in this area, environmentally sustainable, never mind economically sustainable. We've got plenty of evidence to prove it." (I 8). Recycling is seen as a limited option, and one which also has no significant effect on the viability of incineration, since " the calorific value of the waste that goes through their incinerator both with recycling before and after...hardly changes at all"<sup>78</sup> (I 7). In any case if materials have a positive price, then the market is expected to remove them from the waste stream. If there is no market incentive, then materials might as well be incinerated rather than land filled. Most waste management officers have little faith that the public will significantly increase its recycling efforts, and although central government is pushing LAs to improve their recycling rates to meet EU Packaging Directive targets, "they possibly don't

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<sup>78</sup> Although it must be noted that at present plastics are not generally taken out for recycling, and if they were to be withdrawn that would have a significant effect on the calorific value of MSW.



realise that the great British character is never going to reach these high recycling targets" (I 6).

The WMI, while still underlining the necessity of some incineration, since not everything can be recycled anyway, seems to question pro incineration attitudes in LAs. "They (LAs) keep on talking about mass burn incinerators, which I think is the wrong way to go in a rural county" (I 16).

LAs seek to influence the direction of waste management through entering long term contracts with the service providers, but still only have direct influence over the MSW stream, which accounts for less than a quarter of controlled waste. The WMI on the other hand has to deal with all of the controlled waste, and therefore has a different view. Industrial and commercial waste is much more homogeneous and easier to deal with in terms of recycling and reuse than the very mixed and cross contaminated materials found in household waste. Incineration also raises the problem of dealing with a large catchment area, since an incinerator will be built based on secured waste flows (through contracts with LAs), and this entails high environmental and economic transport costs. Additionally there is the political problem of either shipping local MSW to another administrative area, or accepting waste from another LA to make up the necessary feedstock volumes. These perceived barriers make the WMI more cautious about incineration. After all, where incinerators are being built, it is the WMI which provides most of the capital and therefore takes on most of the associated financial risk.

The view from the EA actors is even more cautious. Interviewees criticised the LAs for taking an approach towards incineration which will divert the majority of waste to that waste management option. "If EfW is seen as the only solution, we don't get sustainable waste management...there is nothing sustainable in destroying resources, no matter which way you look at it." (I 21). The many uncertainties associated with incineration are an issue. There is little certainty in the mind of the actors of this

group that incineration will not prove to be environmentally bad, that emissions will be able to be controlled at all times, or that the character of waste might end up being less burnable because of other initiatives. Thus EfW is seen as a temporary fix rather than a long term solution<sup>79</sup>:

“...waste to energy for me is a short term solution. It may mean that we meet our targets; it won't make more sustainable waste management in this country.” (I 21).  
“Well, it's the easiest way of stopping things going to landfill and achieving your targets, isn't it?” (I 24).

There is greater concern about the global impact of waste management options in this group, which means that incineration on the whole isn't favoured. Yet, interviewees do accept that some EfW facilities might be necessary, but only after all other options have been exhausted, and only if it is part of the BPEO for a particular area. Even then, smaller plants serving the local community by providing energy and heat whilst minimising the distances waste has to travel, are preferred:

“I've always thought that more local energy production might be a better source of a sustainable way forward than these blooming great big incinerators.” (I 24).

## Landfill

Using a landfill to dispose of solid waste has been (and still is) the main form of MSWM in the UK. MSWM statistics for the SW region show that the percentage of MSW landfilled changed from 81% for 1996-7 to 87% for 1997-8 and 84% in 1998-9 (DETR, 2001). The difference between 1996-7 and 1997-8 is attributable to the closure of any remaining incineration without energy recovery plants due to changes in legislation, whilst the drop in the following year is due to an increase in recycling and composting from 13% to 16%. The EU waste hierarchy places landfill at the bottom, and the Landfill Directive requires the diversion of biodegradable waste from landfill.

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<sup>79</sup> This is a bit of a paradox. Some short-term solutions are evidently necessary in order to allow time for waste minimisation, recycling and composting initiatives to develop. However, an EfW plant not only requires 3-5 years from its acceptance to become operational, and needs to continue being operational for 20-30 years in order to make a profit. This makes incineration far from suitable for a short-term solution.

The government has responded by instituting the landfill tax as a disincentive, and promoting recycling and composting. However, quite a few of the actors interviewed have expressed reservations about this direction, and have questioned this 'all out' effort to move away from landfill.

The engineering of landfill sites has developed considerably in the past decades, and some believe that a well constructed and managed landfill might be a better environmental option than incineration, since there is nowadays the possibility of re-circulating and treating the leachate which landfills produce, and to harvest the gaseous emissions for energy production. "...landfill is probably one of the better waste management options, if it's properly managed...a far better option in terms of global environment than incineration. But that's not the thrust of the Landfill Directive, of course." (I 3). "

Some make the point that there is not enough information to make judgements between options. "If we keep burying all our waste in the landfill sites, we're storing up all these problems...bad pollutants...but is it any better or worse than what comes out of the top of an incinerator plant? ...I don't believe we've got enough scientific data to make those balanced decisions." (I 8). "...is a landfill site...a better option than an incinerator? ...Who's to say?" (I 18).

The lack of markets for products from recycling and composting operations has led many to believe that an intermediate short-term management solution needs to be adopted for solid waste until the markets have time to develop. Some believe that rather than looking at incineration, landfill should continue to be used in that period. "...the flexibility of landfill can underpin and maybe slow the government in the way of recycling and compost because there's not a huge market for compost, and at the moment there's even less of a market in recycling..." (I 17). Yet any solution heavily reliant on landfill can only work for the very short-term in the SW, since there are less



than five years of landfill space left in the region if filling continues at current rates (EA report, published November 2000).

## 7.2 Institutional Arrangements

For the purposes of this study, Institutional Arrangements at the organisational level refers to the existing relationship between and within the various formal organizations involved in MSWM in the region, and the key actors within them. Institutional Arrangements in general also include 'Culture' (perceptions and preferences of stakeholders and actors) and 'Resource Distribution' which are examined in other sections of this chapter. These Institutional Arrangements, which are continually developing through time, are important in assessing the influence of driving forces and barriers in the formation of regional policy and strategy, as well as the sustainability of such processes.

In so far as these arrangements reflect the distribution of power between organizations they offer a clue as to what can be realistically achieved in the present situation. This can be used to a) point out where changes in institutions are needed in order to move towards more sustainable MSWM, and b) assess the likely effects and effectiveness of institutional change on MSWM planning and MSWM practices for the region. The distribution of resources through markets, and through governance is also very significant in the determination of what can be realistically achieved and what changes are necessary. Thus Institutional Change, and Economics, are examined separately in subsequent sections.

The figures that follow give a schematic overview of the key organisations involved in waste management in the region. Figure 7.2 is a representation of the waste management planning process, which shows the various key actors and the waste management planning documents which fall within their responsibilities. Figure 7.3

outlines the relationship between the key actors involved in the regional waste management planning process and other activities at the regional level that might have a significant influence on how strategic planning for MSWM develops.

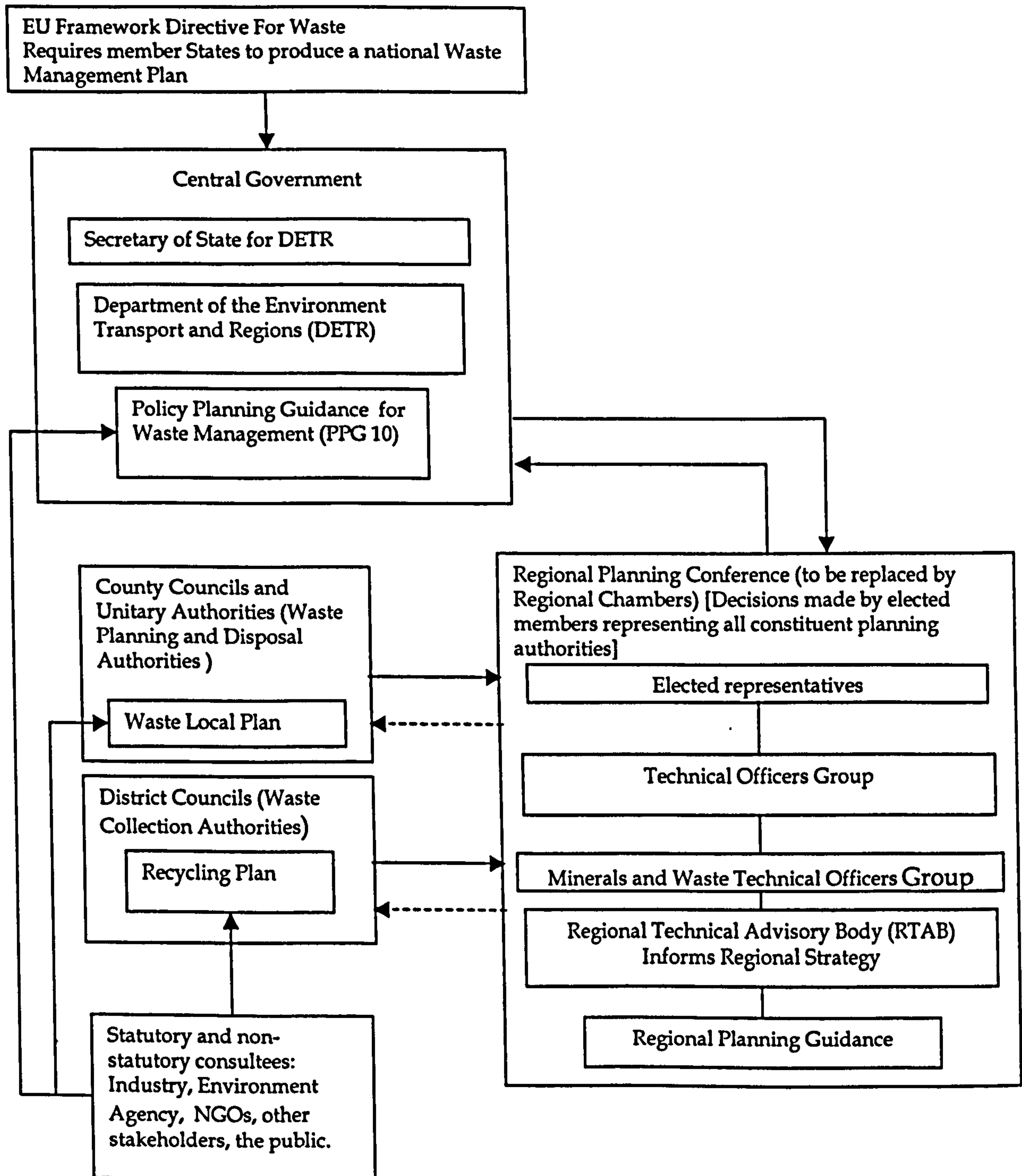
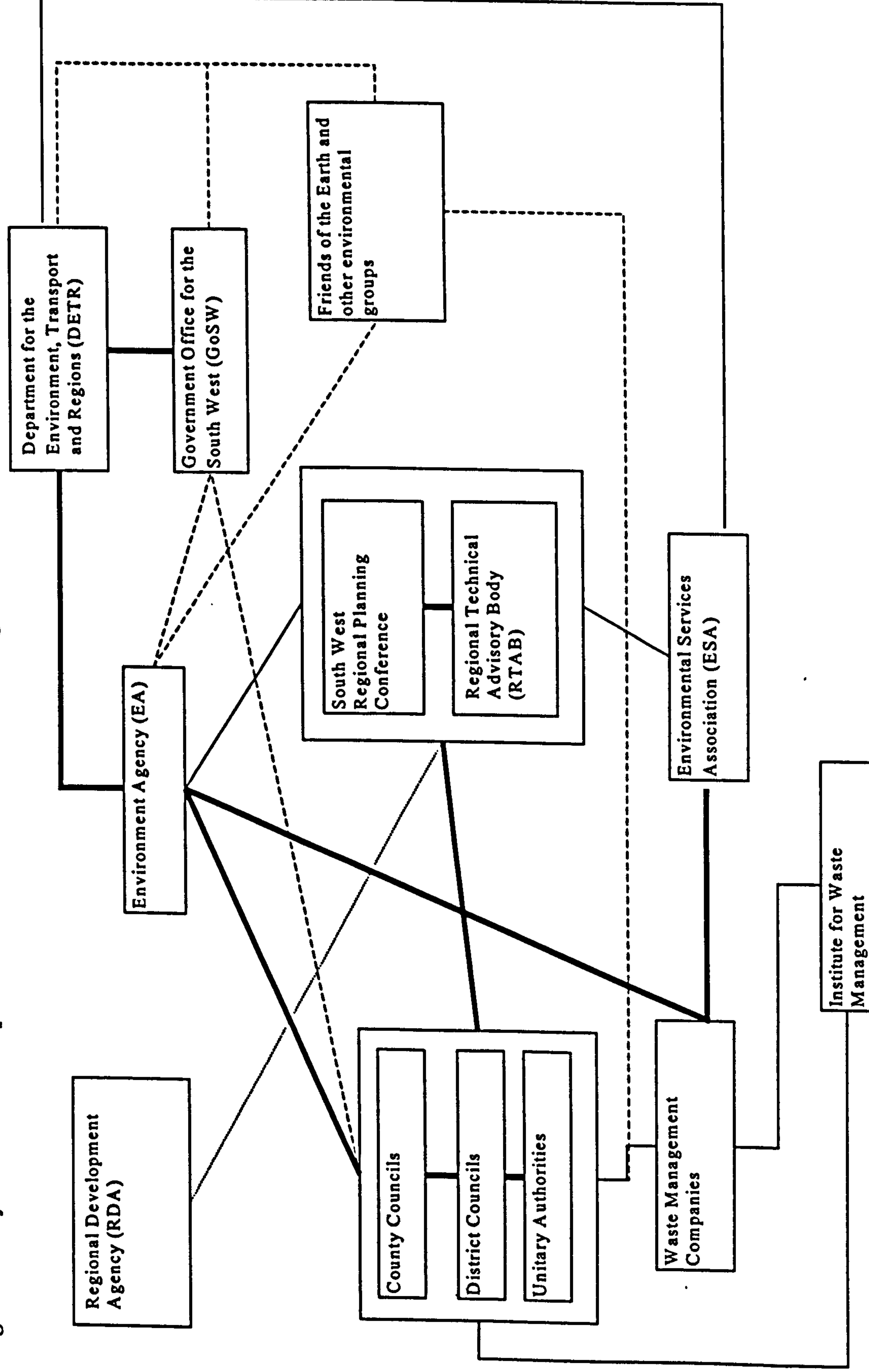


Figure 7.2: WM Planning in the UK: The Regional context

Figure 7.3: Key actors in Municipal Solid Waste for the South West Region of England.





Key to Figure 7.3:

<b>—————</b>	Direct and significant administrative or regulatory relationship
<b>—————</b>	Strong working relationship
<b>- - - - -</b>	Weak working relationship
<b>—————</b>	Potentially significant relationship

The relationship between the key actors is examined in more detail in the following sections.

### Waste Management Industry

As one would expect, the relationship between the Waste Management Industry and the other actors is quite complex. The waste management companies themselves can be categorised as LAWDCs (Local Authority Waste Disposal Companies), and non-LAWDCs, which are privately owned. They can also be categorised as big and small. The small companies have little influence not only because of their capital limitations, but also because they are not in any way represented in the decision-making processes.

For the big waste management companies, the strongest links are with the Environmental Services Association (ESA), which is the trade association for waste management services companies, and with the EA. The LAWDCs have strong links with the WDA (Waste Disposal Authorities) as they are owned at arms length by the CC or UA of the area in which they operate.

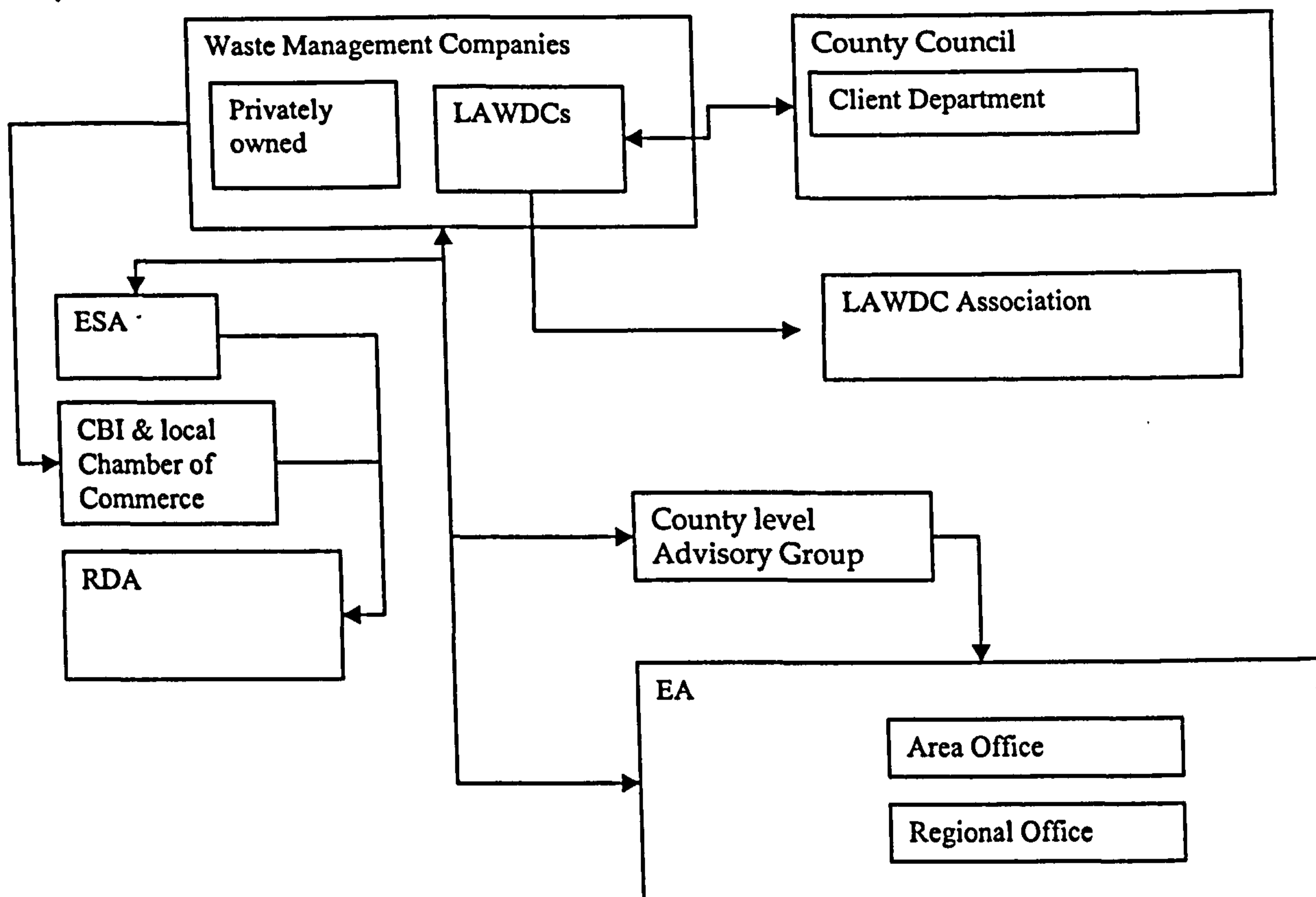


Figure 7.4: Institutional Arrangements: Waste Management Companies

The relationship between the LAWDCs and the WDA (in the case of the SW Region there are three LAWDCs, all owned by County Councils, in Somerset, Cornwall and Devon) is a complex one, or one of 'love and hate' (I 19). This is because the County not only owns the company (it is the only shareholder), but is also their primary client. Typically there is an elected member sitting on the LAWDC board of Directors, and there are regular meetings where the CC discusses the work of the company in relation to the authorities' waste management policies, and where the company informs its owners of developments in the field that are significant, or could be significant to the implementation of this policy. After all, the LAWDC and the CC share the same budget, therefore "capital spending and development works by the LAWDC impact on the County Council's spending" (I19).

The LAWDC will interface with the CC as a client through the Client Department (part of the Environment Department of the local authority), which is responsible for writing the contract, which the LAWDC needs to fulfil, and which is responsible for

monitoring the work of the company on that basis. Therefore most meetings with the 'client' are contract interpretation meetings.

The LAWDCs have little contact with other CCs and UAs in the region, which is mainly to participate in the other local authorities WLP consultation process. Apart from being members of the ESA, the LAWDCs are also members of the national level LAWDC Association, and therefore exert some influence on policy and guidance through that.

The privately owned waste management companies are represented in the various regional level bodies (such as the RTAB, the EA regional advisory groups, the RDA) mainly through the ESA<sup>80</sup>, which also has a regional branch. For instance, the waste management companies input to the RDA happens through the ESA and the CBI, they do not meet directly with the RDA. This essentially filters out medium and small sized waste management companies, since the membership to the ESA is very expensive and thus limited to the big waste management companies. The amalgamation which the sector is undergoing in recent years, means that there are only a handful of very large privately owned waste management companies operating in the SW, which have been buying out all other intermediate sized competition. The expected sale of the remaining LAWDCs to the private sector has obviously raised some concern as this might lead to oligopolistic tendencies in the collection, treatment and disposal markets (this issue will be discussed in the economics section).

The relationship with the EA works in many different levels. The waste management companies have daily contact with the area offices of the EA with regard to the operation of the waste management sites on their patch. The EA area office licenses the sites, and is responsible for monitoring their operation in terms of pollution

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<sup>80</sup> All the big waste management companies are members of the ESA. The people who represent the waste management industry for the ESA in these various regional bodies are themselves members, and typically from the Managing Director level.



control regulations. Problems do arise however, because many companies operate in more than one EA area, and “there are inconsistencies between the two, and what’s OK with the one is not OK with the other, and vice versa and it doesn’t help, and it is frustrating” (I19). This inconsistency at the area level may well be the legacy of the regulator, as formerly the CCs were accused of being inconsistent, in that what applied in one area did not apply in another. The EA, “hasn’t brought about what was intended, which was evenness of standards” (I20). The EA “...can be criticised for a certain lack of focus...inconsistencies between the regions, inconsistencies in regions, the regions they use don’t match the regional planning regions, Gloucestershire is in Severn Trent based in Birmingham, Swindon is in the Thames region, and everybody else is in the SW region and that’s partly because river catchments are a base for these regions as opposed to geographical local authority regions, and that can be confusing...” (I 17). Other institutional issues are related to problems with its internal structure, and lack of waste management expertise on the operational side of things. “...they tend to emphasise what their political masters -the government- want, as opposed to being realistic about what can be provided...they seem over focused on their internal structure rather than the end product. A characteristic of a very bureaucratic system...a lot of senior positions are taken up by people who don’t come from a waste background...so they are inexperienced in terms of waste, but that has more to do with the operations rather than the development of regional strategy” (I 17).

The EA regional offices generally deal with the regional policies, and the formation of the regional waste management strategy, as key information providers. waste management companies have contact with the regional offices and sit with them on the RTAB, and various committees or other bodies. For example, the waste management companies will be on the regional advisory groups (together with a variety of stakeholders, from county landowners associations to environmental groups - Industry Liaison Groups) which the EA sets up in order to receive feedback on its own performance, and they also participate in research groups set up to advise

on regional issues, such as recycling. The regional offices are seen by the industry as much more consistent in their approach, with a higher level of waste management expertise, and the EA itself is perceived by the WMI (waste management industry) as fairly consistent in terms of strategic issues.

The relationship of the WMI with the regional government office (GoSW) is very sparse, and the GoSW is generally perceived as not very influential. "GoSW we have very little contact with because they are normally dealing with that sort of regional strategic basis and we've had very little need to speak with them or to be in touch" (I19), and "...we get constant requests for information and things like that, but we don't have much of a rapport with the GoSW at the moment..." (I16). It is expected that the GoSW will have a more significant role to play as waste management facilities are slowly becoming more regional in nature. At present however, the GoSW is "a non-entity as far as IWM is concerned...for example, we have representatives in various groups...but I cannot think when we've had a discussion that anybody's ever mentioned the GoSW" (I 20).

The Institute of Waste Management (IWM) is closely linked with the waste management companies, and could be considered as part of the WMI. Most waste management practitioners are members of the IWM, which apart from the national council also has regional councils (SW Centre Council being the regional branch for the SW). A few MDs from waste management companies sit on that, and the chairperson has often come from the industry. The IWM, apart from providing a general forum and specialised working groups<sup>81</sup> for the discussion of technological, managerial and policy developments in the field also provide a significant amount of the training, although that has been an area of competition with the ESA, with the National Training Organisation (NTO) for the waste management industry being jointly overseen by the two organisations. The move of the regulators from the LAs to

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<sup>81</sup> For example there are within the IWM special interest groups on recycling, refuse collection, and waste to energy.



the EA has also seen a change in training practices, since these regulators who were being trained by the IWM in the past are now trained by the EA, which has constituted its own internal training apparatus. The IWM has strong links with groups such as the regional and national LARAC (Local Authority Recycling Action group), which do not have much influence on the regional aspects of waste management policy and strategic development.

The waste management companies have a strong link with the DETR as they are often invited to sit on panels (for the ESA, IWM, or as a waste management company) that consult the DETR on new national guidance, policy and other significant documents.

The relationship between the WMI and the environmental NGOs is a variable one. FoE (Friends of the Earth), which is the most influential one on issues relating to waste management, with a variety of successful local empowerment recycling projects on their record, are generally seen by waste management companies as reactive rather than proactive. " We've tried to pull them in to help...develop plans and strategy, but they don't want to do that. They just want to comment on whatever it is that you propose, so they are reactive rather than proactive...So its an unhelpful relationship, I suppose." (I 19). Instead, other organisations such as English Nature, English Heritage and a variety of local wildlife trusts are often consulted by the waste management industry. Funds from the landfill tax are channelled through local trusts<sup>82</sup> (such as SWEET in the SW) to local environmental groups, usually for small nature conservation or restoration projects.

The influence of waste management companies on regional planning is both direct and indirect. As statutory consultees to the various WLPs (Waste Local Plans) which are put together by the waste disposal authorities (CCs and UAs) they have an influence on the parts of the puzzle which - through the development of the LAs

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<sup>82</sup> These trusts are regulated by ENTRUST.



waste management contracts – determine to a large extent the regional strategy. Directly, as representatives of the ESA, they participate in the RTAB, and therefore have a strong influence on the formation of any proposed regional strategy. The WMI also has a vested interest in following the output of the regional planning conference. “Regional Planning Conference deals with all land use issues...so we as a company take interest in what the Regional Planning Conference say about housing for instance because that’s going to influence the amount of waste, what they are saying about minerals, what they are saying about the countryside in general, how to protect it, because we need to ensure that a regional balance is struck between protecting the environment and facilitating development” (I 17). Naturally therefore the WMI is interested not only in regional planning in its present form, but also the development of the RPC into Regional Chambers. This interest extends to the RDA, which is expected to have more immediate impacts as it is focused on five year plans, rather than the regional guidance which looks at a much longer time scale of fifteen years. The link of the RDA with waste management is considered as very weak at present. “I suspect a lot of the stuff the RDA is putting out at present isn’t thinking much of the infrastructure, minimising waste particularly, I think it’s a Cinderella act...” (I 17).

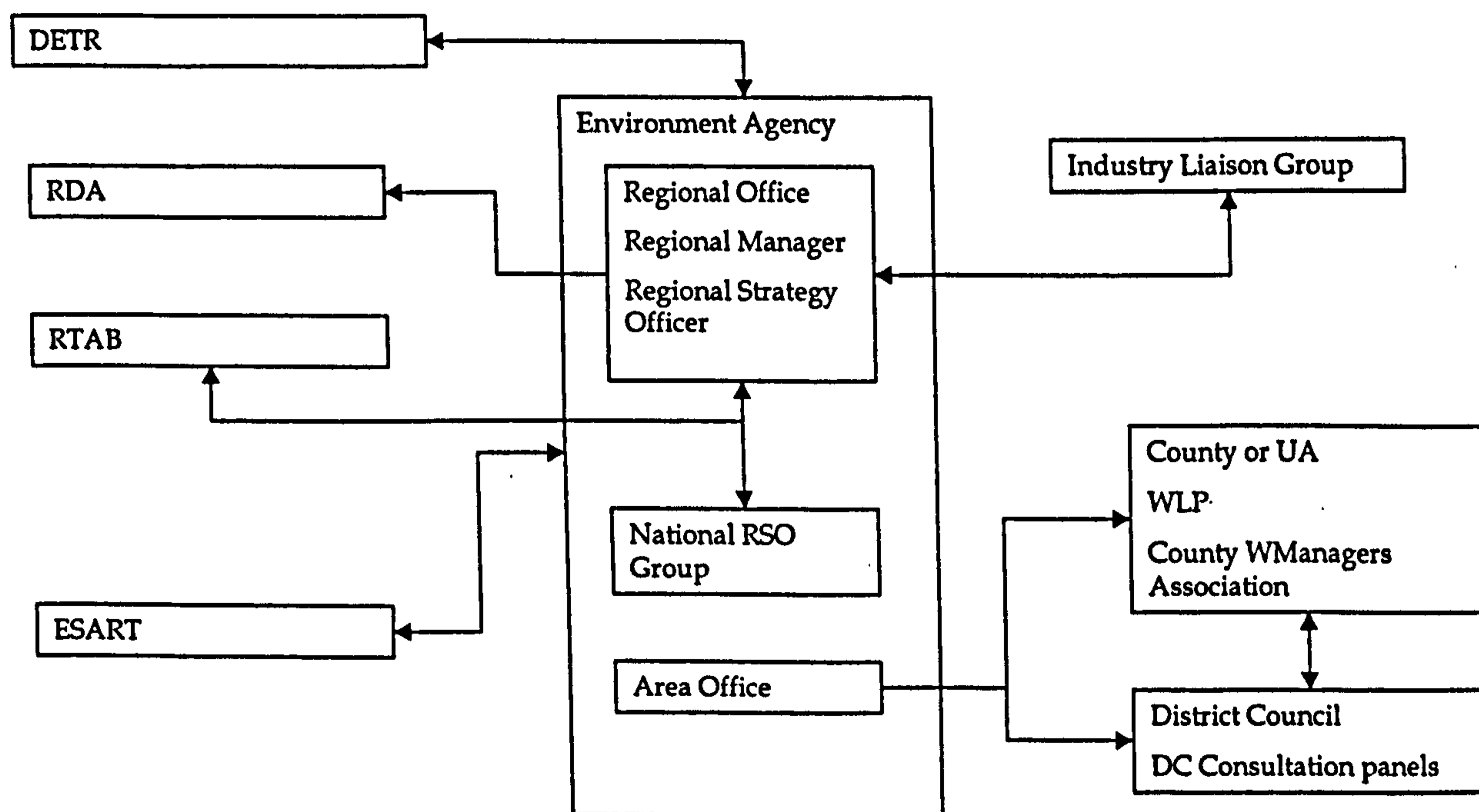
### **The Environment Agency**

The development of the EA as an organisation, from its inception to the present, is a good example of institutional change leading to modified institutional arrangements. The amalgamation of the old NRA (National River Authority, which formed the core of the new organisation) with HMIP (Her Majesty’s Inspectorate of Pollution) and all the WRAs (Waste Regulatory Authorities, formerly residing within the County and Unitary Authorities), has resulted into quite a complex organisation, a regulatory authority which is also the largest Quango in the country.

Figure 7.5 depicts some of the key links between the EA and other organisations in the area of regional waste management. It is important to distinguish between the

roles of the area and regional offices. On the regional level, the EA “acts as what you might call an honest broker, providing factual information and guidance or interpretation on matters such as BPEO, regional self-sufficiency, and the Proximity Principle” (I 21). On the area level, in addition to the guidance function (which applies to a County and District Authority level rather than regional) there is also the regulators role, dealing with licensing and monitoring waste management facilities.

The regional office sets up the Industry Liaison Groups, which are constituted from organisations such as the National Farmers Union (NFU), County landowners associations, English Heritage, CBI, and some national and local environmental NGOs. Occasionally there will be interaction at this level with ESART (the research



and training arm of ESA) on national research projects.

Figure 7.5 Institutional Arrangements Environment Agency

The regional strategy officer is a key member of the RTAB, and through that link the EA organises the provision of regional level waste management data (in the form of Strategic Waste Management Assessments - SWMAs) as a basis for ‘sustainable planning and waste management investment decisions’ (EA, 2000). Internally, the

regional strategy officers from all regions meet monthly in a group to co-ordinate and discuss strategic developments, and this internal relationship is “probably the most important one” (I 21) at this level<sup>83</sup>. The relationship with the RDA happens through the regional manager. In the SW region the EA is “keen to develop (with the RDA) a strategy for economic development, which takes into account the economic benefits of novel waste treatment methods or novel waste management methods” (I 21).

From the EA area office, apart from dealing with waste management facility licensing and monitoring and on the planning side of things, a senior officer participates in the District Council consultation panels, and in the County waste managers association (where waste managers from all Districts meet to co-ordinate and exchange information). The area staff also participate in the development of the County WLP, providing guidance and information to the Waste Planning Authority, and through the regional office in the preparation of the state of the environment report for the region, which is then fed into the RDA decision making process. The area office is also responsible for organising a variety of local forums, such as business and environment and waste minimisation clubs.

The relationship with the DETR is direct, as the EA receives all its funding from the Department, and presumably its political direction. At the national level all waste management strategy, guidance and regulations emanate from the DETR, and that provides the framework within which the EA operates. Apart from sitting in common meetings, like the Regional Conference Minerals and Waste group and the RTAB, the EA does not have a strong functional link with the GoSW.

The relationship with environmental groups again happens at the local level mostly, predominantly through participation in the same consultation panels. The perception at the EA of FoE is similar to that of the WMI, and although they are invited to the

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<sup>83</sup> “This includes planning investment in research projects, managing research projects, identifying output that the Agency can produce of information that’s being held, looking at areas where information is not being held, using local knowledge to spread best practice methods...” (I 21).



regional meetings with industry “they tend to be more active in opposition to a proposal rather than in relation to developing policy...” (I 21).

### Local Authorities

The relationships between the Local Authorities, the WMI and the EA have been discussed in the previous sections. In brief, the LAs depend on the WMI to provide the services of waste collection, treatment and disposal, in order to fulfil their statutory obligations. The LAs depend on the EA for information, guidance and interpretation of the pertinent regulations, as well as for the monitoring of waste management facilities. Both the EA and the WMI are key statutory consultees in the development of the Waste Strategy and WLP for County and Unitary Authorities, and for the Recycling Plans for District Authorities.

Co-ordination and consistency within the EA is again an issue. For Waste Planning Authorities (WPAs) this can lead to conflicting forces during public consultation. “I don’t think there is always complete co-ordination and joined up thinking between some of the EA and some of the activities of the planning authorities...and if one isn’t careful, you can get consultation responses from the EA that are contrary to policies being driven by waste planning authorities...” (I1). The relationship with the EA is strong, both from a functional perspective, but also from a policy point of view. Here again, as with the WMI, there is experience of problems arising from lack of expertise and internal structure of the EA:

“The EA are having some difficulties dealing with waste within their own organisation but we do have a reasonably good relationship with them, we tend to deal with most officers on the policy side at the regional level office rather than the area office, so unfortunately that means that some of the regional team don’t have the local experience...” (I4).

Not surprisingly, the key actors from the LAs were the ones to flag the issue of democratic deficit in relation with the EA, and other organisations such as the RDA.

“There are a number of organisations...making decisions, people ask who is this actually accountable for, who is in control of what the EA are doing...” (I1).

“...appointed by the Secretary of State on recommendation of the GoSW...certainly true of the RDA...I think it was an invitation of Chambers of Commerce and so on to put forward nominees and I think it was the Secretary of States’ decision based on regional office advice” (I1).

The GoSW is perceived by LAs as not very relevant to the development of a regional waste strategy, as “the GoSW have no waste specialists so they tend to come at waste planning from a regulatory point of view” (I4), although their influence is seen by some as more significant in the area of development control and local planning.

More significant however, for the Local Authorities in general, is the functional split between waste management planning, and waste management service provision, and the issues arising from the political presence of elected members – who after all make the decisions. The institutional arrangements within and amongst the authorities are examined in Figure 7.6.

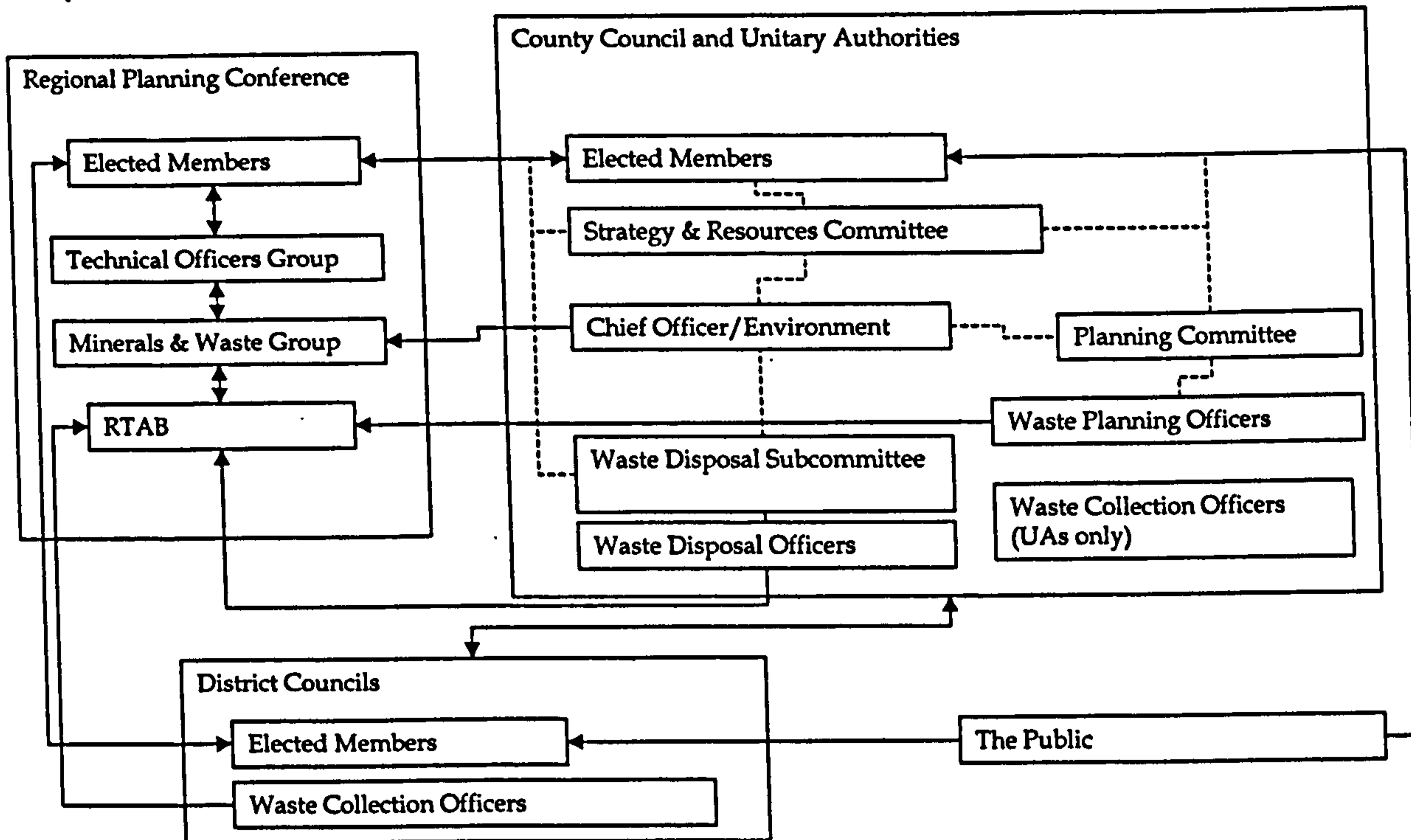


Figure 7.6 Institutional Arrangements: Local Authorities

Obviously, since the councils are based on the democratic principle, it is the elected members of the council who actually make the decisions, based on the recommendations and information provided by the waste management and waste management planning officers. Planning matters are usually dealt with through a planning committee, led by a councillor from the political party which dominates the council<sup>84</sup>. Thus planning applications and other planning matters can easily take on a political dimension, and they often do. One aspect is the attitude of the political party towards the specific issue, with some parties seemingly more keen to demonstrate their 'green credentials' than others. Another dimension has to do with the existing history of political relationships between neighbouring councils, with unresolved issues from the past often taking priority over the public interest. Political interest is present at the regional level as well. The participating local authorities send elected members as delegates to the Regional Planning Conference (RPC), where, advised by a series of sub-groups through the technical officers group, they make regional planning decisions. In the area of solid waste management, the recently constituted

<sup>84</sup> Not all councils are clearly dominated by one party. In this case, in what is generally called a 'hung' council situation, there will be a negotiated distribution of committee leadership amongst the strongest parties.



Regional Technical Advisory Body (RTAB) is expected to contribute significantly to the development of regional guidance and strategy for regional solid waste management planning. The RTAB is constituted from representatives of the WPAs – who make up the majority of the group, all planners apart from one waste manager-representatives from the ESA, the EA, the GoSW, and two from the WCAs (District Councils). A variety of administrative and organisational ‘habits’ or traditional ways of doing things, have influence on the RPC. For example, one of these traditions is that the chair of the conference (a position which moves from authority to authority every two years) takes his or her Chief planning officer with them as chair of the Technical Officers group. Senior officers have a significant influence over the decision making processes surrounding MSWM, and are perceived as ‘political officers’ in that “...you get to such a high level in management that ...you have to take on board the political influence of the group you are representing, or the district you are representing...” (I7). There is a Chief Officers society – called the County Surveyors Association- which includes the Chief Officers from the Counties and the Unitary Authorities. This group has a more national role rather than regional, and has been involved for example with initiatives to launch a waste awareness raising campaign for England.

Perhaps the key institutional arrangement with regards to MSWM for the local authorities is the internal functional split between waste management planning, and waste disposal.

“Within counties you’ve got the disposal and the planning functions. In this county and in others in the SW and nationally, increasingly there’s been a recognition that there has to be much closer working between those two sides. You need to have divides you know obviously because we’re dealing with difficult and controversial issues and they are essentially different functions. One is about planning and regulation; the other is about letting contracts and securing service delivery. But the two have interests which come together. They’re not the same. Waste disposal is about dealing with household waste, which is a major proportion, but only a proportion, of the whole waste problem. So the waste planning system has got to look at that. You know, we’ve got to be in industrial, commercial and everything else” (I2).

The public sector collects, sorts out, and manages the household waste and a portion of commercial waste (MSW). The rest of the commercial waste, industrial waste and mining and quarrying waste<sup>85</sup> is all dealt with by the market, which means that it is down to the WMI to identify locations for waste management facilities at present. At the local level, this is addressed with the WLPs, which are supposed to identify specific potential locations for the siting of waste management facilities, and which take into account – to the extent that data is available – the total volume of controlled waste. At the regional level, the constitution of the RTAB has set as one of its goals to identify such needs for facilities and also to come up with some ideas about siting, although to what level of specificity is still under debate. There are certainly some significant opportunities for development in this area (more on this in Institutional Change). To a certain extent, this functional split has its source in the statutory environment:

“...you’ve got two levels of legislative streams – town and country planning legislation here and environmental protection legislation there. Different objectives, both dealing in the same subject area. Where the hell are they being integrated? They’re not even being integrated in my view, in the right way, at government level, within the same government department. You know, you have a waste policy division which is dealing with environmental protection and waste management issues, and the waste planning division within minerals and waste division, which is trying to advise planning authorities on how they can make a contribution to solving the real problem which is over there. But the two aren’t being fitted together in the right way” (I2).

This is reflected at the County level in the production of two important documents, the County Waste Strategy, and the Waste Local Plan. The strategy deals with the MSW generated in the county, for which the County as a WDA is responsible. This document reflects national guidance, and is there to give a more local slant to what are in effect EU policies on waste. The WLP on the other hand deals with all controlled waste, in terms of planning for the provision of sites for facilities for it, although the Local Authority does not actually manage the majority of this waste. Although the planners have to plan for all of the waste, the waste disposal managers

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<sup>85</sup> The rest of the waste is actually the majority of controlled waste.



- who have to secure the provision of the service from the WMI through a contract - can seriously predetermine any planning outcomes through the contract they prepare so long as they adhere to the local waste strategy. On the other hand, politicians and planners can raise a barrier to inter-authority co-operation in MSWM.

“There was a strong argument, which we put forward, for waste planning and waste disposal to be carried on at the former Avon level through co-operative operations. That was never accepted by the politicians and the chief officers for waste planning and the grouping that was established for waste disposal only lasted a year and then it folded. So that’s a big fault...” (I3)

The system thus has an inherent flaw, which has led many local authority officers to prefer the Unitary Authority organisation to the County: “A lot of us would have loved to have seen Unitary Authorities just getting on with the thing properly” (I11). The functional split between Districts and Counties, where Districts are responsible for collection and Counties for disposal, presents a similar challenge to sustainability, as they are functions under different authorities, often with different political agendas. Inevitably there is a power struggle for functional control:

“The disposal authority...will ultimately determine through their contracts what form of waste disposal is going to be the appropriate one, whether it’s landfill, incineration or otherwise. That will therefore determine how the collection authorities will operate...where and how they deliver their waste...something which maybe some districts, politically, may find difficult to live with.” (I11).

### **7.3 Economic Factors**

So far, this study has addressed the perceptions of key actors and organisations on issues that are at the core of sustainable MSWM, and examined the organisational institutional arrangements, which create the existing barriers and potential ways forward. However, the picture is not complete without a look at the economics of MSWM, a look at what resources are available and how they are distributed, or who controls them. No matter how well the policies and systems around them have been



designed and built, they will not be very effective without adequate resources to implement them.

Resources are always limited, and that of course raises the question of who should pay for what aspect of waste management, as well as how much are people willing to pay for a better environment.

### Cost of MSWM

One could argue, and many of the key actors interviewed have, that the amount of money spent on MSWM per person is too low. "It costs between 25 and 30 pence per person per week in Gloucestershire (for waste disposal); its irrelevant as an expense. Completely...One Mars bar per week... and for the price of two Mars bars you could do everything you want to the waste, separation, recycling etc." (I15). However everything is relative, and although a Mars bar doesn't seem like a big thing, "...pensioners are going to get two Mars bars rise and they're up in arms. So...maybe two Mars bars a week is significant to a large proportion of the population" (I20).

The burden of cost for MSWM falls upon the Local Authorities. They have the duty to collect and dispose of the waste, no matter how much of it is being generated. As a LA officer comments:

"I'm paying £23/24 per ton to get rid of the rubbish. Now whatever comes through the gate I've got to pay for it .I've got the contract which says I've got to pay for it so it's an uncontrolled budget, I cannot do anything about it." (I6).

The objective of the European and UK waste policy is to move away from landfill, and up the hierarchy of options, which includes incineration with energy recovery, recycling and composting, re-use and minimisation. The government has moved to create a disincentive in the solid waste market by increasing the landfill tax, a move which immediately increased the cost of MSWM to LAs:

“...waste management costs in the last three years have increased by ...30-40%...largely through the introduction of the landfill tax, but you know that’s been a huge difference.” (I2).

But are people willing to pay more to move to a more sustainable way of managing waste, and are their representatives in the local councils willing to take on the political risk of increasing the council tax? The increase in cost required at present is quite substantial:

“...to go from cheap and cheerful landfill to some system based on separation, available treatment, incineration, which might be 50, 60, 70 £/ton, even more if you get kerbside collection...Are they (the people) going to like to have to pay 3-4 times what they do at present for the management of waste? In the council tax, waste is a small amount of money compared to education or social services, but never the less, I don’t know any LA that will say ‘we can expand our budget by four on waste’.” (I17).

One of the problems is the cost of landfill relative to other options. “We pay £30-50/ton for recycling, but you can still dispose of waste in this country for £15 a ton.” (I20). The willingness to pay, at least when it comes down to the elected members, just isn’t there:

“It’s a brave politician that’s going to put waste in front of the cuddly matters (education, social services).” (I6).

“The local authority members, the councillors, they have to voluntarily cap the level of the Council charge, so a lot of people when asked say ‘oh yes, we’d much prefer to pay for a more sustainable and environmentally sound (management of waste) – but when it comes to the crunch, they don’t. And that means that...the local authorities tend to go towards the cheaper end of the market.” (I19).

The WMI, like any other business, are there to make money, and unless there is a legal requirement or a financial incentive for them to do otherwise, will go for the cheapest option – which is landfill. “The government has indicated that it realises that there are costs attached to changing waste management practices, and they’ve undertaken – though its no more than words at the moment- to review it in the next comprehensive spending review.” (I2). In the meantime, the introduction of a £10/ton landfill tax has been a huge burden, which CCs and UAs have had to pick up

on their own. The issue becomes more complicated, and at the expense of the efficient use of taxpayers money, when one considers the relationship between authorities:

“...if the county says that they will go to a centralised transfer station, then the district’s bill goes down, and vice versa if the county said we want kerbside collection of recyclables, then the district’s bill goes up...that means that quite often, because they are single units they could consider making decisions to serve their budget, even if it costs the other budget more, so overall the taxpayer pays more.” (I16).

“...one of our districts went to wheelie bins, didn’t talk to us about it, immediately banged up the waste output from that district by 24%...had major implications for us in terms of our budget for waste disposal...” (I4).

The cost of MSWM is rising, not only because of the need to move towards more environmentally friendly options that are more expensive than landfill, but also because of the need to secure public acceptance and participation. Thus more funding is required in the consultation processes, as well as in the process of planning dispute resolution.

“The practical reality is that Hampshire spent over £2 million on project INTEGRA focus groups etc....its just unrealistic to expect that level of financing coming into this sort of process...”(I4). “The local community which is having to deal with the development are obviously at a disadvantage because they don’t have the resources to ...actually support their position...once you get into a Public Enquiry situation...for a modest waste management proposal you’re talking about a quarter of a million pounds on each side...because the planning authority ducks the issue – doesn’t decide the facts...they delegate it to the Secretary of State.” (I19).

One of the problems with public participation in the consultation process is the significant lack of it. Interviewees attributed this to two factors. Firstly awareness, and secondly lack of financial incentive. Thus, although the cost structure of MSWM is changing drastically, this does not become apparent to the public, as it is not reflected in any direct change in the charges people pay. If people had to pay directly by weight for their waste to be managed, it would still have little effect on the householder under the present arrangements, since the cost of management is so low. The public therefore needs to become aware of the rising costs of MSWM associated



with a higher degree of environmental protection, but also of the opportunities associated with it.

“If people can be made aware of the impact on their wallets, not managing waste better than we do at the moment, then that’s the way forward...” (I2). “The front end, is going to require changes in culture, ...market mechanisms, fiscal mechanisms...to change attitudes...it has to be representatives of the community, which is government and local authorities (to do that)” (I17).

The government however has shown little commitment to paying for improvements in MSWM, let alone in raising public awareness, as one interviewee states:

“...what commitment have the government got to it (the national waste strategy)? ...It’s all nice and woolly and comfortable but there is no action plan with the strategy they’ve got.” (I6).

“Councils...taking the lead because there is a strong financial incentive for them to minimise the amount of waste have to collect and then dispose of, so the educational role will probably fall to them in absence of the government doing anything nationally.” (I3).

The problem of course is that when it comes down to the LAs, they just cannot afford it: “Our problem...is that public education is extremely expensive and we don’t have the financial resources...” (I8).

An interesting point raised by one of the interviewees was concerning the cost effectiveness of waste management spending with regards to global sustainability. The point made was that the cost effectiveness of improving waste management practices and infrastructure would be much greater in more problematic areas, such as Eastern Europe, which has a much worse track record of environmental impacts due to the management of solid waste than Western Europe. Therefore the ‘north’ should pay for the ‘south’, although the interviewee expressed doubts about that happening, due to presence of strong barriers from vested interests (I22).

**The economics of MSWM options**

Although the debate between those who support the 'recycling only' and 'burn it all' options continues, most of the key actors interviewed take the position that a mix of waste management options is unavoidable. This is mainly due to the immaturity of recycling markets, lack of provision of local and regional facilities, and the pressures from EU and UK policies to achieve high recovery targets.

The markets are naturally susceptible to changes in supply and demand of materials, and the pressure to recycle can have a "huge impact on recycling markets", working against the drive to recycle higher levels of materials, as "... one of the key problems we are having now is the instability of the recycling markets..." (I2). This instability in market prices is present in the markets for all materials (metals, glass plastic, and paper), especially in the case of mixed paper, where the market recently collapsed, forcing many LAs to changes in collection systems. "Certainly being able to incinerate...(adds) some flexibility..." (I2). This is one of the key economic reasons why a mix of recycling and EfW (Energy from Waste, or incineration with energy recovery) is looked upon favourably by most actors.

One of the ways to move towards sustainability is the development of local markets "...ones that are self sustaining, not ones that need financial support all the time..." although "...you might need to 'pump prime' the markets..." (I21).

For the markets to reach a self sustaining level, where the prices of recycled materials are high enough to justify the collection, separation, transfer and treatment of materials, there needs to be a high level of demand for these recycled materials. This means "promoting recycled products...through fiscal incentives...(and) to have legislation to ensure you've got markets..." (I18). One interviewee complained about the "stacks of green glass" they had difficulty getting rid of, and the price of metals being so low, "...its not worth hauling, unless you say we will meet a recycling

target..."(I16). The problem is not the ability to collect and segregate the materials, but "...doing it at a reasonable price and then selling the commodities on"(I16).

The situation is much the same in the case of the composting markets, and most interviewees were sceptical about the sustainability of large scale composting of MSW, although there are apparent benefits in promoting home composting because it reduces the total amount of waste which needs to be treated or disposed of. The difficulty with the composting markets is the final product, and in particular the food waste component of it.

"The markets for composted municipal waste are non-existent. We have to pay farmers to take away our compost - (made from) green waste-which is relatively pure. When it's mixed with food waste and all sorts of other things the farmers won't touch it..." (I19).

Most interviewees agree that some form of government intervention is needed, in the form of economic incentives such as for example legislating that "something from predominately recycled goods should be 0% VAT."(I20). Funding for the development of recycling markets could come from "...landfill tax money...to go directly into supporting recovery and recycling and not into other activities like restoring a church or developing parkland..."(I21). It emerges that one of the key barriers to the funding of recycling markets is the unwillingness of government to give up an 'untagged' source of income<sup>86</sup>, as well as its reluctance to intervene in the waste management markets (which leaves MSWM in the UK very much market dominated). There is scope for increasing recycling rates, but "... (recycling) has to be subsidised until the markets can get established and the trouble is the government and local authorities don't seem keen on subsidising it to any great extent."(I19).

Another barrier in promoting recycling is the lack of knowledge about the environmental impacts of various recovery options. "Nobody can put their hand on

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<sup>86</sup> By allocating the income from the landfill tax to bolster recycling, the government would have to forgo the opportunity to use that income to plug in gaps in the budget in other, more visible to voters, areas.



their heart and say incineration with energy recovery is the BEO (Best Environmental Option). Nobody can put their hand on their heart and say regrinding glass and making new bottles is the BEO. There isn't enough information there." (I21). A serious attempt to come to an informed decision about a mix of waste management options has taken the form of the LCA (Life Cycle Assessment) for waste, a version of which has been launched by the EA. However the majority of interviewees expressed reservation on the use of such software, either taking the position that recycling is more of a political issue, and what people expect, or because such software can be used to advocate for whatever solution the analyst supports.

One major factor contributing to the environmental burdens of recycling is the long distances that recyclates have to travel to be processed. This burden can change the desirability of recycling drastically from area to area. For example the viability of recycling glass is a totally different story for Gloucestershire (at the far northern part of the region) than it is for Cornwall (at the far south-western part of the region), as the processing plants are in the Midlands. This raises the issues of facility provision for the region, the planning for which is due to be facilitated by the work of the RTAB.

"...there will be the need for particular facilities to be encouraged and to be provided in this area. At the moment, recyclant is travelling huge distances to market." (I2).

This is not a matter only of providing new facilities, but also of maintaining existing ones. One key actor (I16), for example, complained that he could not get a contract directly with the paper mills, he had to go through a waste paper merchant because the mills would not deal directly with paper collectors. As a result, the opportunity was lost to put pressure on clients to buy paper from that mill, and eventually the mill closed down. The paper now has to be hauled much longer distances to be processed<sup>87</sup>.

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<sup>87</sup> This is a good example of a barrier to SMSWM purely due to existing institutional arrangements.

Economic instruments used to promote recycling by providing additional financial incentives have not performed as expected by the key actors. The Packaging Recycling Notes (PRNs) have created expectations for the Waste Management Industry and LA waste managers, which did not materialise.

“...they’ve had hardly any effect as far as we’re concerned, as a waste disposer, and we can’t get hold of the revenues which are supposed to be available – these PRNs and things- that seem to be sewn up between the major players within the industry, that produces the packaging...so the supposed financial benefit that was going to arise from that was supposed to trickle down and assist in paying for recycling facilities and improving markets – just hasn’t happened.” (I19).

“...well, lots of church walls being built .I’d like to see the money put back into recycling, into the recycling market as many of my colleagues would, which the government don’t seem to want to push...because it will distort the market, that’s the biggest problem the government have got against it.” (I6).

“...the packaging directives seem to hold up quite a bit but it’s not hitting home and it hasn’t improved the recycling market at all. It has not fed anything back to the people to put out recycling means to make them stack up economically.” (I8).

*Economies of scale* is another factor which influences the viability of both recycling and EfW solutions. In the case of recycling, one dimension of savings can be realised through co-operation amongst collection authorities. In Somerset for example, the LAWDC for the county makes its recycling facilities available to all the districts, and as a result has one storage facility instead of eight (which would be the number of facilities if each district had its own) (I21, I16). As well as sharing facilities, some districts act in unison as a seller of recyclates, thus managing to extract a better price for them than they would by trying to sell on their own.

“Hopefully we’ll be able to get some more selling power, rather than 6 authorities doing 100 tons each, then they’re suddenly dealing with one big player – 600 tons- we might be able to get a better price.” (I4).

Recycling and EfW are however interrelated, and in some cases economies of scale can be working against what is environmentally sustainable. Incinerators (EfW



plants) need to be a certain size in order to make a profit over their 20-30 year life span – mostly due to the large initial capital outlay required.

“...there is nothing like a 300,000 or 400,000 tonne (per year) incinerator to make quite a bit of money...and the cost to local authorities or commerce will be kept at reasonable levels because of the scale of the facility.” (I19).

This means that for LAs with small urban centres, large scale incineration would not be an option unless the contractor could secure similar contracts from adjacent authorities, thus spreading the catchment area and adding to the distance waste has to travel. “Industry wouldn’t be able to secure the funding to build major projects based on unsecured contract waste.” (I17).

This also poses the question of whether the trend towards incineration evident in the UK today, is creating a barrier to higher recycling rates. Most LAs interviewees seemed to believe that the issue of the ‘waste hungry incinerator<sup>88</sup> could be overcome with careful planning. Thus a LA would contract itself to send to the incinerator an amount of waste per year, which takes into account more recycling, even if that does not happen in the short term. This however would be difficult to achieve if the waste collection catchment isn’t large enough to justify an incinerator. For this reason, many interviewees would prefer the development of smaller more modular type EfW plants (gasification, pyrolysis). Smaller plants would also be easier to get planning permission for, since there would (presumably) be less public opposition to them.

“...the smaller a facility, the more acceptable to a local community, the more expensive its going to be in terms of unit cost of disposal...it’s a decision only a community can make in the form of local authorities or the regional authority...about how much it actually wants to pay to achieve something which is perhaps more sustainable than a bloody great incinerator.” (I19).

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<sup>88</sup> This refers to the fact that incinerators are built on the basis of contracted waste, i.e. the client (LAs in the case of MSWM) is obliged to pay for a minimum tonnage of waste per year, regardless of the waste actually generated. Thus if LAs were successful in increasing recycling rates they might run the risk of paying a penalty in terms of increased costs, which would act as a disincentive.



However the smaller EfW plants suffer from technological problems, making them at present unavailable.

“Love someone to show me a small pyrolysis plant that actually worked. They don’t exist. The biggest problem is that they have to chop up the rubbish first...put a gas cylinder in, the whole thing is out of action for two months.” (I6).

One of the problems is the lack of investment in alternative technologies to help them develop to a stage where they are commercially viable. Instead, continuing investment in the ‘old and tried systems’, such as landfill and large incineration plants, presents a barrier to entry for the new technologies.

“...a modern landfill is a very major investment – in order to get the waste management licence – so you need a lengthy contract in order to get the payback. And that is contradictory to taking advantage of developing technologies.” (I3).

### **The Waste Management Industry**

Economic factors have been significant in the development of the present structure of the WMI. In the case of the LAWDCs, their fate can be explained by looking at the institutional arrangements surrounding their operation. Essentially the LAs have sold off their arm’s length waste management companies to the private sector, and the three LAWDCs remaining in the region are expected to be on the market soon. One LA officer talks about the contradiction between the duties placed on LAs as waste disposal authorities, as they have a “legal duty to divest themselves of their waste disposal operations to private sector ...at the best possible price...You can take into account environmental factors, but essentially, it’s going to be done on price.” (I3).

There are two main reasons why the LAWDCs have been sold. Firstly “...the way the LAWDCs were set up you could not actually borrow any money to push the company on, any borrowing came out of the county’s borrowing requirements, so if the county wanted to borrow any money it couldn’t borrow any for education.” (I6),

thus the companies cannot expand to adapt to the present market environment, which requires high levels of capital outlay for new facilities to meet higher environmental standards set by the regulatory environment. A second factor is that although at present these companies are a good asset, and could be sold to secure money for various public programmes, in the future "...you're going to have a liability if you are not careful, because they're all landfill based and with the (landfill) directive coming along, they're going to have to invest lots and lots of money, and they just haven't got that money and therefore they are going to have to go towards finding some way to selling them off..." (I20).

The sale of the publicly controlled waste companies fits in well with the strong trend of amalgamation in the WMI. This trend, evident in the South West Region, has caused concern to many of the key actors interviewed. The MSWM market in the region is now controlled by five large companies, which in turn are controlled by multinational water companies (see Figure 7.7). Solid waste management is big business. The solid waste market in the UK was estimated to be worth £9 billion in 1999, of which £1.5 billion annually accounts for household waste alone (DFAIT, 1999).

WM Company	Turnover (£ mil./yr)	Number of Employees	Parent Company	Affiliation
Cory Environmental	90	1,000	Excell Plc (formerly Ocean Group)	
Biffa Waste (now own UK Waste)	291*	2,000	Severn Trent	French Water Company
Onyx			Vivendi Group (£20 billion turnover/yr)	French Water Company
SITA	400	6,000	Suez Lyonnaise des Eaux	French Water Company
Viridor (formerly Haul Waste)	100		Pennon Group	Owns SW Water

\*Combined Biffa and UK Waste turnover

Figure 7.7: Big Waste Management Companies operating in the SW of England.

"...United<sup>89</sup>, Biffa, Cory, Sita... There are 3 or 4 major groups. The interesting thing is United Waste is owned by Group Track in Belgium who are owned by De Suez who actually own Sita, so the ownership goes back all the way. Look at most of these companies and the ownership goes back to 2 major French water companies. A very tangled web." (I6).

"4 companies... they are all major conglomerates, and my understanding in the waste business is that the formation of larger and larger companies by taking over the smaller operations has been increasing. It's those companies who will seek to be represented on regional bodies, in their own interests, and they are the Biffa and Onyx and Sitas and so on of this world who are active to do that. The problem is the more and more amalgamation that's taking place, and the less and less larger companies there are in the market place, the more you move if not towards a kind of monopoly, the more you move potentially towards a cartel situation in terms of the influence of those on the market and policy development and everything else. And that is worrying." (I1).

<sup>89</sup> United Waste has now been bought by Biffa Waste, a subsidiary of Severn Trent.



Competitiveness is an issue that concerns LAs as WDAs, but also commerce, both of which would like to keep disposal prices low. Also of concern is the influence big conglomerates could have on waste policy, although that is easier for LAs to control for through individual contracts, which set out the targets and involve substantial financial penalties for non-compliance.

“On the regional perspective it is a concern about a small number of large players, that’s what we already got in the SW. Devon and Somerset is dominated by Haul Waste<sup>90</sup> and Devon Waste Management. Cornwall is totally dominated by CES, they take all waste arising. They have a monopoly on that and because they have the MW landfills they then got virtually a monopoly in disposal of commercial waste and clearly that is there’s got to be an element of anti competitiveness in that, and we would ultimately desire a level of price competition to maintain cheaper prices for the WD authority and for the commercial sector. We have been noting for a number of years the development of a smaller number of bigger companies in the waste management industry, it was predicted in the late 80s when it was put on notice that CCs would have to get rid of their own waste disposal operations and go to some form of at least it being arm’s length. It’s happening on a daily basis and going into the hands of a solid waste company becoming bigger, they have been cross poached by privatisation of the water industry. They’ve all been bought by French water companies, and now it’s in the hands of 3-4 companies. That can’t be good in the long term, and it is a concern... it’s down to things like the WLP to try and maintain a competitiveness in the market and that we get the situation that the authorities and local residents want rather than what these big operators say want to provide...” (I4).

The changing demands of waste management means large capital investment over many years, which creates a barrier to entry in the industry. “You are talking of contracts with an investment potential of £100-150 million over 25-30 years which only the major companies are going to be able to afford.” (I6). The big waste companies are very aware of which contracts are coming up, and they have as a result consolidated themselves geographically so that they have a virtual monopoly over the market in some areas. This raises the possibility of collusion amongst the big players, which would result in some agreed territorial division of markets. If this were to happen LAs “could be taken to the cleaners.” (I6). Another potential

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<sup>90</sup> Now called Viridor, and owned by Pennon Group Plc, which also owns SW Water.

consequence would be a slowdown in research and development of alternative technologies.

“You need a chance to develop new, novel ways of managing resources and I don’t think big, dyed-in-the-wool companies are the best way to do it. In fact, most of the development in the waste industry hasn’t come from the big waste companies. They’ve just done what they do to make money. I don’t think it is a particularly sustainable way forward.” (I21).

“...if you had a monopoly...the incentive to research – to actually improve things – would dissipate.” (I20).

Even the key actors from the big waste companies agree that the industry is very acquisitive, although they were quick to allay any fears about lack of competition – at least competition amongst themselves.

“...formal or informal allegiances ...a synergy between businesses and at present the industry is very acquisitive... the bigger companies are taking up the smaller companies. That’s I guess a characteristic of the immaturity of the business at present ...so there’s a lot of shifting there’s always competition, there’s always the common goal which is indicative of our involvement in ESA. There’s a common goal but were still commercially competitive with the constitute members of the ESA...” (I17).

## 7.4 Institutional Change

This study has focused on regional institutions for MSWM. This section examines changes in regional institutions that are occurring at present, and changes in institutions at the regional level, which interviewees have highlighted as significant and necessary for the attainment of sustainable MSWM. The issues discussed cover the need for a regional level outlook on MSWM, regional self sufficiency, sub-regions, influences on the regional strategic development process, and issues surrounding the development of Regional Chambers and the RTAB.



**The need for a regional approach**

One of the main driving forces for a regional approach to SMSWM comes from the statutory environment. The EU Framework Directive on Waste mentions the need for a network of waste management facilities developed on the basis of regional self-sufficiency and the Proximity Principle. It is not clear however whether this refers to regions of the EU, or regions within the member states. According to one interviewee “...the regions are the regions in the EU, I don’t think it (the framework Directive) means the regions in England and Wales...there’s been something that’s been lost in the translation.” (I21). In the UK, the significance of dealing with the strategic nature of waste at the regional level has been emphasised by government policy guidance.

“...Planning Policy Guidance 10 is suggesting that there is a role for regional planning conferences which looks like it’s going to become more important and it might become quite specific in terms of analysing information and giving clear guidance about the spatial distribution of facilities...” (I 1).

In terms of markets, the economic drivers present in the area of recycling suggest that the regional scale is more appropriate because “...the contracts you can derive are better, your purchasing power in terms of impact is so much better at a regional level.” (I 7). The pooling of resources into regional facilities also provides potential benefits, although the environmental impact of transport is a significant and unresolved issue in this area. “I think there is a case to be made for regional facilities providing the infrastructure – the road or transport infrastructure – can make it sustainable in that way.” (I8). This issue of scale is significant in the case in the SW, where the size and rural nature of the region means that there are large areas with a small number of people, and where “...there’s an advantage in having a far bigger catchment area and a far bigger population in terms of waste disposal facilities.” (I 16). The economic drivers and influence of the markets could prove more consistent and powerful a force than the statutory influences. The region, according to a key actor from the WMI, “...will develop because finance ...and the marketplace will actually drive it to a more regional service we are providing. If you look at some of



our landfill sites now, they are starting to work as regional facilities, not local facilities..." (I 16).

Apart from statutory and economic drivers, there is also a significant potential advantage in organising waste management planning at the regional level, and that is the overcoming of barriers related to local politics: "I think it should be done at the regional level because the counties are too close - a parochial situation comes in..." (I 19).

The experience of devolution in Scotland and Wales also supports looking at waste management planning at this scale, and is a significant driver for regionalisation in England.

"It's pretty clear from the experience of devolution we've had in Scotland and Wales that the environment...is considered to be a matter which lends itself to local government...certainly within a regional assembly or the Welsh Assembly or Scottish Parliament. All of the responsibility for the environment has gone to those elected bodies, and that includes waste, it includes planning for the arrangements that need to be made." (I21).

Within a region there is the need for siting substantial waste management facilities (whether substantial in size or in number is a matter where opinions are divided), from transfer stations to reprocessing to final disposal. Bringing local authorities together at this scale "...helps to motivate to actually reach ...decisions that need to be made." (I 23). The regional level can help to overcome the 'do nothing' inertia often present in the area of MSWM where difficult and unpopular decisions need to be made.

The drive to regionalize the planning function of waste management and to create a strategy for the region is significant not only because it is the product of institutional change, but also creates a drive for more such change.

## Regional Self-Sufficiency

The term 'regional self-sufficiency' has been used in both the EU Waste Directive, and in the Waste Strategy for England and Wales, although it has not been defined in either document. This adds to the confusion surrounding the concept, although most interviewees interpret it to mean that "...every region has to face up to its responsibilities...I think it's ridiculous ...shipping waste out of the region and dumping it on some other poor sod. Similarly, I wouldn't necessarily want to see large quantities of waste coming into the region from outside." (I19). The link between the generation and disposal of waste is important because it creates an "...incentive for that region to try and minimise the amount of waste that's produced....if you can just get rid of it...you won't focus on trying to reduce (it)" (I 19). A similar definition is that regional self sufficiency "...is to ensure that at the strategic planning level BPPEO and BPEO isn't different. There's adequate facilities, and it's dealt with close to where it arises, assuming that is the most sustainable solution." (I 17).

The question that arises is what to do with waste which is generated in areas close to the regional boundaries, or what to do when a waste management facility is located just across the boundaries in the adjacent region. In this respect, interviewees generally agreed that regional self sufficiency needs to address the cases where waste travels long distances to be treated or disposed of, such as the case of waste from London being disposed of in Northamptonshire, or recyclates from Cornwall going to York for treatment. The "Proximity Principle has got to prevail over regional self sufficiency, because the boundaries for regional self-sufficiency are meaningless, they don't stand scrutiny." (I 22). In fact, in terms of planning, regional boundaries are drawn according to political administrative boundaries and not waste management regions<sup>91</sup>. This then raises a number of issues. For example, how would self-

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<sup>91</sup> Were waste management regions to be defined and used for planning, one could make a case for a more strict application of regional self-sufficiency since it would be inefficient -both economically and environmentally if those were the criteria used to define the waste management regions- to do

sufficiency apply to a county such as Gloucestershire, which is closest to Herefordshire, Worcestershire and South Wales and all the waste management facilities there, than to Devon and Cornwall? Some of the interviewees have argued that Gloucestershire might even be more naturally part of the Midlands region than the SW. The political versus environmental boundary issue "...comes to a head because from an environmental point of view ...(waste should) go where it has least environmental impact, for the BPEO, whereas politically, very often, other considerations, like who shouts the loudest...can affect that decision making." (I24).

However, in spite of the unresolved issues surrounding regional self-sufficiency, the key actors perceive it as a powerful driving force that will make MSWM more sustainable by placing the responsibility for the waste on the region where it's being produced. The immediate requirement is then to compile data on the transfer of waste to and from the region, a task undertaken by the EA in the production of the regional waste management strategic assessments. Such data needs to be carefully analysed, since movements across regional boundaries can be deceptive. For example, one interviewee pointed out that Warwickshire is often considered the dumping ground for the West Midlands, yet "...when you actually analyse it ...the majority of that waste is going to the largest landfill in the region, which happens to be less than 1 kilometre inside Warwickshire at the junction of M6 and A46. If you move the landfill 500 meters to the east then you could argue there wasn't an issue." (I 22).

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otherwise. Most interviewees however expressed the view that it would be too difficult practically to use regions other than the existing planning ones, because of the re-organisation involved, and the fact that then one would need to define separate regions for different functions, such as water management, and mineral planning. Yet, waste management regions must be considered to some extent in order to fulfil the Framework Directive requirement of providing adequate facilities.

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## Sub-regions

The SW region is the largest of the English planning regions, and very diverse in character. Both these characteristics are significant in planning, and therefore it was no surprise that interviewees brought up the issue of sub-regions.

“There needs to be an identification that we do have a region which is made up of a number of sub-regions...The policies that are required need to reflect this regional disparity because there is no doubt that some activities, which are beneficial or welcomed in large conurbations, will not work in rural areas.” (I 21).

“...sub-regional because you’ve got Cornwall at the one end and Gloucestershire at the other...they’re a million miles apart in all sorts of ways, in attitudes and their economies and everything, so there’s a role for sub-regional self-sufficiency and sub-regional strategies...” (I 19).

“Industry’s general view is that the management of waste will be served by a spectrum of facilities, even in regions what’s appropriate in North Devon isn’t going to be appropriate in Central Bristol for instance, its horses for courses, and each region throughout the country has very diverse democratic balances.” (I 17).

Certainly the provision of clusters of facilities centred within sub-regional areas would add to sustainability by reducing the amount of haulage involved in the disposal of waste at a landfill, or the treatment of waste in an EfW plant. Composting could also be carried out in a sub-regional way. Recycling would benefit from centralised transfer stations which could also provide compaction and baling of materials. Most interviewees had a well defined idea of what the delineation of these sub-regions should be, which in general would group Cornwall, Devon and parts of Somerset in one sub-region, Former Avon authorities in another, Eastern Somerset with Dorset and Wiltshire in a third. Gloucestershire, at the far northern part of the region presents more of an issue because in terms of waste management it is more closely associated with other regions rather than with the SW. “For Gloucestershire...it might not be the SW region, it could be a mixture of regions, that’s the problem...it could be the Midlands and Gloucestershire, or the Midlands, Wales and Gloucestershire combined together.” (I 6). However, there is no mechanism yet for identifying sub-regions although the major urban areas are

obviously going to be instrumental just because of the large amounts of waste generated there. The data gathered through the strategic waste management assessments is expected to throw more light on the subject. The RTAB, whose role includes the collection, analysis of regional information and the development of a regional strategy, anticipates the need to break down the assessment for future requirements into different parts for the various sub-regions. "I don't think there's any doubt that they'll be sub-regions in the SW. What the RTAB has got to do is make some recommendations about what they should be." (I 3).

### Influences on Regional Strategy

#### Data

One of the problems the RTAB faces in terms of regional level data, which it needs in order to make recommendations on waste planning for the region is the historical absence of comparable databases. The local authority planners have "...very little idea what waste arises from the industry and commercial sector directly" (I 3) and although the EA carried out a national survey last year it only gives an idea of the magnitudes involved. Further surveys (which would be carried out every four years) would be necessary to establish a trend. "And for inert waste, which is actually quite a big issue in terms of landfill space, nobody's got a clue...nobody's even measuring it." (I 3). One needs to compound that with the fact that data collection and licensing requirements for operators in England has not been standardised<sup>92</sup>, to get a feeling of the problems the EA faces in churning out a reasonably accurate regional picture.

"There has been flexibility in the past about the way in which the conditions and requirements are imposed on that licence, including the reporting of information...there are huge inconsistencies in approach, quality of data, between local authorities...and there are differences within parts of the same organisation, in the case of the Agency." (I 2).

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<sup>92</sup> "...87 waste regulation authorities with probably about 94 different ways of doing things..." (I 3).



## Guidance

To the lack of data one must add the lack of guidance. Many of the key actors brought up this issue, stating that neither the National Waste Strategy, nor the PPG10 (Planning Policy Guidance notes for waste) do enough to facilitate the decision making process related to the siting of facilities, which are necessary to implement any regional waste strategy. PPG10 "...doesn't solve the problem, because it's not insistent that local authorities grasp the nettle...to set out the various proportions of waste which are available for the different treatments and then get on with it, rather than...everybody arguing and putting decisions off and we end up with the ...default solution, which is landfill." (I19). At the moment, regional planning guidance for the SW is even less helpful than national guidance, in that it barely mentions waste management, as it was written before the RTAB had even officially constituted itself. Some criticised the SW Region for being ineffective. "If you compare what we do in the SW with what they do in the SE and London...the commitment to put resources into a regional discussion isn't there<sup>93</sup>, and won't be for some time." (I 7). Regional Planning Guidance (RPG) would have to develop significantly and become much more prescriptive to have an effect or even replace local structure plans, overcoming the local political NIMBY barriers and facilitating the provision of facilities. However present arrangements would not suffice, as "...at the moment the region has no teeth. The Regional Planning Conference is no more than a coming together of the local planning authorities within the region, voluntarily, to see what can be agreed so that a co-ordinated view can be offered by the government office, who will then decide how guidance should be offered to the region for the future..." (I 2).

The uncertainty regarding future developments for the RPC, which is expected to evolve into a Regional Chamber, is contributing to the existing inertia. "A lot of

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<sup>93</sup> This is not necessarily due to local authorities. Many LAs have actually complained about the lack of funding from central government in this area; "...we would like to see a lot more of the money which is going through the landfill tax credit system to be not just stuck in Treasury, but to actually address these things on a strategic level." (I 8).



people are hanging round waiting for this Regional Chamber to settle down and sort itself out as well, because no one is sure how much power that will actually start to hold once its in place." (I 7).

### Waste Local Plans (WLPs) and LA contacts for MSWM

Not even regions themselves are clear what their responsibilities are. In the meantime, Local Authorities continue to produce WLPs, which together with local authority contracts are probably the most influential factors in the development of the regional strategy.

"WLPs...are going to be the dominant documents for a long time. Whatever happens in terms of administration, those documents are still going to be those to which industry and others are going to have to work to until such time as they are reviewed and modified." (I 22).

Drafting a WLP and going through the public consultation process underlines the fact that waste management planning is all about difficult decisions. One key actor, whose county was in the process of submitting the draft for consultation, talked about the recent changes in outlook in waste management planning. The county was in favour of using a criteria based approach to siting, but had to adapt their draft to guidance from DETR, coming through the regional Government Office, which is looking for a much more site specific approach. The problems presented by that approach is that the local authority would either have to carry out a large number of EIAs (Environmental Impact Assessments) or point out a few potential sites where "...you suddenly make some sites worth a pot of gold." (I 5). The problem with the first option is the cost involved in carrying out many EIAs, the problem with the second option is that it could be open to corruption, or perceived as such.

The WLP is a difficult and costly process, and it is followed eventually by a contract with a service provider, typically from the private sector – more often than not involving a choice between one of the few large companies which dominate the market (see section on Economics). The LA MSWM contracts, which mature at

different times for different authorities, provide the WDA with a vehicle to carry out their MSW management strategies and achieve their targets in terms of diversion of solid waste from landfill through recycling or EfW (recovery targets). The contracts have a significant influence on the development of a Regional Strategy, as they commit a certain geographic area to a particular mix of waste management options, and create a 'de facto' situation, which the RTAB have to work around. The following quote from a County waste manager clearly identifies the problem:

"...my colleague went down to the (RTAB) meeting and they were going on about what would happen if this happened or that happened, and he turned around and said 'its totally irrelevant as far as we are concerned, we're going to let a contract. Whether you like it or not you are going to end up with a waste to energy plant there, recycling here and there and everywhere because that's what our contract says and there's no point you pontificating and making great plans and supposing this is going to happen.'" (I 6).

The fact that these contracts mature at different times for different LAs makes it even more difficult for the RTAB to reach some form of agreement on the Regional Strategy. Some interviewees argued that so long as the contract let by a LA is not in conflict with the Regional Strategy there should be no problem overall. Yet there is no Regional Strategy at the moment, and there are a lot of contracts maturing. Significant strategic decisions then seem to be determined by the LAs and their partners in the WMI, something the RTAB has no control over.

The high number of authorities involved in the SW Region raises another barrier. The recommendation in the PPG10 is for the RTAB to involve no more than fifteen members, including representatives from the WMI, EA, and GoSW. From the LAs there should be representatives from the WPAs (one from each, making up the majority of the body), some from the WDA side of things, and some from the WCAs. This presents a problem with a region like the SW, which includes six County and nine Unitary Authorities. These authorities (many more including the Boroughs and Districts) have their own needs, and therefore their own priorities. The various Councils are controlled by different political parties - with often conflicting agendas.



“There are two answers as I see it, you either bring in everybody and try to make everybody aware or you do it absolutely and...take the brunt of being the bureaucrats and the red tape body...As it is we just muddle through as per normal.” (I 7). Even if all involved thought it is a good idea to work together at the regional level, which many do, some areas could well end up dealing with waste from various LAs “...but no-one wants to host a major facility to deal with that waste. So it’s NIMBY - mega-size.” (I 8). LAs would have to accept to incur the effects of development of facilities, increased traffic, and perceived risks from the siting of waste management facilities for the greater good of the region. It would be much easier for a regional body to make such decisions, but “...the regional decision is going to be ever revolving because every time a decision is being made and a contract is let, that element of the regional solution is set at least for the duration of the development.” (I 17). The needs for waste management facilities to meet the disposal responsibilities and recovery targets set by legislation however is pressing, and contracts are continuously coming up for renewal, which makes it impossible for the RTAB to ‘freeze’ any LA decisions until it comes up with a coherent strategy. For example, “...there’s all these authorities that what they are going to do is pile up all the waste at Sharpness and build a large incinerator, no discussion about the regional picture at all, just one LA saying that’s what its going to be. The whole idea of having a regional consensus strategy completely overruled, and any authority can do that...” (I 17).

At present, the region has little more than an advisory role. There is no statutory framework for the regions, and “...it’s all done on a voluntary co-operation basis at the moment.” (I 2). However, “...unless it (the region) has a statutory basis, it is not going to be able to tell a group of Local Authorities how they should be managing their waste and there’s a very important issue there.” (I 2). Sub-regions will be expected to deal with their own waste and the LAs would have to agree and co-operate with the RTAB about how to manage the waste in their areas, which makes it then difficult for the region to formulate a strategy and then pass it on to the LAs for



adoption. Thus, although the RTAB is responsible for developing a strategy for the region, the statutory powers are effectively with the LAs. Giving power to the RTAB would mean taking some away from the LAs, and that poses a threat to them and creates a major political barrier.

#### **The SW RTAB and Regional Assembly<sup>94</sup>**

The formation of the RTAB is of major significance to the regional strategy for waste. Its role is to "...provide information and options and strategic assessments to the politicians essentially - Planning Conference - all the regional planning bodies - the Chamber, as it will become- to make those political decisions..." (I 3), "...so they can focus on the opportunities and constraints for changing the management of waste...alert those who define regional policy to all the pros and cons of a number of different scenarios...thinking of how we can translate these masses of waste generated from households and industry to new facilities..." (I 17).

The RTAB is also responsible for developing the waste management section of the Regional Planning Guidance document for the SW, which at present is a descriptive one page basically saying that more work needs to be done in this area. Policies deriving from regional guidance are on a five year 'roll forward' basis (in line with National and European policies). The RTAB is to contribute to this by monitoring regional figures and options annually.

Interviewees agreed that the constitution of the RTAB offers an opportunity for greater co-operation amongst LAs, and will eventually be able to develop a regional strategy, although they also agreed that given the five year planning horizon and the fact that the regional planning cycle has just been completed, the RTAB is coming on

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<sup>94</sup> Note that the interviews took place in the period between Spring 1999 and Spring 2000. At the time the RTAB was only a shadow RTAB, and in the process of becoming a formally constituted body. The Regional Planning Conference (RPC), the RDA and the Regional Chamber were all recently formed groups. The RPC was eventually integrated into the Regional Chamber in July 2000, thus creating the Regional Assembly for the SW.

the scene too late to have any effect at this point in time. "... (the work of the RTAB) has to be picked up in development plans, structure plans and the waste local plans...so you won't see the fruits of the RTABs work in development plans in accordance to the RPG for at least five years and possibly ten." (I 3); "...as far as the SW region is concerned, in the next two to three years there's going to be a lot of waste contracts coming up for re-bidding...the RTAB is going to be overtaken by events even before it produces its first report...Industry will be making its own proposals, and sort of imposing them on the region which hasn't got a formal strategy..." (I 19). This is why, according to a high ranking key actor from Industry "...the immediate function of the RTAB is to prevent local politics making decisions that will prejudice the future delivery of a better solution" (I 17).

Eventually, when a regional strategy is developed, then the LAs will have to comply with it because it would then become a 'material planning consideration' for the local strategic plan. LAs would then have a problem clearing their management plans with Government if they contradicted or compromised the regional strategy. As one key actor commented, referring to the fact that the contracts for Bristol, Gloucestershire, Devon and South Gloucestershire are all coming up for renewal in the next two years: "...nothing's impossible - but it will be very difficult then to re-negotiate and re-organise and re-do it (the MSWM contract)" (I 20). However, it would be difficult to alter for example the fact that a large EfW plant is being built or already operating in a LA area five years down the line, when the strategy has been developed and the LA plan comes under review. Yet LAs cannot afford to 'wait and see' what the regional strategy is going to be like<sup>95</sup>, and whether or not it will go into specifying a number of sites for waste management facilities which are much needed in the region. As one LA actor commented " ...we have to develop our detailed strategy anyhow, we don't

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<sup>95</sup> National waste strategy advises LAs to remain flexible, and not to invest themselves in long-term solutions that could prove inefficient in terms of sustainability. However, the Government can be criticised for not backing up the strategy with sufficient funding, to make the more expensive waste management options more widely available to local government.



have time to hang around and wait. We have key involvement in the RTAB...but it's not the key driver at the moment." (I 4).

The potential role of the RTAB in terms of co-ordination of LAs is expected to be stronger in those areas where there is a strong functional relationship between authorities, and where these share common borders. This is more clear in areas such as the former Avon County, where a number of LAs border each other, all within the region, and where there have been historically co-ordination problems. In areas where LAs have strong functional relationship with adjacent regions, the issues are quite different, and one could envisage a role for co-ordination amongst RTABs between regions.

The RTAB is, according to PPG10, a technical body – not a political one. Its membership is made up mainly of planning officers from the LAs, together with representatives from the WDAs, WCAs, EA, ESA and GoSW. Environmental NGOs are left out for reasons of expediency, and they are expected to have their say on a recommended number of scenarios at the stage of public examination. Yet the RTAB is being asked to "...come to a technical view about it (regional waste management strategy) and take a position, without any political input. Fascinating scenario from a public accountability point of view. Could create some difficulties in due course." (I 5). The issue of accountability is central to the RTAB and the emerging regional government. If the regional body takes over planning responsibilities of individual LAs, then accountability would be removed from the local level. That is something that would raise much resistance from the LAs, both from the planners and from the politicians. For some functions, such as the collection of waste, the local level is the only one that makes sense. It would be difficult to imagine having to call some regional authority in Exeter because your bin hasn't been collected in Bristol. Not only would politicians be against giving up any of their existing responsibilities, but the public as well "...tend to think of refuse collection as a local based service..." (I 6). However, waste collection and treatment are closely linked, and some key actors argued that not only is a regional waste authority needed, but it should take over and



integrate waste collection as well. As far as the strategic siting of some waste management facilities is concerned, the RTAB could have a significant role to play in overcoming the local political barriers (both 'not in my back yard' – NIMBY- and 'not in my term of office' -NIMTOF).

Some actors pointed out that in the SW in particular the RTAB is led by someone who has strong interest in the regional picture and is also effective, having the right contacts and experience. The SW RTAB also benefits from covering the same administrative area as the planning region, and the GoSW and RDA, thus strengthening the opportunity for developing a waste management strategy which is integrated with the economic development strategy for the region. This coincidence of boundaries is not always the case for other regions. The region however suffers from lack of experience with regional level waste management matters, and has been criticised as slow in its development, and being WPA led, not having the "...urgency to get on and do something." (I 8).

How much influence the RTAB will have over the region depends greatly on the power held by the regional authority in general. At the time of the interviews, it was expected that the RPC would merge with the Regional Chamber to form a regional Assembly (which did happen). There was however uncertainty about the role of regional government, and the willingness of central Government to divest its powers. The expectation of national elections adds to this uncertainty, and it is not expected that other political parties, and especially the opposition, would carry on with regional government.

The form of the regional assembly will also have a significant influence on the development of a regional waste management strategy. The RPC is made up of representatives from all planning authorities, including CCs, UAs and DCs, and the Regional Chambers also include representation from the private sector. Local interests can be over-ruled by majority voting, yet the influence of local politics will

still be present so long as the decision makers are there representing their local area. Thus many of the key actors supported the idea of an elected regional assembly, which would then have the sufficient political and economic clout to take some decisions and actually implement them. "I think it should be independently elected because the LAs ...are all going to fight against anything in their own patch and it will be an indecisive body...so it ought to be directly elected...and getting rid of counties and things and going for a regional government." (I 19).

### Summary of Barriers and Driving forces

Participation and representation	
Barriers	Drivers
Lack of public awareness	Statutory Consultation Process
Over representation by single issue pressure groups	Democratic Process
Lack of information and good data Biased information Public mistrust of experts	Trend for LAs and EA to promote public participation and to seek wider representation of stakeholders
NGO lack of resources	
Lack of regional level public participation processes	
Local politicians not representative enough	
Random public response unrepresentative Alternative consultation methods expensive	
Political cost of WM decisions	

Perception of meaning of Sustainable MSWM	
Barriers	Drivers
Minimisation of household waste perceived as too difficult - ignored in practice	Agreement amongst key actors on importance of waste minimisation
Perceived relationship between economic growth and prosperity	

<b>Fairness</b>	
<b>Barriers</b>	<b>Drivers</b>
Lack of actor preoccupation with fairness	Opportunity to participate - public
Unfairness of planning process	Opportunity to participate -LAs from adjacent regions
Other factors such as economics, regulation override fairness considerations	Proximity Principle, Regional Self-sufficiency, BPEO
Difficulty in involving public in consultation	Consideration of global effects required by EU for certain types of funding
Strategic level decisions outside statutory consultation procedures	
Disagreement and confusion on meaning of Proximity Principle, Regional Self-sufficiency, BPEO	
Difficulty of assessing global effects of WM options due to lack of information and knowledge	

<b>Perception and preference on WM options</b>	
<b>Barriers</b>	<b>Drivers</b>
Difficulty in changing public attitudes	Recovery targets
Lack of funding from Government for minimisation/raising public awareness	Landfill diversion targets
Recovery targets unsustainable	Landfill tax
Lack of developed recycling markets	
Negative public perception of incineration	
Public consuming more resources due to perception of recycling	
Lack of LA actors faith in public increasing recycling rates	
EfW perceived as only solution	
Mismatch between need for S-T solution and available technology	
Lack of information to make judgements on WM options	



<b>Institutional Arrangements</b>	
<b>Barriers</b>	<b>Drivers</b>
Lack of representation of smaller WM companies	EA consistency in strategic issues
Oligopolistic tendencies in WM service provision	
Inconsistencies between administrative areas of EA	
EA lack of WM expertise on operation aspects	
Relationship between LAs and WMI with environmental NGOs	
Democratic deficit: EA, RDA	
LAs: Functional split between WM planning and WM service provision	
Issues arising from political presence of elected members	
Political relationships between neighbouring councils - political interests	
Lack of integration between town and country planning legislation and environmental protection legislation	

<b>Institutional Change</b>	
<b>Barriers</b>	<b>Drivers</b>
Lack of regional level data	Support for regional approach from statutory environment
Lack of consistency of approach to data collection amongst LAs	Regional self-sufficiency
Insufficient guidance at national and regional levels	Strong leadership - RTAB
Power of LA contracts affecting regional strategy	
Lack of powers at the regional level	
Issues of accountability at regional level	
Uncertainty of development of regional institutions	

<b>Economics</b>	
<b>Barriers</b>	<b>Drivers</b>
Amount of money spent on MSWM/person too low	
Low cost of landfill relative to other options	
Elected members low willingness to pay for more sustainable WM options	
Economic relationship between Districts and Counties in terms of paying for WM	
Increasing cost of MSWM not reflected in what people pay	
Lack of public awareness of cost of MSWM	
LAs budgetary constraints	
Immaturity of recycling and composting markets	
Lack of provision of local and regional facilities for treatment Problems with maintaining existing facilities	
Instability and low prices in recycling markets	
Unwillingness of government to give up untagged source of income and reluctance to intervene in recycling markets	
Long distances that recyclates have to travel	
Lack of knowledge about environmental impacts of WM options	
Economic performance of instruments used to promote recycling	
Technological problems with alternative EfW plants such as pyrolysis	
Inadequate investment in alternative technologies	
High barriers to entry in WMI	
Oligopolistic situation in WMI	

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## CHAPTER 8 SYNTHESIS

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### Introduction

In this chapter the findings from the case study are examined and analysed using the institutional model (Nørgaard, 1996) introduced in chapter 3. The model is expanded to address the relationship between formal and informal institutions and culture, including public and organisational perceptions, preferences and behaviour.

This direct link does not appear in the model, yet for the purposes of understanding the existing and potential forces involved in the development of a regional sustainable MSWM strategy it is important to examine any direct and feedback effects between these two significant elements of the model.

Having adapted the model, the elements of the model are examined in the context of a South-West regional strategy for sustainable MSWM. Follows a discussion of barriers and opportunities, where the findings from the interviews (chapter 7), and of the FFA (chapter 6), are integrated in the model.

### 8.1 Institutional Context

This study was undertaken during a period of significant institutional change, both in regards to the formation of new institutions - an organisational dimension which is heavily driven by a political shift towards 'regionalisation'<sup>96</sup>, as well as regards to significant developments in existing institutions, such as the SWM

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<sup>96</sup> At present, on the issue of how much power will be devolved to the regional level, there is a difference of preference between the Prime Minister Tony Blair and the Deputy Prime Minister John Prescott. The former favours the dispersion of power to follow urban centres led by an elected mayor (as is the case already in London) with a variety of administrative powers, whilst the latter favours a regional approach based on Regional Assemblies taking over some of the powers of Counties and UAs (*The Times*, April 11, 2001).

legislation, the planning system, the solid waste markets and the waste management industry.

## 8.2 Expanding the model

Following the collection of data and initial analysis, it became apparent that the institutional model (presented in chapter 3) does not address the link between public and organisational culture, behaviour, and institutions, although a direct link would be useful in analysis. The public, as the ultimate stakeholder in this story, can have significant influence in waste management through their behaviour and indeed through the absence of behaviour. This influence does not necessarily work through the key actors, or involve any collective action on their part, so a direct link to institutions seemed justified. This led to an expansion of the theoretical model, which follows below.

The expansion of the model is consistent with the conciliatory approach advocated by Nørgaard (1996). It also adds another dimension to the discussion of the core disagreement between the sociological institutional tradition (March and Olsen 1989, Thelen and Steinmo 1992) and the rational choice institutional tradition (North 1990; Shepsle 1989; Ostrom 1986) on how institutions shape political action.

### 8.2.1 Culture and Values

Changes in culture could be more effectively driven by changes in social values, changes to a different more 'Earth inclusive' point of view, rather than by efforts to directly alter people's behaviour. According to Stern *et. al.* (1995, in Brown and Cameron 2000; p. 33), "...programs will have little long-term impact because they focus on changing specific attitudes and beliefs about individual issues while ignoring the general worldviews, values and institutional structures that provide the context for these attitudes." Focusing on the issue of reducing consumption, Brown and Cameron (2000; 34) argue that according to their theoretical model and

empirical research “...interventions...will be most effective if they can bring about higher level changes in the socio-economic cognitive system – i.e. by changing cultural values and worldviews.”

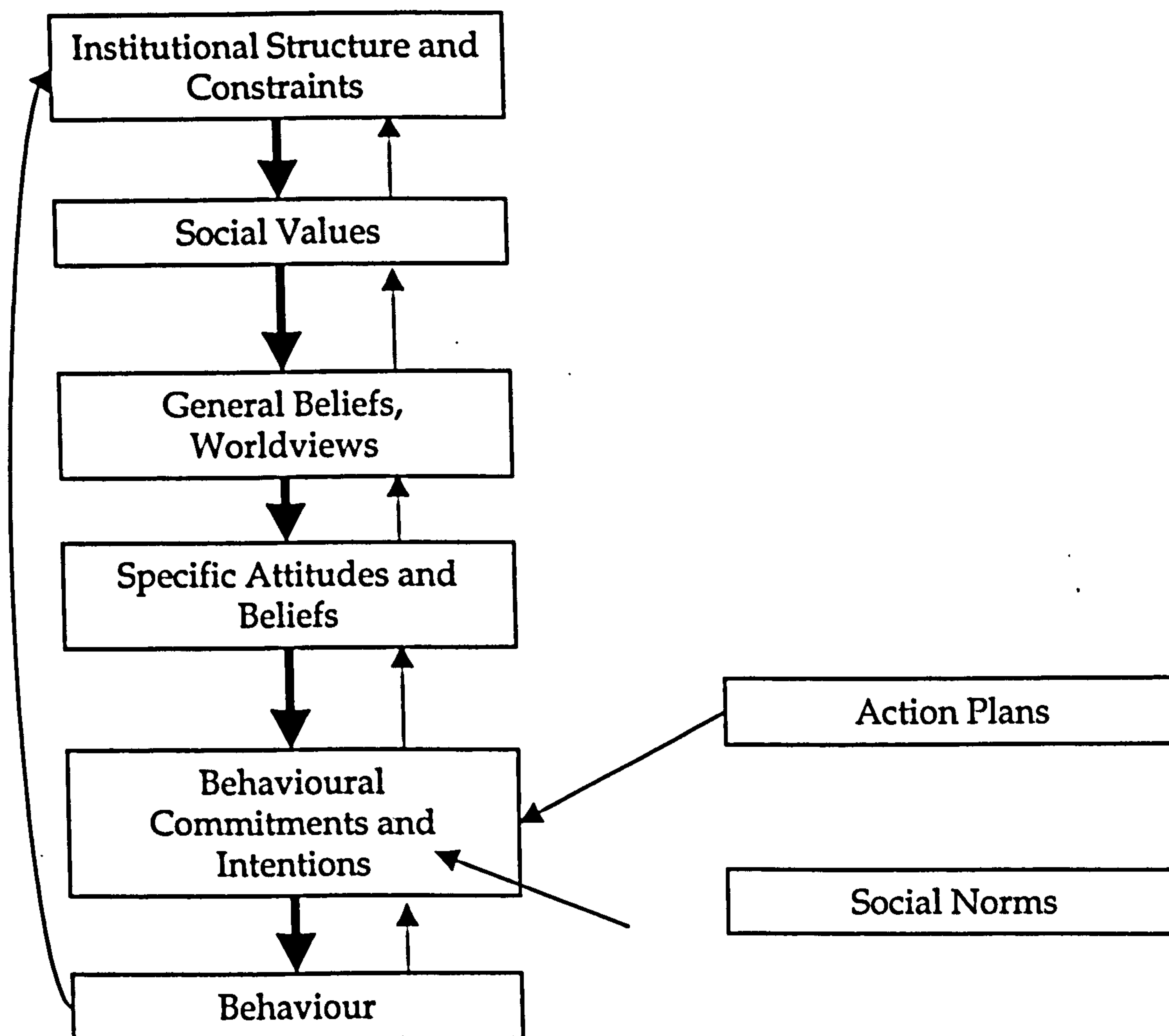
Cultural change has a dynamic of its own, and external (to the policy or strategic development process) factors are significant drivers. For example, it could well be the case that globalisation, with the associated increase of information flow, which is available and affordable to a large and growing number of people in the industrialised world, is changing the environmental awareness of many people. Stories of global warming and the devastating effects it has and will have on ecosystems and people alike could shift social values. As problems associated with human use of the environment become more pressing and more personal (as with the EA warning that serious floods will become more frequent in the UK) changes in the way people value the environment could well change.

Whether cultural change is occurring due to external factors, or due to intentional government policy, changes in people's perceptions of environmental problems and their relationship with them creates the need to empower the individual, communities, and the policy actors so that they can collectively bring about the desired change. There is the need then to address this by providing people with ways to express these changing social values in practical terms, from, for example, providing more information on consumer products about their environmental footprint, to providing true opportunities for people to become involved in decisions which affect their environment, such as involvement in strategic planning for MSWM in their region.

It is important to raise public awareness and to try to change attitudes towards waste, encouraging minimisation, recycling and composting as well as re-use schemes, but as the results of the case study show and as theory suggests, this involves changing worldviews coupled with provision of opportunities for true public involvement in the decision making process and availability of choices for expressing new social values.



The relationship between institutions, social values, and behaviour, has been examined by Brown and Cameron (Ibid), whose model (adapted from Stern, 1995.)



appears below.

**Figure 8.1** The roles of institutional structure, social values, worldviews, attitudes and intentions in determining behaviour. (Brown and Cameron, 2000)

According to this model, institutions (such as national legislation, market and incentive structures and social networks) foster the development of specific social values (such as cooperation, individualism, altruism, consumerism and biospheric integrity). These values guide the development of worldviews, which then channel and constrain the development of attitudes and beliefs on specific issues (such as environmental policies). These attitudes and beliefs, which are affected by social norms and specific action plans, determine intentions and behavioural

commitments, which then determine behaviour. This behaviour can feed back and change the structure of institutions thus closing the loop. The heavier arrows reflect the assumption that higher-level structures (such as worldviews) are more stable and exert more influence on lower level structures than lower level structures have on them (Ibid).

Institutional barriers can play a significant role in this process of cultural change. A good example is the case of recycling. Results from the case study indicate that there are strong institutional barriers present in this area. These have to do with barriers to increasing the funding to encourage recycling (both LAs and Central Government), as well as with barriers to making recycling more sustainable, by providing regional facilities for reprocessing, and by intervening in the recycling markets to make them more sustainable financially. There are also cultural barriers, as a majority of householders are either not convinced it is worthwhile, or are not sufficiently motivated to do it.

Action plans designed to encourage recycling by targeting behavioural commitment and intentions could run against both social norms and institutional barriers. The institutional barriers in particular could act as a damper if they do not respond to behaviour, thus weakening the effect of the action plans until they become unsustainable and die out. The lack of adequately strong or defined worldviews could work in the same way.

Another scenario<sup>97</sup> is the existence of strong worldviews, but the absence of practical outlets for it. In the case of recycling, although individuals might be motivated to change their behaviour, the lack of practical alternatives can weaken the link with institutional structures and again render the action plans ineffective. The absence of strong recycling markets, for instance, could lead LAs to abandon expensive materials collection schemes in the long term, in spite of public support for such action. This is an institutional barrier. The absence of a belief system that incorporates environmental issues can lead to attitudes of indifference towards

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<sup>97</sup> Both scenarios exist at the same time, the difference being that they apply to groups of people with very different attitudes towards the environment.

recycling, and therefore little commitment from the public to separate their own waste. In either case (and in reality probably a combination of both factors) recycling would suffer and become unviable.

This link between behaviour and institutions is compatible with the institutional model proposed by Nørgaard (1996, Figure 8.2), which appears below (see also Chapter 3). The model, which is intended to illustrate the role of intentional and reflective key actors in the process of institutional change, can be expanded to incorporate the relationship between what the public itself does in relation to MSWM, with institutions and the decision making process.

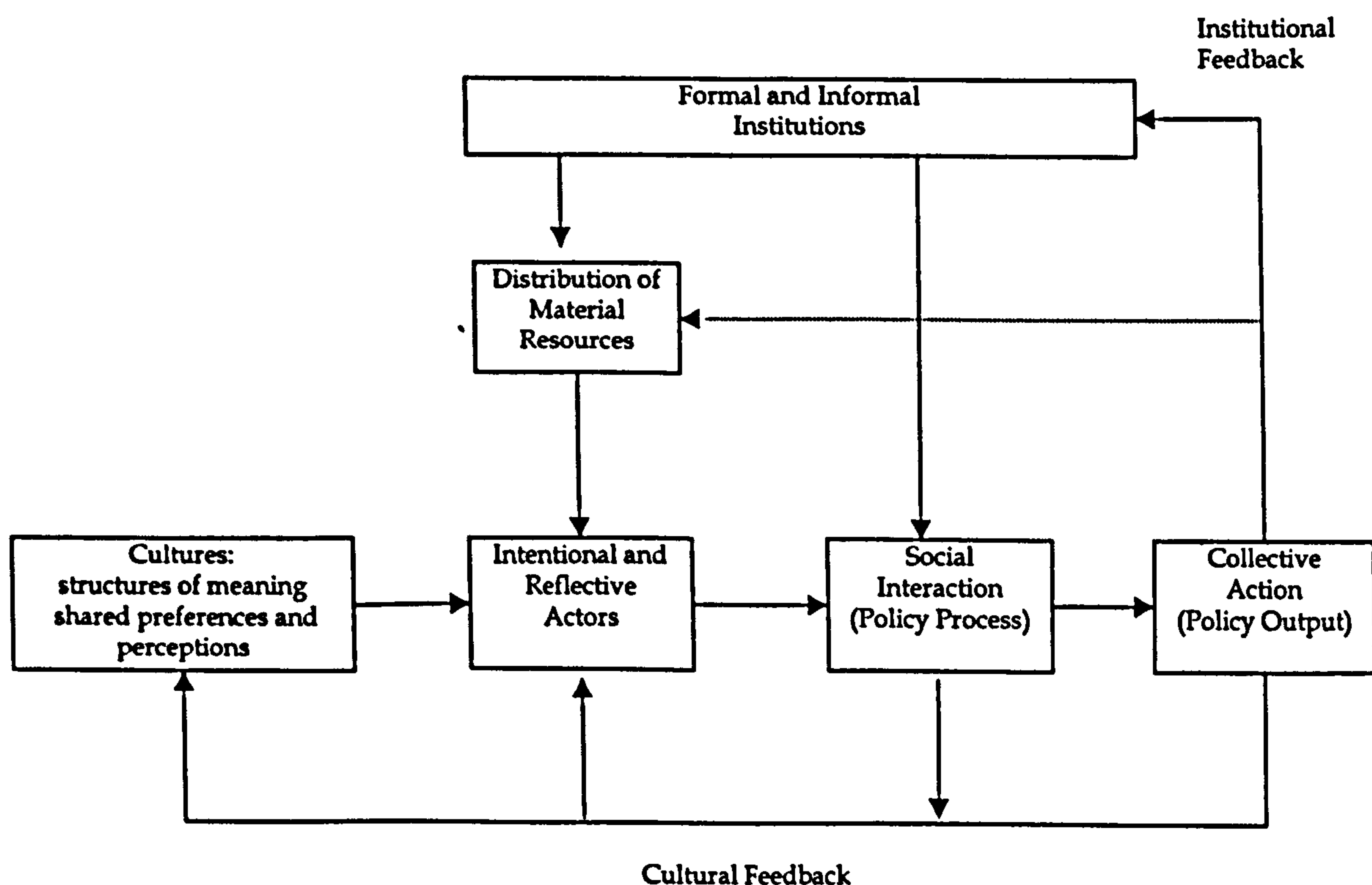


Figure 8.2 Institutional Model. Source: Nørgaard (1996)

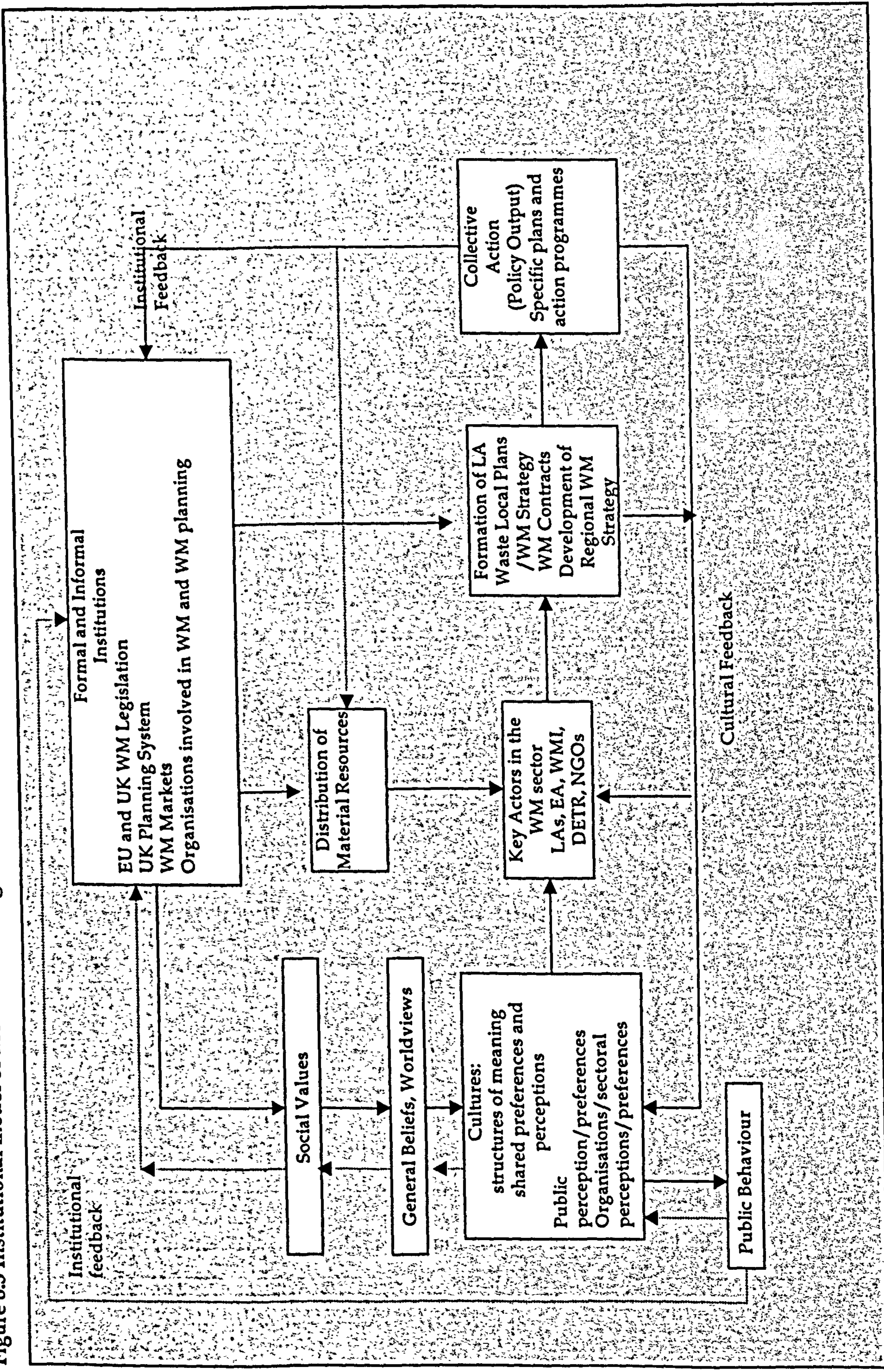
The model can then be expanded (see Figure 8.3) to include this (more direct) link between culture and institutions, which is a significant area of concern in waste management. For example, the study indicates that the strongest barriers at the Waste Disposal Authority level are in the areas of public participation and siting of waste management facilities (see Chapter 6, Figure 6.1). Furthermore, the



driving forces in these areas are very weak. Disaggregation of these barriers reveals that factors such as peoples consumption habits, recycling habits, local resistance to siting and public participation in the decision making process are all amongst the most significant barriers to sustainable MSWM (see Appendix 2). Barriers such as the difficulty in changing public attitudes, lack of public awareness, public mistrust of experts and difficulty in involving the public in consultation also appear to be significant (see Summary of Barriers and Driving forces at the end of Chapter 7).



Figure 8.3 Institutional model of MSWM Planning for the SW of England. Adapted from :Nørgaard,1996 and Brown and Cameron 2000..





The model can be used to consider the actions of the public (whether individual or collective) and the actions of the key actors separately. The link is in the area of 'culture', where for example, public behaviour can feedback to influence perceptions and preferences within organisations and also those of the key actors. If for instance the public response to a pilot LA collection programme is good, the feedback of this behaviour into 'culture' (cultural feedback) would positively influence the more permanent adoption of this programme through influence carried by the key actors to the next round of strategic development and implementation at this level (LA level). The successful drive of such action through the system will have been completed when the distribution of resources is altered (institutional feedback) to provide the programme with a sustainable resource flow.

The institutional changes needed to alter the distribution of resources, such as new legislation, use of economic instruments to fund particular programmes and to develop the markets and incentives for recycling, are driven by both the collective action of policy participants, and by the behaviour of the public directly. For example, the existence of strong public feelings towards recycling expressed in some of the EU countries and the subsequent success of reaching high recycling rates in national programmes (the case of Germany comes to mind) has been one of the factors that influenced the adoption of the EU Packaging Directive. Policies devoid of such public support or at least the belief (by decision makers) that public support will be forthcoming on a particular issue, are unlikely to be adopted (although highly bureaucratic organisations seem to be capable of churning out legislation which, it could be argued, almost nobody supports)

Public behaviour is more likely to have a stronger *indirect* link with formal institutions, working its way through organisational preferences and key actors actions in the policy process (see dotted links in Figure 8.3). The institutional feedback (from public behaviour to institutions) is more likely to be stronger in regards to informal institutions, such as people's habits rather than the formal institutions. Individual habits can be influenced by other people's behaviour



directly. The individual is also likely to be influenced by 'others' behaviour through social networks.

### 8.2.2 Distribution of resources and Values

Change in formal and informal institutions can directly affect the distribution of resources and the social (policy) process (indicated by the bold arrows in the model - figure 8.3).

Changes in the distribution of resources made available to key actors can be targeted to affect the *policy output* itself (as would be the case with increased funding for specific action programmes which are intended to achieve compliance with new regulations) or it could be targeted towards altering the *policy process*. An example would be, following a member state policy commitment to widening public participation in decision making processes that LAs could be empowered to act on this by increased funding from central government. Such a change in the distribution of resources could then alter the relative power held by stakeholders in the process leading to a different outcome - Collective Action. The behaviour of the public and that of organisations involved would be encouraged then by the cultural and institutional feedbacks respectively.

In terms of economics, and the way in which most economic models work, the link between social values and the distribution of resources is a very significant one. Theoretically, according to the Neoclassical Economics view, any changes in social values will work their way through changes in demand for and supply of goods and services, leading to new equilibrium market conditions, which all together would redistribute resources to maximise society's welfare function (achieving the highest total utility for society). The unrealistic set of assumptions on which this is based, however, means that other links between social values and the distribution of resources need to be sought (see discussion in chapters 2 and 3). Problems with markets, such as externalities and less than perfectly competitive markets, means

that left on their own, markets will not adequately provide the avenue for change to accommodate changing social values.

A change in social values where individuals place a higher value on the environment than they have in the past, can eventually lead to a change in the demand for environmentally friendlier goods and services. To this there will be a market response, dependent on the effectiveness of existing market structures. When it comes to the issue of MSWM, a service perceived by most members of the public as a local and public service, local social networks will interact to form some type of advocacy coalition or pressure group to influence local politicians and key actors in the MSWM scene. If the driving force is strong enough, the key actors will instigate changes in policy, through which, given some level of institutional feedback, the distribution of resources will be altered to fill the existing need - by providing for instance recycling bins or collection systems. Similarly, people could take action against a particular proposal, altering the resource distribution by resisting a specific plan and forcing the person or company applying for planning permission to become involved in expensive litigation. Historically, the large size and long economic life of waste management facilities has meant that it is still profitable for companies to go through such a process - in spite of the high level of expenses involved. The problem arising in environmental terms is that of transference, i.e. the case where waste is simply transported long distances to a less contentious or already existing site in spite of the increased burden to the environment.

The distribution of resources then is clearly a key factor in overcoming high environmental costs by a) educating the public and decision makers as to the total environmental cost of various options, and b) by reflecting more truly environmental costs in everyday prices (through for example the taxation of virgin materials used in production, or charging people according to the volume of waste they generate).



Between the formation of preferences to actual behaviour (see figure 8.4), an individual will determine his/her own distribution of personal resources<sup>98</sup>. Social values play a determining role in this process. The box named 'Distribution of material resources' appearing in the model has more to do with those resources controlled through the formal institutions, such as resources available to regulators and other formal organisations. For those under the spectrum of public organisations this is a matter of budgetary choices, to a large extent politically determined. For the private sector, there is a plethora of factors, some of which are external to any particular policy process – such as is the case with globalisation. Certainly, the changing structure of the WMI (see chapter 7) with the predominant involvement of large international public utility companies must have had a significant impact on the balance of power between stakeholders emanating from changes in resource availability to the various participating key actors.

### *8.2.3 Institutional Arrangements and the Policy Process (Social Interaction)*

The command of resources that key players have and which they bring into the policy making process<sup>99</sup> is one side of the power equation. The other aspects have to do with legitimating the participation of these actors in any formal and formative SWM decision-making process. This is expressed in the model (Figure 8.3) by the bold arrow connecting 'institutions' directly with the 'policy process'.

Thus, the changes brought about to the structure of the waste management industry (WMI) following the privatisation policy adopted by UK governments in the 1990s and the underlying forces of globalisation, have led –directly and indirectly- to the increased presence of the waste management industry in policy making bodies. This is particularly the case at the regional level, with the WMI

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<sup>98</sup> Not shown in the model for reasons of simplicity.

<sup>99</sup> The policy making or 'social interaction' box in the model can be seen as the place where decisions are made collectively about issues such as local and regional waste policy and strategy. Decisions regarding WLPs, regional strategy and guidance, as well as (but to a lesser extent) waste management contracts are made here. This happens through a social interaction process, where the key participants collaborate and bargain amongst each other, the outcome of which is the policy output or 'collective action' –the specific strategy or plan.



being represented in a variety of regional groups. Through the ESA (Environmental Services Association, see chapter 7) the waste management industry in the South West participates in the technical group involved in the formation of the regional strategy for solid waste management (the RTAB). Indirectly, through the Environmental Services Association, the Confederation of British Industry and local Chambers of Commerce, the waste management industry views are also represented in the RDA (Regional Development Agency), which has an increasingly significant role as the region moves from a Regional Planning Conference to Regional Chambers and then to a Regional Assembly. Increasingly, the private sector is invited to participate in advisory groups for planning, but also to partake directly in the policy and policy guidance formation at a regional level.

Thus institutional changes can bring about changes in the way decisions are made, by creating new organisational structures-such as the RTAB- and also by altering the constitution of decision-making bodies and the relative resources participants are able to use to implement any resultant plans.

Changes in institutional arrangement can bring about new opportunities (or present new barriers) for participating organisations. The complexity of these arrangements (see Chapter 7, Figures 7.1-7.5) and the ever-evolving (or devolving) regional scene make it difficult to trace the potential impacts of any institutional change through the system.

## 8.3 Discussion of forces (barriers and opportunities) in the context of the Institutional Model

### 8.3.1 Participation and representation

#### Driving Forces

The driving forces in this area occur within the statutory consultation process built in the planning system, and the democratic process of Local Government election and representation of LAs in the regional planning process. These driving forces, together with the trend to promote public participation – originating from changed perceptions and preferences flowing through changes in world views, due to sustainable development ideals and ideas, which have worked their way into waste management policy, planning, strategy and guidance at the LA level. These changes are becoming institutionalised, more so in waste management policy and planning, and less so in management practices. The changing public and organisational preferences, and the changing statutory environment give key actors more of a mandate, resources and processes to move things along, i.e. to make improvements in the public participation aspects of the decision making process – although this is contained at a local level, and one could easily argue that public participation has not found its way to the regional level.

#### Barriers

Barriers in the area of participation and representation (see Figure 8.4 below) result in a weaker drive from key actors to promote Sustainable Waste Management in the decision making process. This leads to a dearth of collective action at the regional level (where participation is at its weakest), and perpetuates the existing problems at the Waste Management Disposal authority level. Public behaviour, or lack of it in the areas of recycling and public consultation on waste management issues, is a significant barrier. It becomes more apparent as a problem in the case of opposition to siting of waste management facilities.



Economic issues, such as the lack of funding to develop a real climate of public participation at the MSW Disposal authority level, which is much more expensive than the traditional (and fruitless) public consultation process, present real and yet unsolved barriers. Another significant barrier is the lack of resources for the environmental NGOs, which are limited then to a reaction to any proposed LA waste management strategy or plan, and have limited input in the development of local waste management strategy. All this leads to weak representation of the public and NGOs in the waste management process.

Barriers relating to participation/representation in the area of processes supported by existing institutions, such as the lack of public participation in sub-regional and regional waste management strategy development, and the political cost of waste management decisions, weaken the effectiveness and mandate of the decision makers, and therefore the Collective Action which flows from it.

Figure 8.4 places the significant barriers in relation to the model (which forces are significant is determined by the FFA and interviews, see chapters 6 and 7). This placement of barriers is in no way unique, as the issues discussed have implications for more than one aspect of the model. For example, the barrier presented by the lack of data could be attributed to the structure of existing institutions, such as the variety of methods used to collect data in various LAs, and weaknesses in the statutory environment that has not provided the impetus for a consistent approach to be adopted. The barriers are placed where they are most useful in terms of solving the problem in the area (in this case that of participation). The same rationale is applied to barriers in subsequent areas discussed. Thus the lack of data is a significant barrier in the formation of preferences for the public as well as for organisations and key actors, yet it is through the avenue of institutional change that it needs to be addressed by. The statutory environment (part of the formal institutions governing MSWM) has not in the past provided for the generation of useful data at the County level, and subsequently there have been many problems in aggregating existing data into anything meaningful for Regional level decision making. Changes at the



institutional level, and in particular the development of the RTAB, have initiated a process of change in that respect, and produced a set of regional figures for waste management for the South West of England. There is still a deficiency in data availability at the WMP level, the lack of data on the environmental effects of various waste management options compounded by the dearth of information on social and economic externalities. Again, this is an issue that needs to be solved through institutional change, the key being the willingness of decision makers to clarify existing choices and the weight given to social, economic and environmental impacts related to the options available, to make such decisions transparent and available to the public. Figures 8.4 - 8.9 place within the model the significant barriers arising in other areas.

Figure 8.4 Barriers in participation and representation

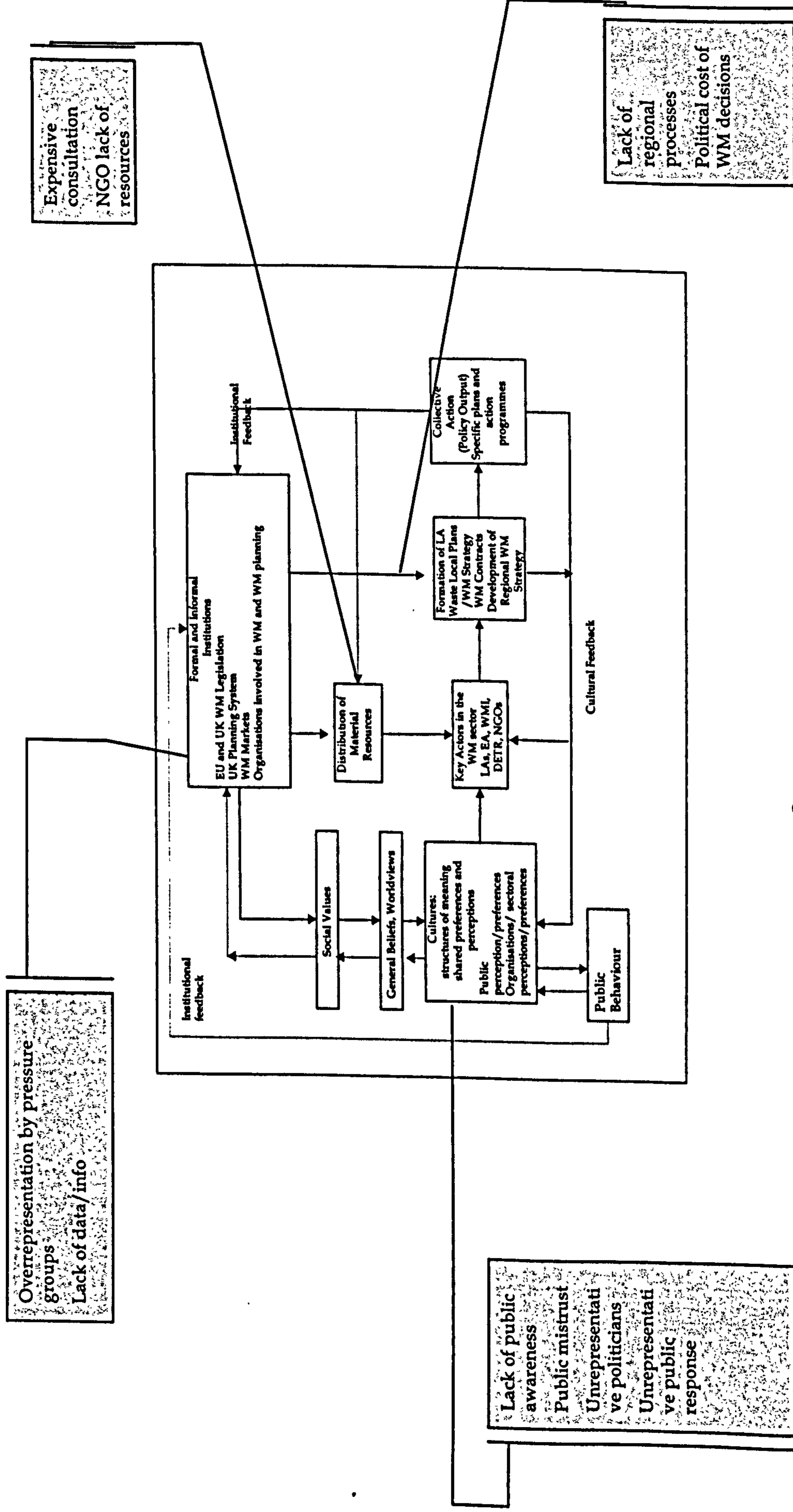


Figure 8.5 Fairness

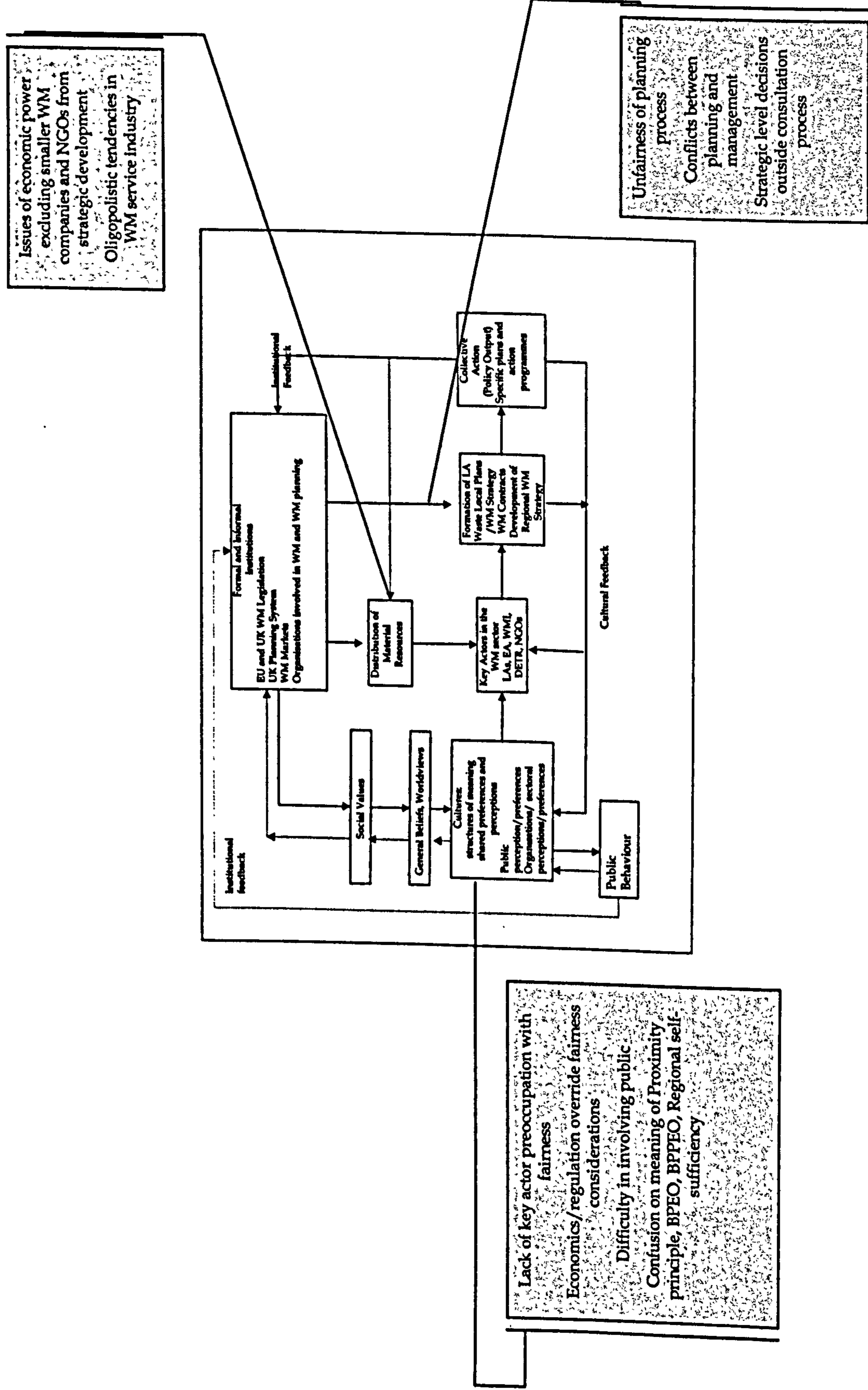




Figure 8.6 Barriers in perception/preferences of waste management options

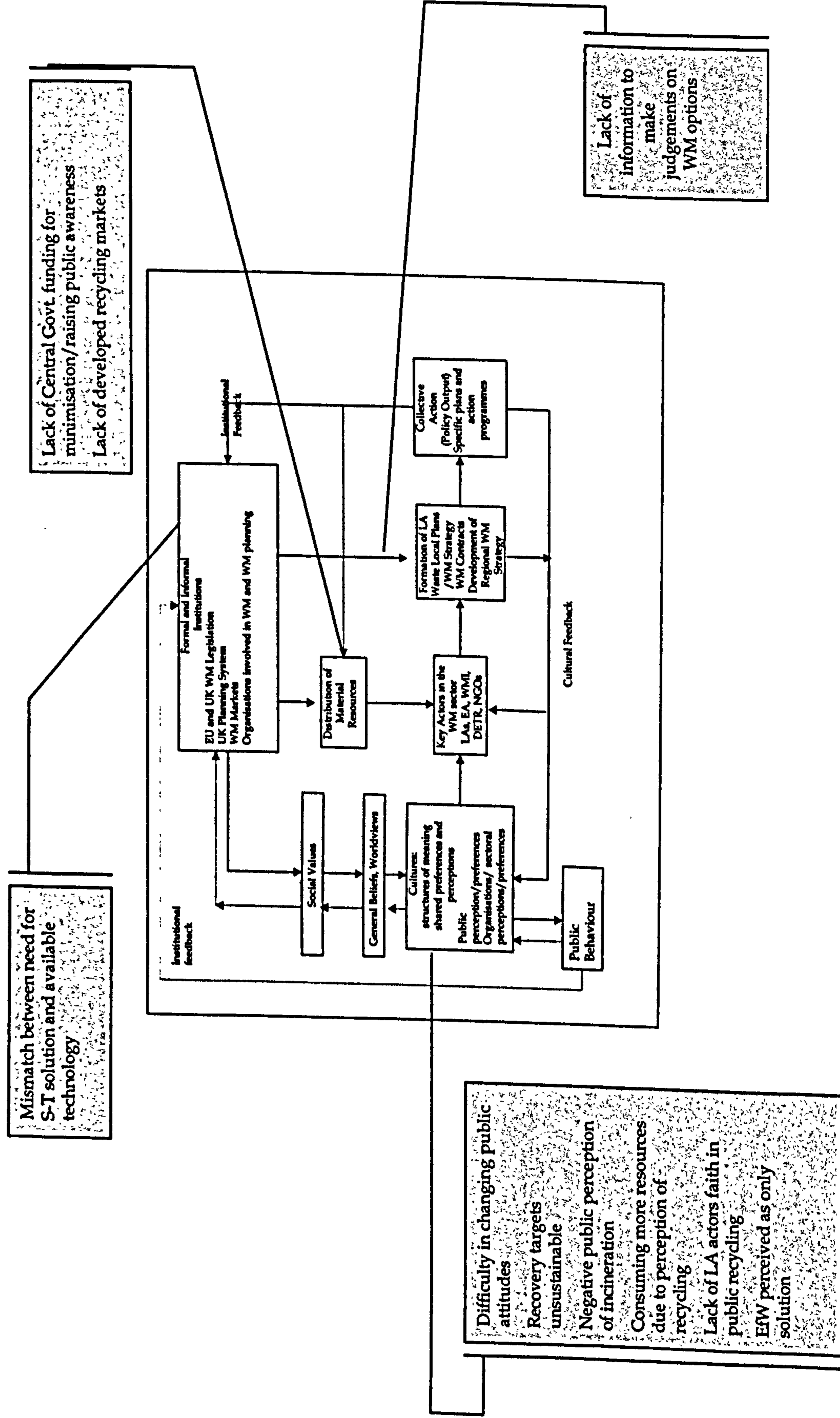
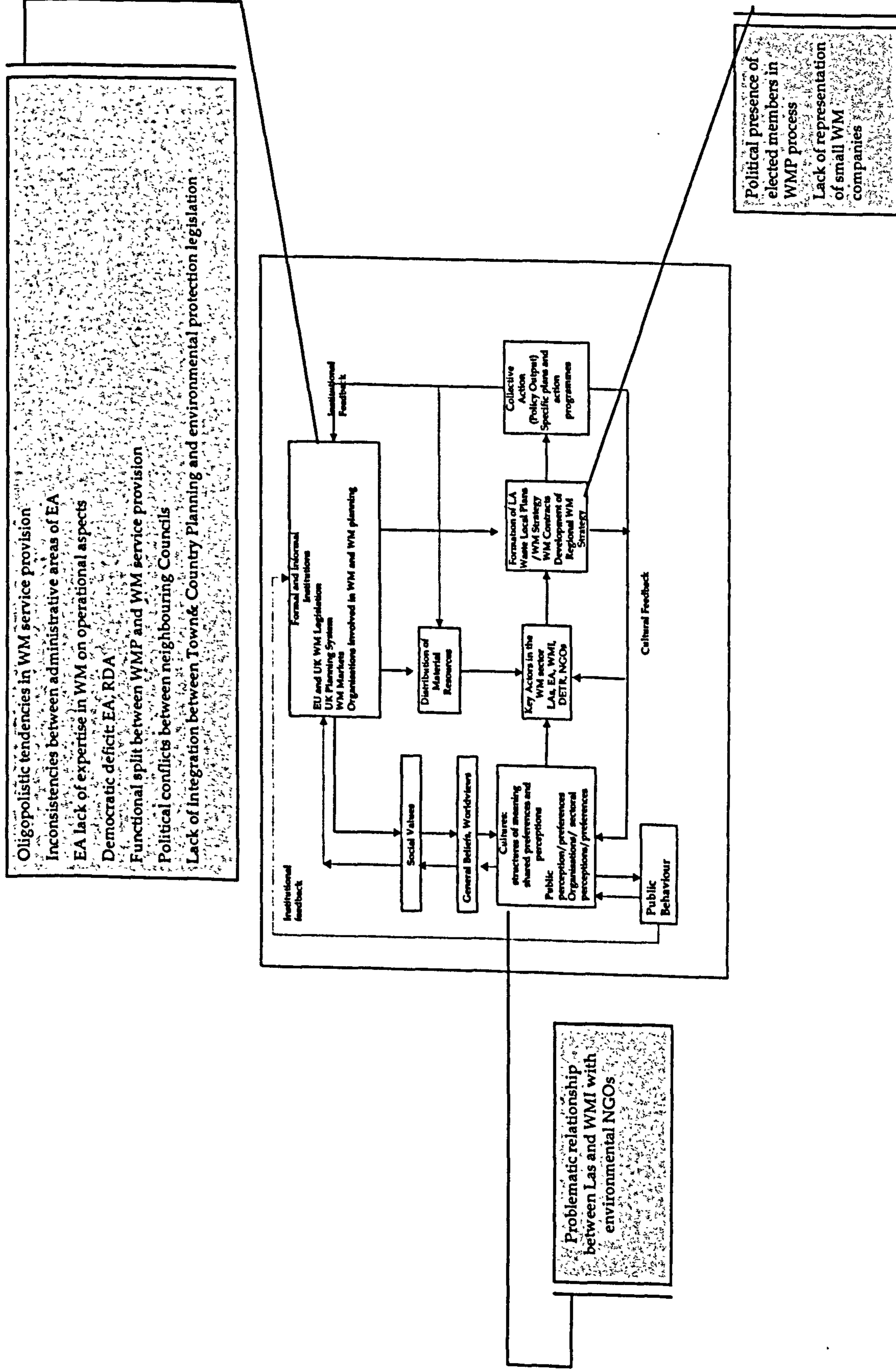


Figure 8.7 Institutional arrangements





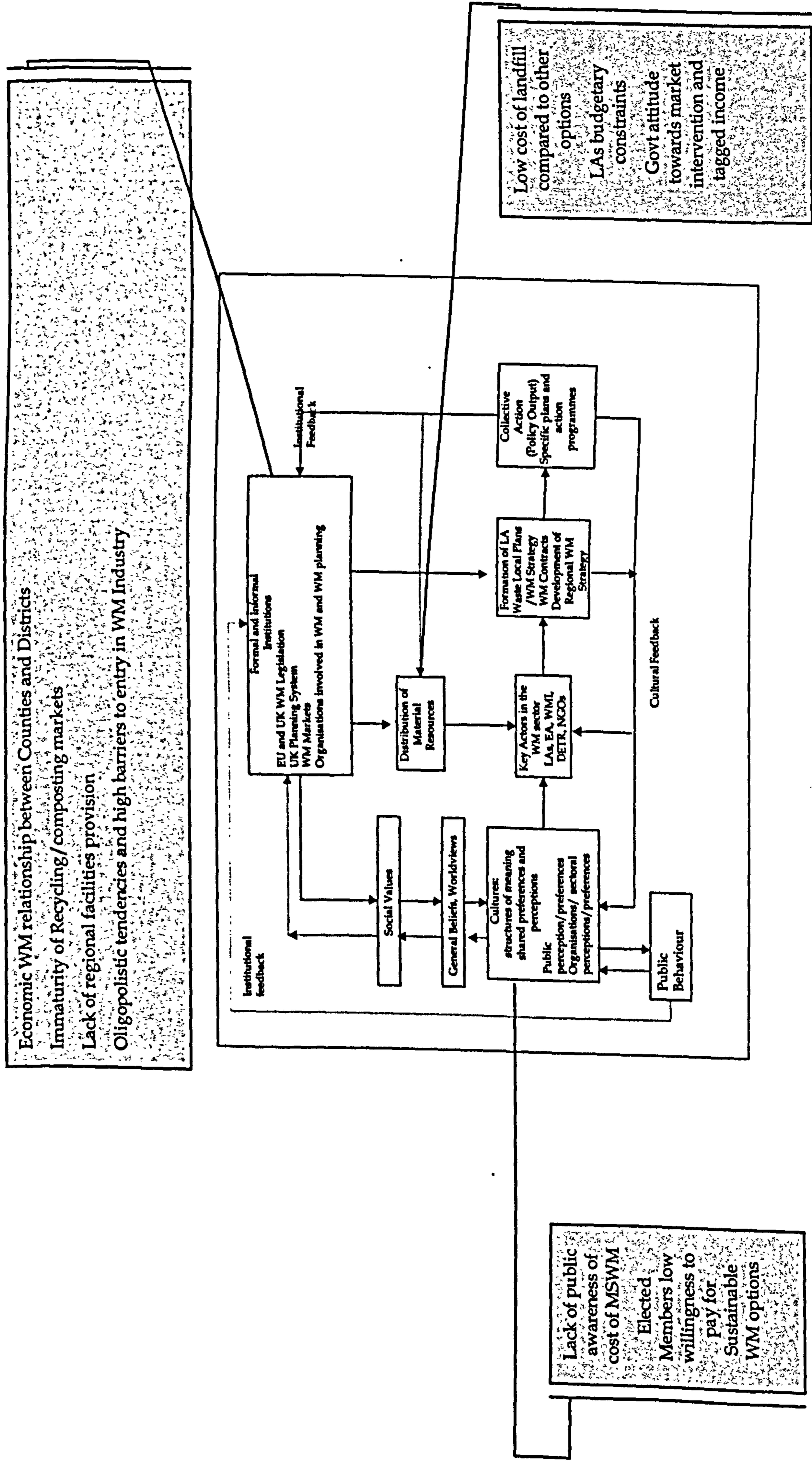
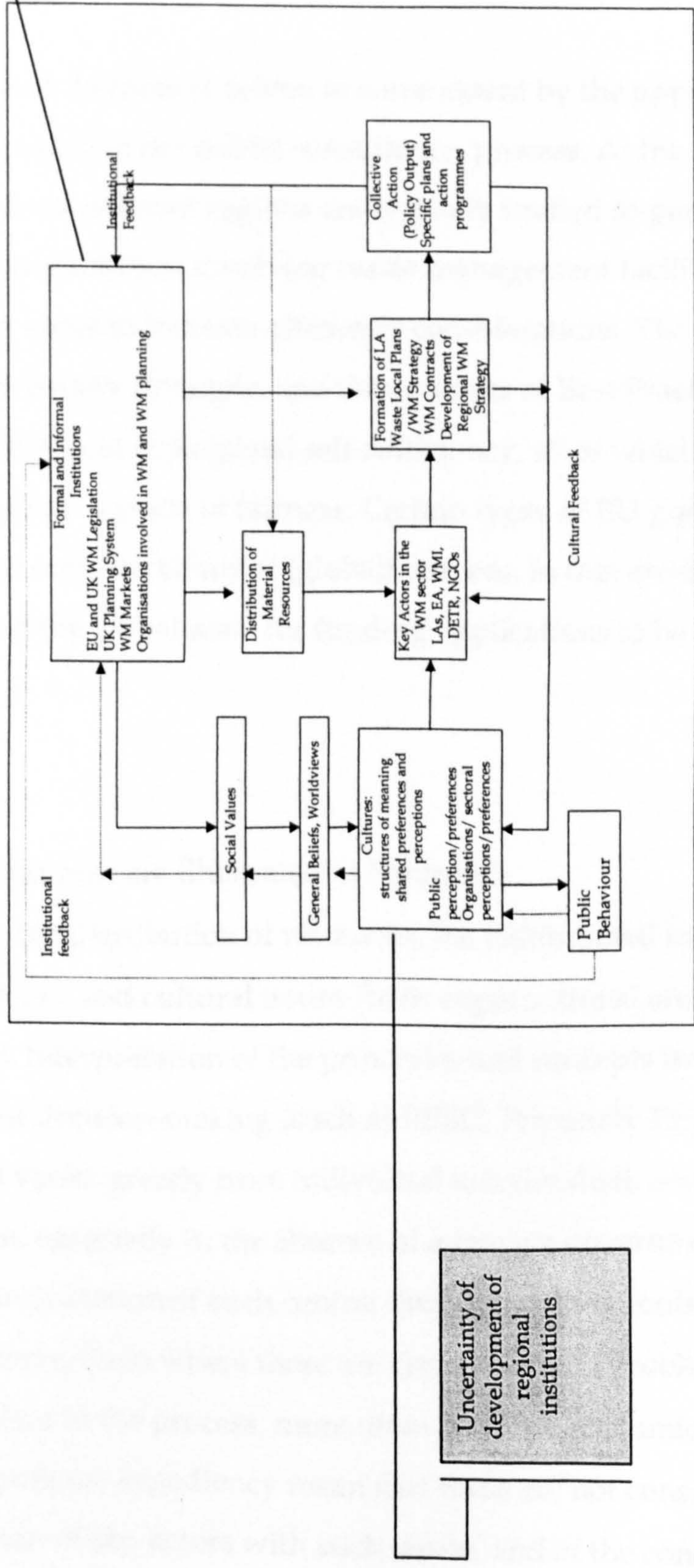


Figure 8.8 Economic Barriers



Figure 8.9 Barriers related to Institutional Change

Lack of regional WM data / Inconsistency of approach to data collection  
 Insufficient WM guidance at national and regional levels / Lack of powers at regional level/Issues of accountability - regional  
 Power of LA contracts affecting regional strategy development





### 8.3.2 Fairness (see Figure 8.5)

#### Driving Forces

At the LA level, fairness is driven to some extent by the opportunity for public participation built in the public consultation process. At the sub regional and regional levels, LAs from adjacent regions are typically invited to participate in order to ensure that any solution involving waste management facility siting is acceptable, and in many cases to increase efficiency considerations. The statutory environment offers the Proximity Principle, and the concepts of Best Practicable Environmental Option (BPEO), and of Regional self-sufficiency, all of which can be regarded as addressing some aspects of fairness. Certain types of EU grants and funding schemes also promote considerations of (global) fairness, in that environmental effects must be considered at the global scale for funding applications to be considered.

#### Barriers

Barriers in this area are illustrated in Figure 8.5.

Once again, the distribution of resources, the institutional impact on the decision-making process, and cultural issues (both organisational and public), are of significance. Interpretation of the principles and concepts involved in waste management decision-making (such as BPEO, Proximity Principle and self-sufficiency) varies greatly from individual to individual, and from organisation to organisation, especially in the absence of adequate government guidance. The wide range of interpretation of such central decision making tools leads to obscuring issues such as fairness. Even where there are clearly defined problems of fairness that have been identified in the process, more often than not economic considerations or reasons of political expediency mean that these are not considered. The lack of preoccupation of key actors with such issues, and of the concept of fairness in MSWM

in general, is a strong indicator that it carries little, if any, weight in actual decision making.

The fact that the planning process does not necessarily lead to a fair outcome, and that the process itself may often be perceived as unfair compound the problems in this area. Even if planning becomes a fair process, there is always the conflict with the management function of LAs to consider, and the enormous implications of LA MSWM contracts on the planning outcomes themselves.

The procedural element also suffers from unfairness because of the existing structure of (economic) power in the WMI combined with the government disposition of privatisation of public services, leading to the exclusion of smaller companies and NGOs from the development of regional and sub-regional strategy.

### *8.3.3 The meaning of Sustainable Municipal Solid Waste Management*

Perhaps the most critical barrier in the story of the pursuit of sustainable MSWM is the minimisation of household solid waste. The perception that it is too difficult to deal with, both because of people's attitudes and because of the widely held belief that the consumption of more goods is central to the well being of society, has resulted in staggering inertia in this area. Although key actors agree on the importance of household waste minimisation, decision makers have not found the strength to do anything positive about it. Thus, the meaning of SMSWM has been largely confined to the rhetoric between recycling and incineration. The key actors seem to have accepted that only changes in the bottom of the hierarchy of waste options are at present feasible – and not surprisingly since they in general lack the funds to initiate any national programme of cultural change, i.e. trying to influence the awareness of the public on the issues surrounding MSWM, and to alter people's world views and actual behaviour. Pressing targets set by legislation, which LAs must meet, also diverts limited resources from minimisation of waste arising, to



diversion of organic waste from landfill, and more recycling. One might argue that this is a practical step in the correct direction. It could be argued, however, that such mental orientation is a weak attempt to confront the symptoms rather than the source of the problem.

### **8.3.4 Municipal Solid Waste Management Options** (see Fig 8.6)

#### **Driving Forces**

Here is an area where policy is at least clear. There is a group of statutory instruments focused on SWM options, intending to deliver the recovery and diversion from landfill targets set by EU and UK policy. The pressures to recycle, compost and otherwise (incineration) divert solid waste from landfill as a waste management policy priority have been shored up by economic regulations (such as the landfill tax, and packaging regulations).

#### **Barriers**

Although there is emphasis on achieving very specific targets in recycling, composting, recovery and landfill, there are at present a variety of significant barriers in this area. The lack of development in the recycling markets and the perception of key actors and the public of recycling make achieving the existing targets very difficult. Although hailed by environmental NGOs as a panacea, especially due to its potentially positive social effects (local jobs for those who need them most, bottom up approach, change in attitude towards resources), recycling for the SW Region at present presents many negative environmental externalities, and is a difficult area to address in the context of a global economy. Lack of funding from central government to raise awareness of choices and implications combines with a lack of knowledge in a rapidly developing area to create a decision-making environment where either

political appeasement leads to environmentally expensive recycling decisions, or economic interest leads to environmentally costly or uncertain outcomes.

This situation is not helped by the negative perception of many key actors who have lost faith in recycling. Factors include negative past experience (it has been tried before and not worked), the indication that it is both environmentally and economically unsustainable, and the apparent difficulty in changing the attitudes of a significant section of the public towards recycling.

The mismatch between what is needed and what is available in terms of technology to address the persistent SWM problems in the current environment could be attributed to a lack of (economic) interest from WMI, and a lack of foresight and willingness from central government to support research and development of technological alternatives – by for example underwriting the costs associated with the risks incurred in such endeavours. One would suspect that the costs to the WMI of influencing developing waste management legislation at the EU level is smaller than the cost of developing new more appropriate technologies, and that EU governments simply rely on the private sector too much.

### **8.3.5 Institutional Arrangements (see Figure 8.7)**

#### **Driving Forces**

These are mainly nestled in the statutory obligations of a variety of key actors and organisations to implement the policies and deliver the targets set by the EU.

Although there are significant barriers arising in this area, there are also strengths in some of the existing practices, which have their source in existing relationships between actors and organisations. There is evidence of a variety of informal arrangements between actors such as the EA and LAs, which attempt to open up the waste management strategy and facility siting consultation processes. The leadership provided by some of the key actors who are well placed to influence strategic



outcomes, and who are genuinely trying to steer waste management and waste management planning towards a more sustainable future, are indeed notable and should not be overlooked.

### Barriers

Most barriers in this area revolve around the existing formal and informal institutions themselves. The complexity of the institutional arrangements is a barrier in itself, making the development of a cohesive and meaningful regional strategy a difficult task. This complexity is an attribute not only of the relationship between organisations and actors, but also within organisations and 'advocacy coalitions' themselves. One only has to look at the EA for evidence of problems arising from internal structure, with mixed signals from various levels of operation and geographic locations, and unclear delineation of responsibilities hampering its role and reputation in waste management regulation. In the case of LAs, the functional split between planning and 'disposal', which is an internal to the organisations barrier, has significant repercussions at the regional level, where the development of strategy can be 'held hostage' by LA disposal contracts. This split is also present at the legislative stream level, often with irreconcilable differences between the Town and Country Planning stream of legislation and the environmental protection legislation.

Another significant barrier is the democratic deficit present in recently developed institutions, such as the RDA and EA. Although these organisations do have funding, they are not democratically elected, and therefore their influence in the planning process is sometimes contentious. The regional level institutions such as the Regional Assembly and groups such as the RTAB, also suffer from a different type of democratic deficit. Although all Planning authorities are represented, and decisions are made by Elected Members representing the LAs, these are not directly elected for this role, and therefore carry with them the parochialism of their constituency. In the



sense therefore of representing the regions' interests, there is a democratic deficit. Political rivalries between the councils, often dominated by different political parties with different outlook on waste management planning, could sap any existing powers at this level, and render the work of the RTAB more of an intellectual exercise rather than an implementable strategy.

Oligopolistic tendencies in the waste management service provision market for the SW Region, and the lack of representation of smaller waste management companies are related barriers. The evolving dominance of big waste management companies in the region (an institutional barrier, of mostly exogenous origin), affects the arena of participation directly (bold arrow in model connecting institutions with the policy process, see Figure 8.7), creating a barrier for small waste management company participation.

### 8.3.6 Economic Forces (see Figure 8.8)

#### Drivers

There is money to be made in waste management. Providing a service which is a necessity for reasons of public health alone, and which involves a growing amount of waste to be managed, could be seen as a great opportunity for the private sector. Government was happy enough to have LAs run this service in the days when all it entailed was filling holes in the ground created by the quarrying and mining industry. The realisation of the problems associated with such practices however, brought about the need for much higher levels of investment even for landfills, which became sanitary landfills involving lining, capping, leachate control and re-circulation systems, flaring and energy production on site. One could argue that this changing approach to waste management in the EU and UK and the high levels of capital investment it required opened the door to the privatisation of this public service, and in effect economies of scale brought in the big companies. This was

followed by a period of acquisitions, where some of the local expertise was (and still is) absorbed by the new players. The economic drive then -from a market perspective- is to secure the inevitably arising medium term collection contracts, but also the facilities which are necessary for the processing and disposal of waste, a combination of Energy from Waste plants, and Material Recovery Facilities, which are by economic necessity long term contracts. Composting facilities require much less of an investment and produce much less of a sellable end product, and are therefore more likely to remain in the LA domain of operations.

From the perspective of LAs, the economic drive is to deal with the arising MSW stream within the existing LA budget constraints, whilst still meeting government policy targets.

### Barriers

The particular mix of facilities is dictated by LA plans and contracts, in conjunction with secured industrial and commercial contracts. What strategy a LA will choose must be consistent with national policy, although heavily influenced by existing land use planning permits (considering local opposition to any new waste management facility of that nature), as is the case with old incinerator sites. It is significant however, that the planning function deals with all solid waste, including industrial and commercial which is by far greater (85% of controlled waste). This may not be as important a consideration at the LA level as it is at the regional for the possibilities it affords the WMI, i.e. to establish more (sub) regional facilities. The influence of the LAs in determining the regional strategy is diminished therefore by the existing structure of economic power of the actors involved in the development of the strategy.

To follow this force through the model, the presence of a market with oligopolistic characteristics, in conjunction with the development of regional institutions for SWM



planning, in a period of privatisation of public utilities in general, and waste management in particular, have led through institutional feedback to the formation of strategic development processes in which the WMI has considerable influence.

The barrier of low willingness to pay for more sustainable waste management options, because of the associated political cost to the Elected Members who make the decisions, is related to the lack of public awareness of what it would cost to manage the waste in a more sustainable way. Until the public become aware of the choices, and the costs, there is little chance that a politician would take such political risks. This barrier is also related to the existence of tight LA budgetary constraints, which could be eased where the government to fund some public awareness program of a serious magnitude. Government attitude on this issue therefore presents another related barrier, because although it has taken the first step to tax landfill, making it less attractive and indirectly promoting alternatives, the funds are not then directed back into solving the waste problem, but rather lost in the general pool of resources that the government controls.

If the producer of waste (the public in the instance of household solid waste) is required to pay for the cost of better management, then the public should demand that those funds are used for that purpose. Therefore, although the government and the WMI could also (together with the LAs) be held accountable for the fate of whatever SWM strategy emerges, the public, as the ultimate stakeholder, could also be held responsible for a lack of participation, and indeed (if response to public consultation on LAs Waste Local Plans is any indication) for not wanting to know about the effects of a consumer lifestyle and the difficult choices it entails.

### **8.3.7 Institutional Change (see Figure 8.9)**

#### **Driving Forces**

The process of devolution from the national to the regional level of governance is one that has economic roots, and is driven by exogenous (to the national) developments,



such as the EU and globalisation (see Vigileos 2001). This process of institutional change is driven by the economic necessity to develop the regional economy in order to attract foreign direct investment (FDI) and to develop regional capacity to compete in the global markets. Although this is the role of the RDAs, a parallel development has been that of the Regional Assemblies, whose role is to oversee the work of the RDAs and to continue the development of regional planning. In waste management this has amounted to the creation of the RTAB, which is pivotal to the development of a regional waste management strategy.

### Barriers

The barriers in the area of institutional change are set in the governing institutions themselves. Some problems are those inherited from past practices, which led to a lack of meaningful set of regional waste management data from LAs. Insufficient planning guidance for waste management at this level and a lack of urgency about waste management issues can be considered main culprits for this situation. The impetus given by the PPG10 by creating the RTABs and setting regional self sufficiency as one of the goals of waste management planning resulted in a mobilisation of resources to work on a set of regional waste management statistics. This can be seen on the model as a change in distribution of resources, instigated by formal institutions, which empowered the key actors to form new groups and to come to some form of collective action, in this instance the basis for a regional strategy. The task, involving the EA whose responsibility it is to compile such information, and LAs and the WMI as providers of data, was carried out through the RTAB, resulting in the Regional Strategic Waste Management Assessment for the SW Region. Although it is too early to assess the effects of this document in terms of institutional and cultural feedback, the presence of strong barriers will undeniably impede any implementation of strategy.

There are limited powers at the moment at the regional level, and even less so for the RTAB, which is meant to be an advisory body dealing with the technical issues.

However, waste management is about much more than development of technology, it is a deeply rooted socio-economic issue with serious environmental effects. It is for this reason that it is a difficult area to develop at the regional level.

At the moment, the Regional Assemblies are not directly elected, and although there are representatives from all constituent LAs participating in decision making, they have little power as a regional body over the LAs. Waste management contracts, which predetermine what the regional strategy will be on the ground, are still prepared by LA waste managers, and any attempt to bring that up to a sub-regional or regional level would require in essence the stripping of some of the functions of Counties and Unitary Authorities. The public expects their solid waste to be dealt with at the local level, and this gives the mandate to politicians and LA officers to resist any such change. Parochialism therefore remains a major barrier to the regionalisation of waste management.

The perceived uncertainty about the development of regional powers, and whether the devolution of power to the regions in England is going to go as far as it has in Scotland or Wales, creates a mental barrier under which the participating organisations find it difficult to commit human resources. This affects the key actors involved in the process directly, in terms of affecting the shared organisational perception under which they function and make decisions, and indirectly, as the organisational culture creates an institutional feedback effect through which less resources are made available to key actors. The regional solution is thus again underpowered.



## 8.4 Review

The question throughout this study, of whether existing institutions are adequate, and what institutional changes are needed to achieve a move towards more sustainable MSWM at the regional level, is based on the hypothesis discussed in chapters 2 and 3, that under some conditions a regional approach is more advantageous to society as a whole, and therefore desirable.

The drivers for a regional approach to waste management advocated by Hickman, (1993) namely the development of recycling and other markets, which are regional in nature, increasing cost to Local Authorities of MSWM (due to more regulation backed by stronger demand from society for a healthier environment), and the economies of scale especially in the case of recycling and energy recovery options, and those advocated by Renn and Goble (1996), namely the diffusion of the political cost of siting, and increasing available options and public participation, are supported by the findings of this study.

The need for regional institutions for the pursuit of sustainable development is a qualified one. Although the English Planning Regions are properly demarcated areas, they are not necessarily as homogeneous as Nijkamp and Vreeker (1998) would want them. This is especially the case with the South-West region, which can therefore more easily be sub-divided into sub-regions for purposes of homogeneity. Policy and strategic analysis of sustainability issues does seem appropriate at this level due to existing administrative arrangements and competencies and there is a coherent effort through the Environment Agency and the RTAB to collect statistical MSWM data at this level. There are therefore advantages to the regional size, especially at the political level, as pointed out by Renn and Goble (1996). The development of regional institutions offers a good vehicle to overcome problems of political parochialism. It also provides a good impetus for economic restructuring and co-operation between Local Authorities, regulators, business and other organisations. In a way, Thrift and



Amin (1995), who argue that the development of institutions (institutional thickness) is necessary for regional development, and Bennett (1997), who sees economic orientation and not institutions as the key element, may be looking at 'two sides of the same coin'. The economic orientation provided by sustainable development is pivotal, and yet without adequate institutional development many opportunities will be forgone. As Scott (1998) points out, some forms of institutional thickness can promulgate dysfunctional attitudes and habits. The case of the South-Western region can be seen in a similar light. There is always the danger of the regional approach not going far enough in terms of securing the resources – capital and human capacity, and not addressing the democratic deficit, nor securing the support of political networks and of a participating society. Such a development could severely hamper the move towards sustainable MSWM.

## 8.5 Conclusions and recommendations

There are significant barriers to the movement towards more sustainable MSWM in the South West of England Region. Existing institutions and institutional arrangements are inadequate to tackle the growing problem of MSWM in the SW. The most significant barriers occur in the areas of 'culture', regional institutional capacity, and markets.

In the area of 'public culture', the interrelated issues of awareness, empowerment and participation are those key issues that need to be addressed. A top-down action is required as a catalyst to stimulate a bottom-up movement towards more sustainable solutions. Without public support and positive public involvement in waste management, the key LA actors find themselves powerless to instigate any significant changes in the way MSW is managed.

The existing 'organisational cultures' prevailing in all key participant organisations further weakens the ability of key actors to make significant progress towards some form of regional level collective action. Although there is general agreement as to the meaning of sustainable waste management, there is confusion about the interpretation and use of the decision-making tools that appear in UK policy and strategy.

Existing regional institutions, which are rapidly developing in the region, are powerless to formulate a regional strategy that they could implement. The development of the RTAB and Regional Assembly for the SW offer the potential for significant change in the way MSW is managed and planned for, but are unable to overcome the problem of parochialism without a regional democratically based mandate. There are questions as to the willingness of the Government to proceed with devolution of power to the English regions, without which no meaningful regional strategy can be expected to develop. In effect, the region remains the sum of its LAs, and it is their individual contracts which shape the regional strategy on the ground. A re-organisation of waste management planning in the region would necessitate deep structural changes in the existing arrangements, and a change in responsibilities and powers.

The influence of the markets related to MSWM on the movement towards more sustainable MSWM should not be underestimated. The markets for recycled materials and compost are inadequate to sustain any recycling strategy promulgated by the LAs, with some materials being more problematic than others. Funding for programmes aimed at changing consumer behaviour is not forthcoming from central government, and the lack of regional strategy means that it is not likely that an adequate capacity for reprocessing materials will develop for the region.

The structure of the WMI indicates the development of oligopolistic tendencies for the provision of MSWM services for the region, and although competition does not at



present seem to be a lacking, it is quite possible that a conflict of interests between stakeholder groups could emerge.

### Development path for Sustainable MSWM

The barriers mentioned above need to be addressed and lowered before sustainable MSWM can be achieved. The main *underlying* barrier in the development of sustainable MSWM, however, is the existing *economic structure* and economic development path that it engenders. This is in conflict with what would be a set of *social values* compatible to sustainable waste management, and it is in this area that change needs to occur. The existing economic structure presents an issue that could only be addressed in the long run, yet the problems stemming from it will provide a challenge to be met along the way.

The key to change in MSWM is the public, whose behaviour will not change without firstly a change in world-view to incorporate the awareness of what solid waste production and its subsequent management does to the environment, and the economic costs, which all stakeholders must incur in order to improve the situation. To influence public perception however, there is the need for costly awareness raising programmes. This could well run contrary to the political objectives of a growing and intensive resource consuming economy.

### Recommendations

Although the sources of funding are mostly within the domain of the waste management industry and central government, the key to any sustainable regional solution is true and informed public participation in both the operational process (change of attitudes towards production of waste, recycling, and other forms of



management) and the process of developing a (sub) regional strategy<sup>100</sup>. In order for this to happen, one prerequisite would be to involve the public from the beginning of the process, setting the agenda, which means that environmental NGOs, up to now taking a reactive stance to strategy, need to be included in the process of identifying the options. This will allow the movement of the debate about the appropriate and sustainable mix of options from the end of the process (siting of facilities), to the beginning (setting the strategy). The participation of NGOs does not have to lead to a stalemate, or the stagnation of bodies such as the RTAB. A change in attitude between key actors would follow if there were public support for it, through much improved participation mechanisms (see Figure 8.10).

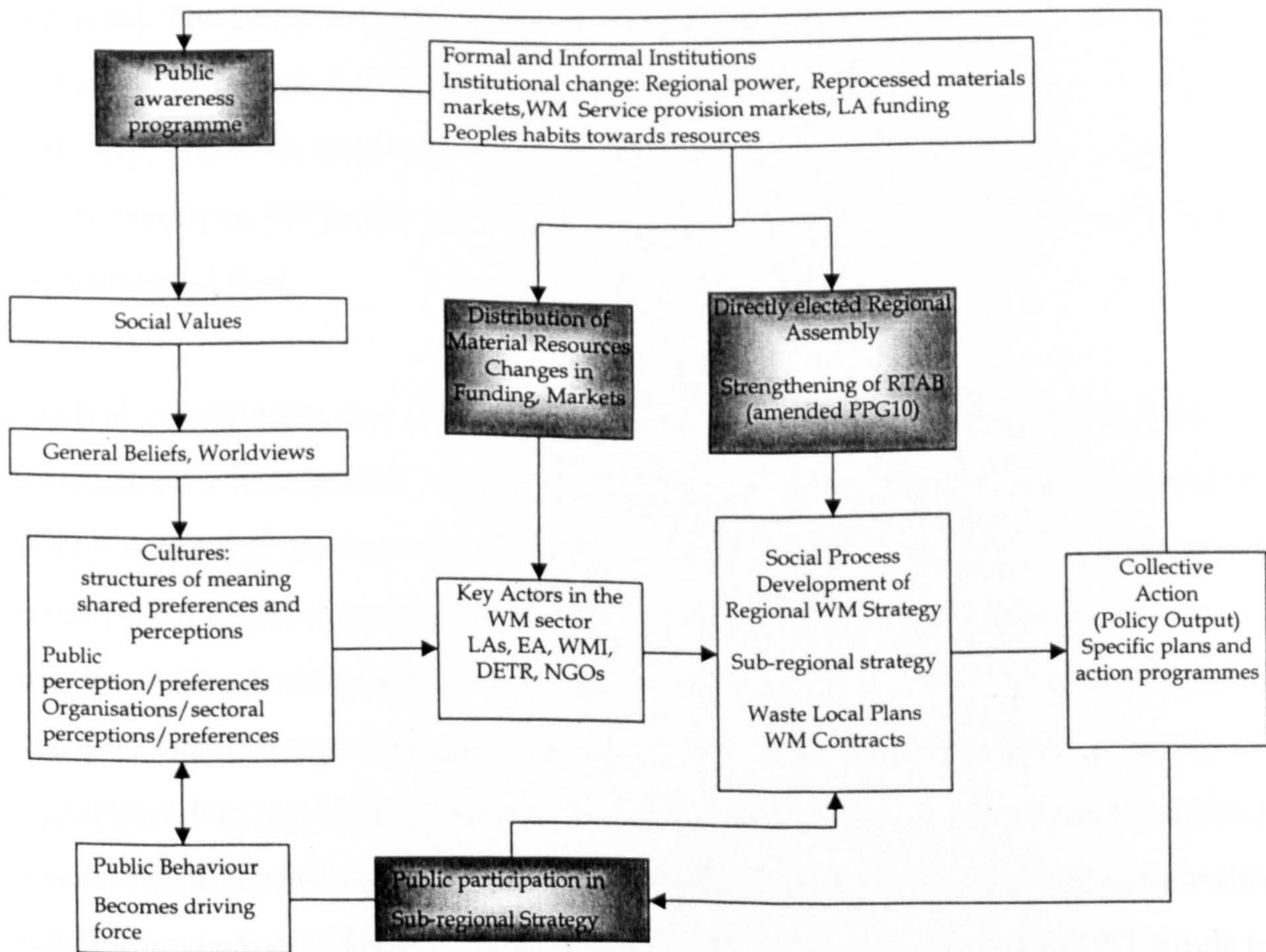


Figure 8.10 Changes in institutional arrangements for the approach of Sustainable MSWM in the SW Region of England

<sup>100</sup> True public participation in this case would be in the form of focus groups and citizen juries with public involvement from the initial stages of setting the agenda, rather than limited to the opportunity to respond to the Waste Planning Authority Waste Local Plan



The funding that is needed to achieve public participation needs to be secured by the Regional Assembly from central government. The funds from the landfill tax could be used for funding programmes aimed at changing public attitudes towards waste creation, increasing public participation, and shoring up recycling and composting markets. This would increase the effectiveness of this measure, acting not only as a deterrent to landfill, but also as a much needed source of funds for more expensive, yet better for the environment, waste management options. Many of the institutional changes required need to be instigated by central government. The attitude of non-intervention in the markets could be a long-term goal, yet at the moment some markets need to develop (such as recycling and composting), and some need to be monitored or regulated more closely (such as the provision of waste management services). The polluter pays principle needs to be applied to MSWM. The government could use economic instruments to encourage waste minimisation in commerce and industry, and even empower LAs to make the costs of MSWM more directly relevant to the taxpayer, yet public education on the impacts and choices in MSWM needs to be addressed first.

Central government also has to move on the issue of empowering the regional institutions it has created, with direct effect in the regional planning processes for SWM. Although devolution is a much broader political issue, there is little hope of a meaningful regional strategy developing within the present structures of power at this level. The development of a regional strategy for SWM is a process subject to complex institutional arrangements, and one which needs to address a variety of significant barriers aside from just the technological. There is the need therefore for government funded regional level institutional research in the area of sustainable waste management. This could be achieved by using regional ENTRUST funds to, for instance, fund research in order to provide an institutional perspective on the further development of regional waste management strategies for the English regions, and to examine how these could best lead to more sustainable waste management.



LAs need to avoid investing themselves in long-term MSWM solutions that could run against a sustainable regional strategy. Although the government does advise LAs to remain flexible, there is no statutory barrier in them ignoring this guidance. Although some EfW facilities seem inevitably part of any (sub) regional mix of SWM options, the haphazard way this investment is happening at present does not bode well for a sustainable regional strategy. To prevent the regional strategy from being potentially hijacked by long-term LA waste management contracts and planned WM facilities which are supported by them, the RTAB should be given the power, through an amended PPG10, to contest LA Waste Local Plans and to block planning applications for the siting of facilities that do not contribute to the implementation of the regional waste management strategy.

MSWM is one issue that needs to be raised above the local political level and parochialism. LAs need to accept the loss of authority and responsibility this entails, and move on to actually support a more regional focus on MSWM planning, which would constitute a bottom up move for empowerment of the regional planning authorities and bodies.

The funding for the development of better, cleaner technologies for the management of waste needs to come from the waste management industry itself, which is the only actor in the region that could shift gears in that direction. The incentives are many, and include a better environmental public image for the sector, more acceptable by the public waste management solutions and easier siting of WM facilities as a consequence, as well as the avoidance of excessive costs to adapt to stricter regulations from the EU. These incentives, however, might not be enough to motivate the waste management industry, and economic instruments, such as tax relief for research and development of alternative technologies could be used profitably.



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## EPILOGUE

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**Method revisited: the gift of hindsight.**

The institutional economics framework provides an interesting and necessary approach to analysing environmental policy issues such as waste management. It provides the researcher the opportunity to analyse the political and socio-economic aspects of decision-making. The use of the institutional approach in the examination of arrangements for the delivery of sustainable MSWM in the South West region of England, together with the guidance of the model, unearthed a plethora of barriers, both in the institutional arrangements, and in the perceptions and attitudes of key actors and the ultimate stakeholders - the people.

The inclination of institutional economics to look at research not inductively or deductively, but rather abductively ('intuition kindled in the tinder of assimilated facts', see Charles Pierce -chapter 3) gives the institutional approach a methodological flexibility. The data does not have to prove nor generate a theory, but can do both and more in the sense that it can redirect the analysis to areas of significance as they crop out in the field. Thus, although such research can tend to be descriptive, in terms of focusing on the various institutions present in a policy process, and how they shape or affect the outcome of that process, its flexibility allows the researcher to take into account the often highly complex arrangements and interrelationships between broader variables, such as public perception and habitual behaviour, to specific elements such as the particular process of interaction amongst actors, or rules for participation in the decision making process.

The ability to internalise culture (including organisational culture) and a complex array of actor networks, within an institutional and economic context, without having to make unrealistic assumptions on human behaviour, is a key strength of



institutional economics analysis. Institutional analysis, does not rely on any specific quantitative technique, but rather on qualitative data. It is possible, however, if justified by the aims of the research project, to incorporate quantitative techniques in institutional analysis.

The FFA used in this work, for example, although not strictly a quantitative technique, does introduce the element of measurement (of actor perceptions and preferences). Alternatively, and provided that the sample sizes were large enough, one could use statistical analysis to examine the perceptions of key actors, and key actor groups. The FFA used, however, does lead to an output that allows a relatively clear visual comparison of the results categorised by group, and this was preferred in this case.

Improvement on this approach could include a more straightforward correspondence between the categories of issues used in the FFA questionnaire and those used in the interviews. This would probably require carrying out the interviews first, and then using the issues arising to draw up the questionnaire (in this case a pilot study was used instead). Although this could facilitate the data analysis, it would most likely result in a much lower rate of questionnaire completion, which in this case was deemed essential to avoid, due to the limited number of key actors in the case study.

This study does raise some important questions. Firstly, given the importance of public awareness, behaviour, and attitudes towards participation in waste management, what can be done to improve on the existing situation? In other words, which actors and with what means could exert influence in this area? Secondly, there is the issue of decision-making at the Local Authority political level, which has significant influence on any regional decision-making processes. Further research could address the relationship between decision-making processes at the local and regional level, and examine the institutional changes needed to make this relationship work, in a way which is more effective, and also retains the democratic process of

governance. It would also be interesting to attempt to clarify the criteria used in waste management decision-making processes (at the local and regional levels) that involve weighing up environmental, social and economic costs. Thirdly, the question arises as to the combined effect of the economic instruments used at present, and others that might be introduced, on the competitiveness between waste management options. Clearly, the landfill tax, for example, is having some positive effect on choices regarding future use of waste management options, but also some negative effects (such as fly tipping). The question arises as to whether the economic instruments used are adequate, and if not, what can be done to internalise externalities in waste management.

Apart from the institutional approach, which is useful for examining the above research questions, a variety of other approaches could be gainfully employed. Input-Output analysis, for example, could be used to examine the effect of economic instruments in a more quantitative data intensive approach. A variety of decision-making models exist, and could be used to examine the decision-making issues at the local and regional levels (see for example Lamb *et. al.*, 1999).

*"Of the writing of the books there is no end"*

*Ecclesiastes 12:12*

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**Appendix 1 Questionnaire**

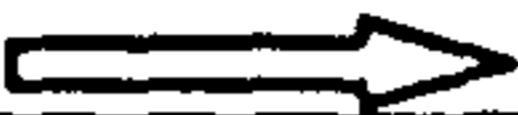
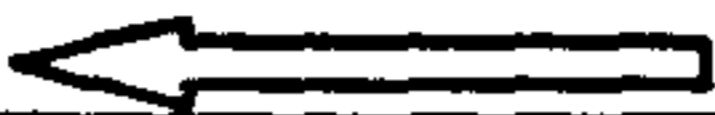
**It only takes a minute - but please don't bin it!**

The following tables list Driving Forces and Barriers to Sustainable Waste Management. Please rate the following driving forces and barriers to sustainable MSWM (Municipal Solid Waste Management) in terms of strength by circling that number which in your opinion corresponds to the strength of that force at present (from 0=negligible to 5=very strong).

Feel free to add any comments and any other forces which you think are significant. Please return the completed questionnaire in the pre-paid envelope provided. Thank you for your time.

0 negligible      1 very weak      2 weak      3 medium      4 strong      5 very strong

OPERATIONAL	
DRIVING FORCES	BARRIERS
Scale of WM operations is right 0.....1.....2.....3.....4.....5	Scale of WM operations is too small 0.....1.....2.....3.....4.....5
Cost of non-compliance to WM Regulations 0.....1.....2.....3.....4.....5	Existing contracts : tying us into implementing sub-optimal options 0.....1.....2.....3.....4.....5
Waste stream composition supporting sustainable options: e.g. high proportion of 'clean' recyclable materials 0.....1.....2.....3.....4.....5	Waste stream composition and change: e.g. More plastic and composite materials impeding higher options such as recycling 0.....1.....2.....3.....4.....5
Facilities available and accessible for public to participate in WM system (composting and recycling activities) 0.....1.....2.....3.....4.....5	Recycling and/or composting facilities are unavailable or inaccessible to the public 0.....1.....2.....3.....4.....5
Material and energy recovery easier to implement due to large urban centre(s) centrally located 0.....1.....2.....3.....4.....5	Location : many small remote rural communities 0.....1.....2.....3.....4.....5

0 negligible	1 very weak	2 weak	3 medium	4 strong	5 very strong
<b>POLICY, MANAGEMENT AND ADMINISTRATIVE STRUCTURE</b>					
<b>DRIVING FORCES</b> 			 <b>BARRIERS</b>		
EU legislation 0.....1.....2.....3.....4.....5			EU legislation 0.....1.....2.....3.....4.....5		
UK legislation 0.....1.....2.....3.....4.....5			UK legislation 0.....1.....2.....3.....4.....5		
Local legislation 0.....1.....2.....3.....4.....5			Local legislation 0.....1.....2.....3.....4.....5		
Evolution of waste management planning to a regional level 0.....1.....2.....3.....4.....5			Lack of institutions at the regional level to support waste management 0.....1.....2.....3.....4.....5		
Local pressure for a more sustainable waste management system 0.....1.....2.....3.....4.....5			Increased difficulties in implementation due to public participation in the decision making process 0.....1.....2.....3.....4.....5		
Willingness of public to support implementation 0.....1.....2.....3.....4.....5			Local politics : political cost outweighs environmental and social considerations 0.....1.....2.....3.....4.....5		
Political support for a regional approach to waste management 0.....1.....2.....3.....4.....5			Political opposition to changes in waste management to a more regional level 0.....1.....2.....3.....4.....5		
Pressure groups within the regional /national policy process 0.....1.....2.....3.....4.....5			Inadequate mechanisms for the development of a regional level strategy 0.....1.....2.....3.....4.....5		

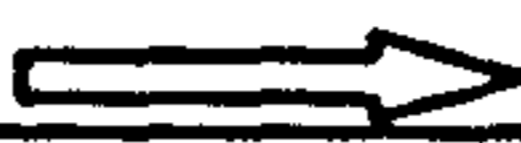
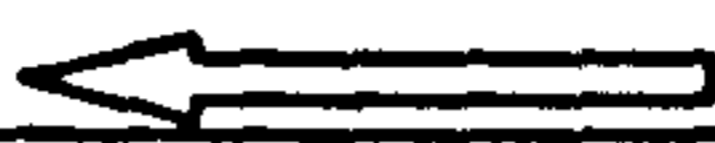


0 negligible      1 very weak      2 weak      3 medium      4 strong      5 very strong

ECONOMIC FACTORS	
DRIVING FORCES	BARRIERS
Available funding/ subsidies are adequate for the promotion of waste reduction and recycling 0.....1.....2.....3.....4.....5	Lack of funding/ subsidies 0.....1.....2.....3.....4.....5
Secondary materials market: Profitable, demand is dependable 0.....1.....2.....3.....4.....5	Secondary materials market: Prices are too low 0.....1.....2.....3.....4.....5
The use by Waste Managers of Best Available Technology Not Entailing Excessive Cost (BATNEEC) 0.....1.....2.....3.....4.....5	The use by Waste Managers of the Cheapest Available Technology Narrowly Avoiding Prosecution 0.....1.....2.....3.....4.....5
Pricing system for waste services is adequate to achieve a high level of environmental protection 0.....1.....2.....3.....4.....5	Pricing system for waste services is inadequate to achieve a high level of environmental protection 0.....1.....2.....3.....4.....5
Market conditions allow the implementation of more environmentally friendly WM options. 0.....1.....2.....3.....4.....5	More environmentally friendly options are too expensive to implement 0.....1.....2.....3.....4.....5
Economic instruments are environmentally effective (higher recycling %, waste reduction) 0.....1.....2.....3.....4.....5	Local financial resources for MSWM are inadequate 0.....1.....2.....3.....4.....5
Adequate financial resources are allocated to the development of Regional level WM solutions 0.....1.....2.....3.....4.....5	Use of market based instruments leading to unsustainable practices (such as fly-tipping) 0.....1.....2.....3.....4.....5
Fair compensation is given to communities burdened with MSWM facilities 0.....1.....2.....3.....4.....5	Secondary materials market: Demand is unreliable 0.....1.....2.....3.....4.....5



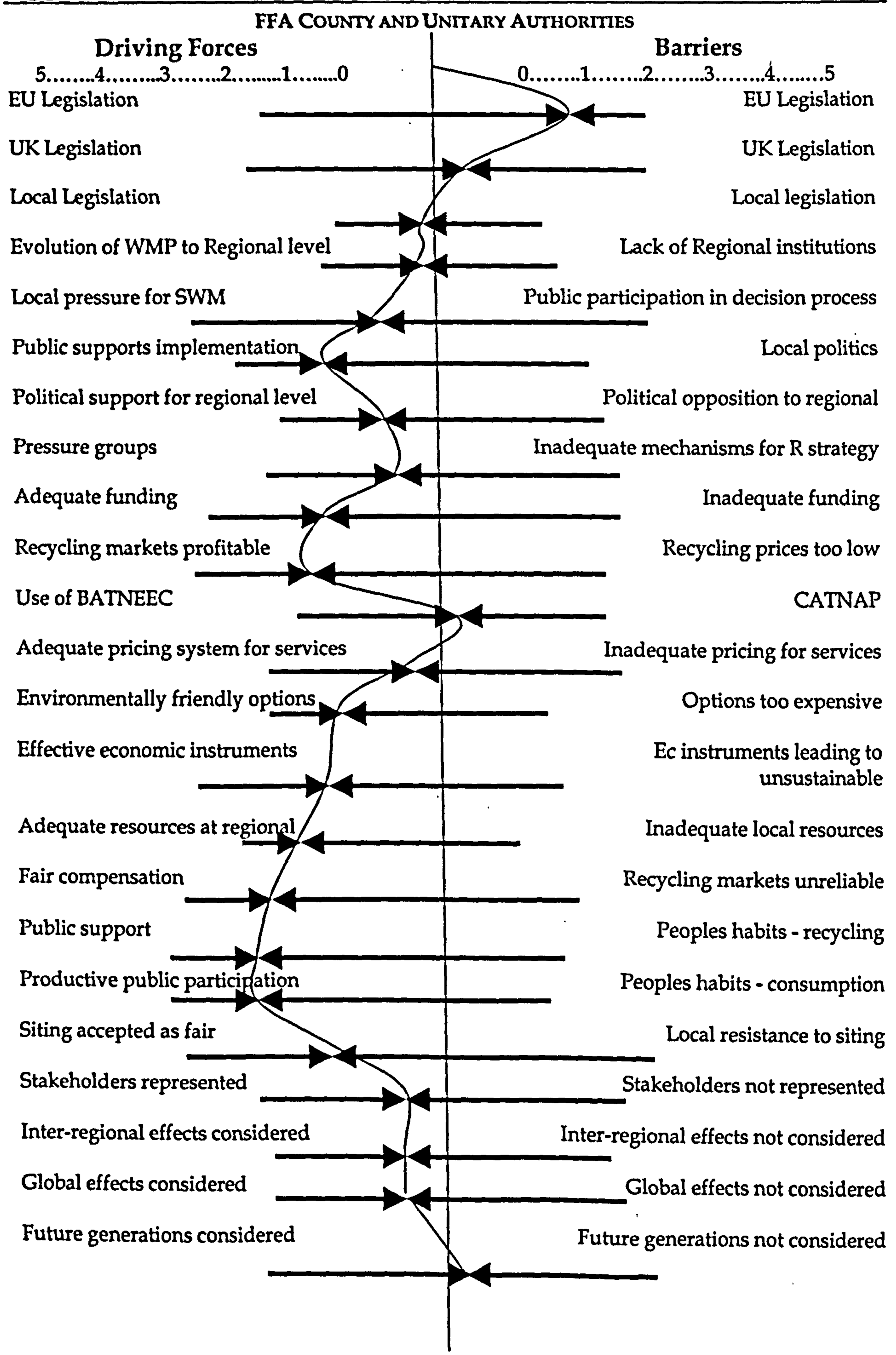
0 negligible      1 very weak      2 weak      3 medium      4 strong      5 very strong

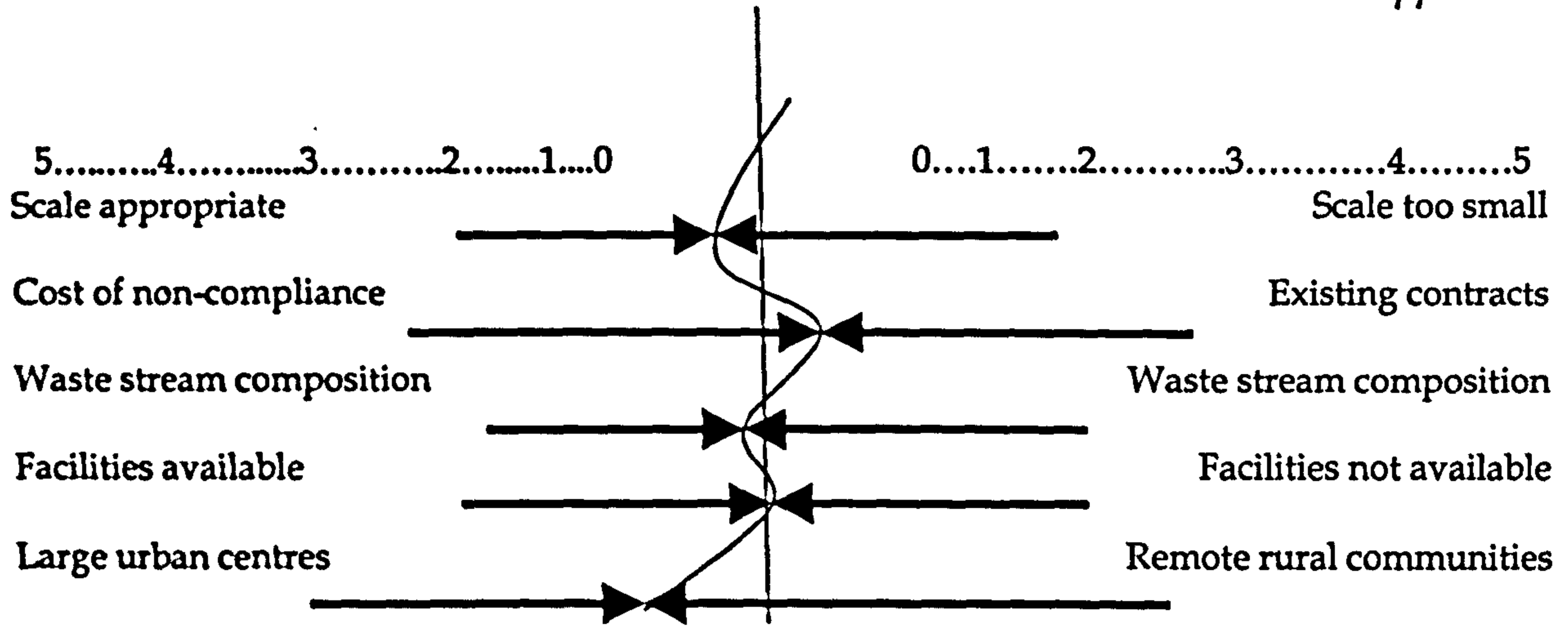
SOCIAL CONSIDERATIONS	
DRIVING FORCES 	 BARRIERS
Public is supportive of waste management in the region 0.....1.....2.....3.....4.....5	Peoples habits: for example, difficult to change towards more recycling 0.....1.....2.....3.....4.....5
Public participation in decision-making process is adequate and productive 0.....1.....2.....3.....4.....5	People consuming products which generate waste difficult to deal with 0.....1.....2.....3.....4.....5
If siting process for landfill, civic amenity or recycling facilities is accepted as fair 0.....1.....2.....3.....4.....5	Local resistance to the siting of WM facilities 0.....1.....2.....3.....4.....5
All stakeholder groups are adequately represented in decision making process 0.....1.....2.....3.....4.....5	Stakeholders are not adequately represented in the decision making process 0.....1.....2.....3.....4.....5
Effects of waste management on other regions are taken into serious consideration 0.....1.....2.....3.....4.....5	Local considerations of waste management makes consideration of other regions unrealistic 0.....1.....2.....3.....4.....5
Effects of waste management on the global environment are taken into serious consideration 0.....1.....2.....3.....4.....5	Local considerations of waste management makes consideration of the global environment unrealistic 0.....1.....2.....3.....4.....5
Effects of waste management on future generations are taken into consideration 0.....1.....2.....3.....4.....5	Effects of waste management on future generations are not taken into consideration 0.....1.....2.....3.....4.....5

IS THERE ANY OTHER SIGNIFICANT DRIVING FORCE OR BARRIER WHICH YOU THINK SHOULD BE CONSIDERED IN THE DRIVE FOR SMSWM?

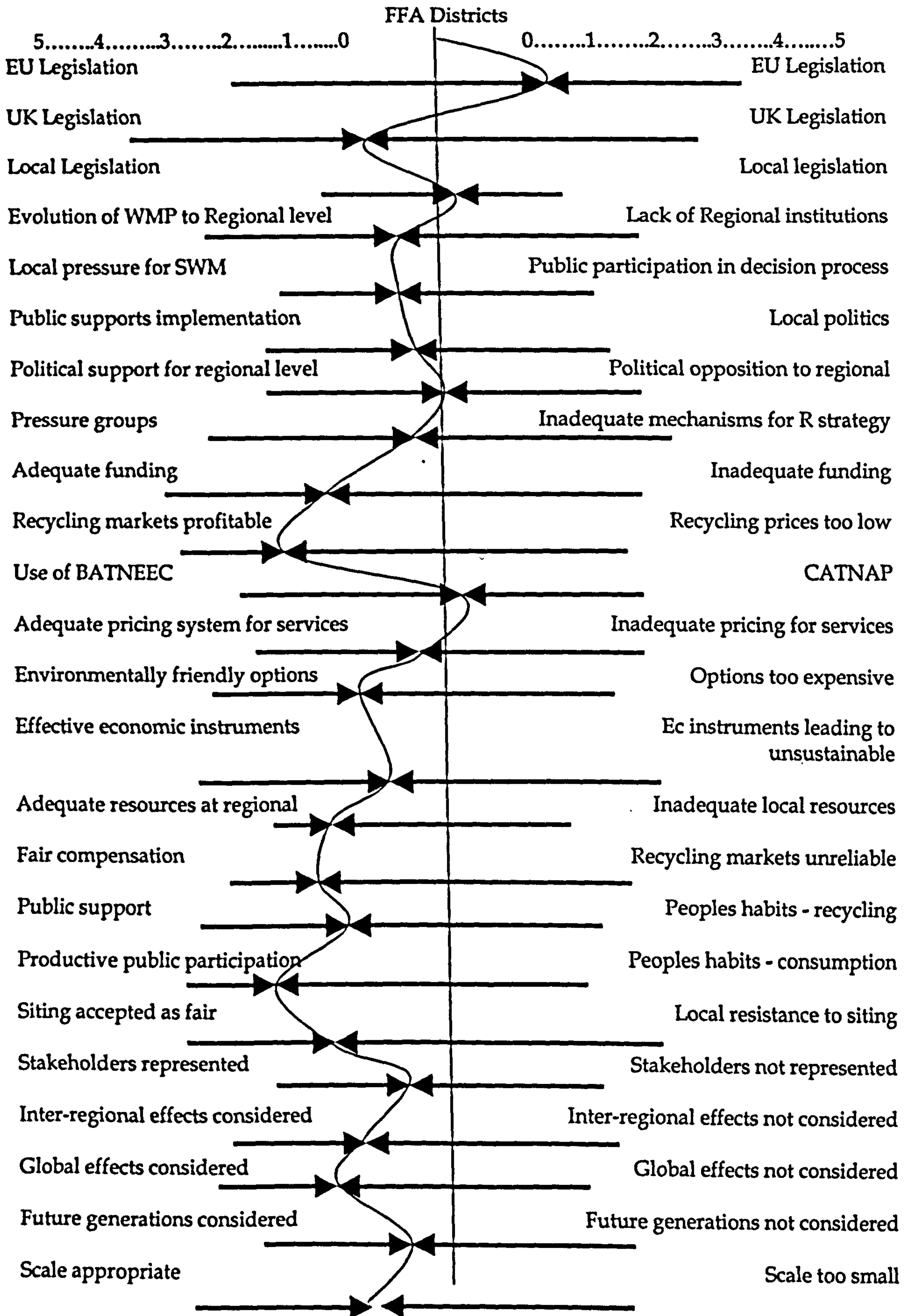
Appendix 2

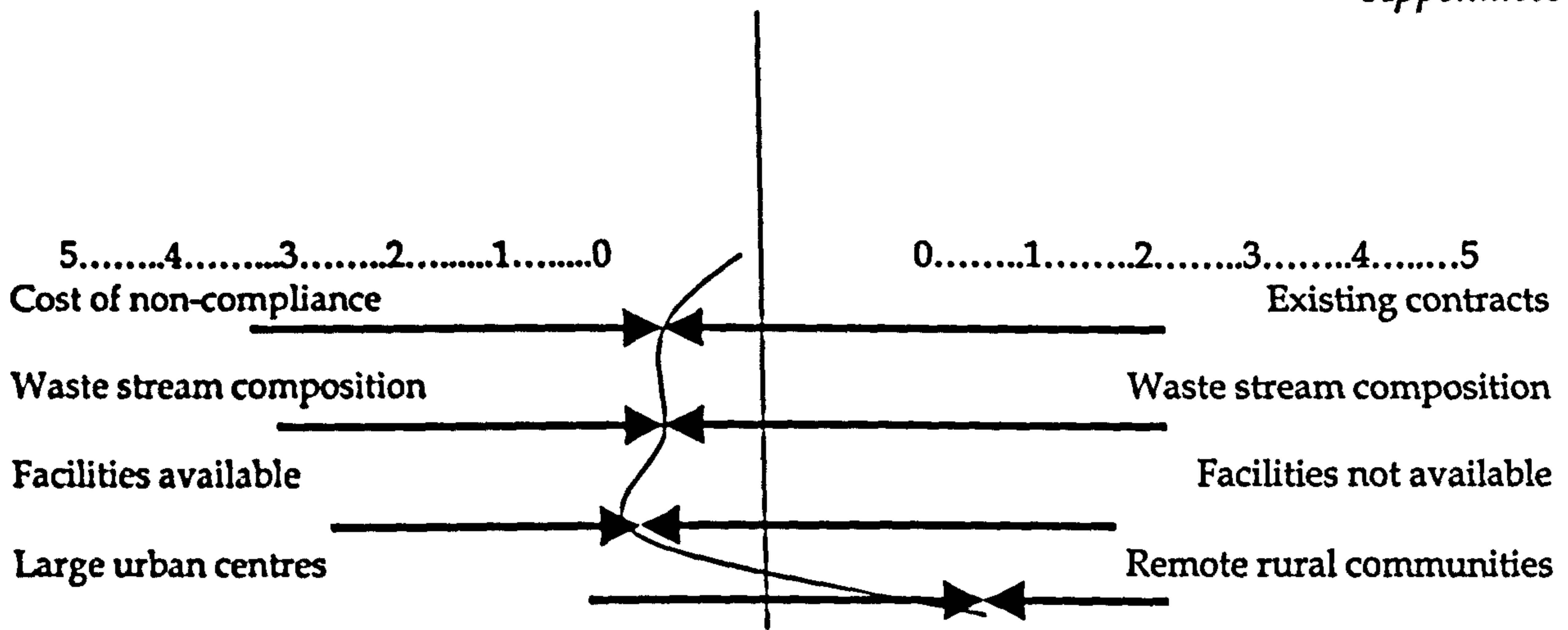
Dis-aggregated FFA

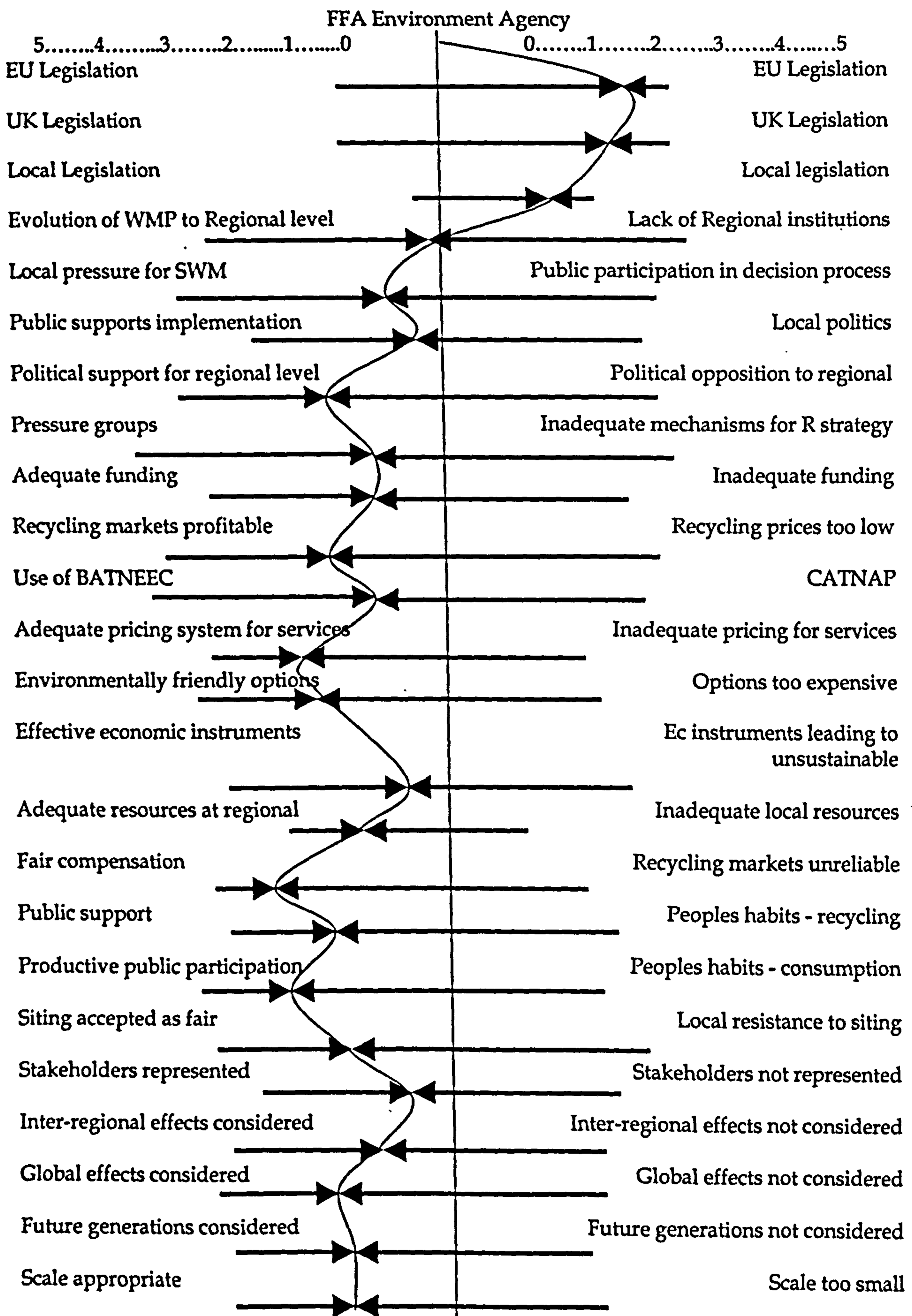




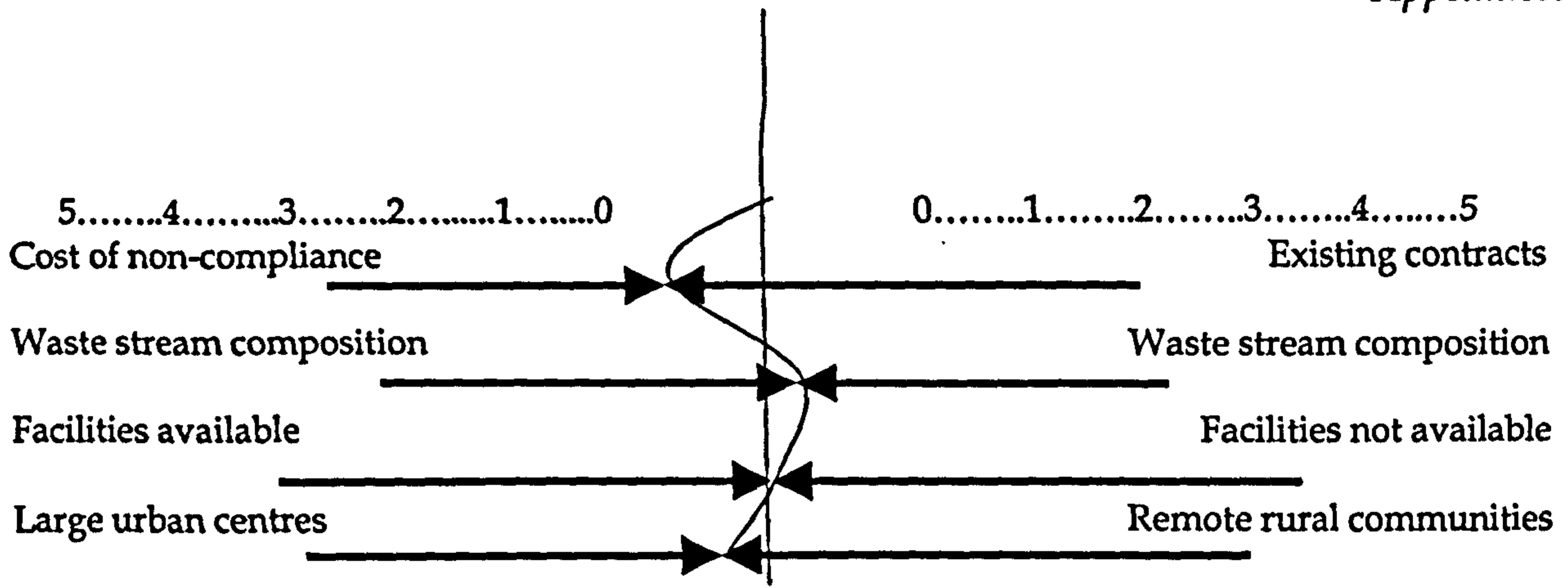


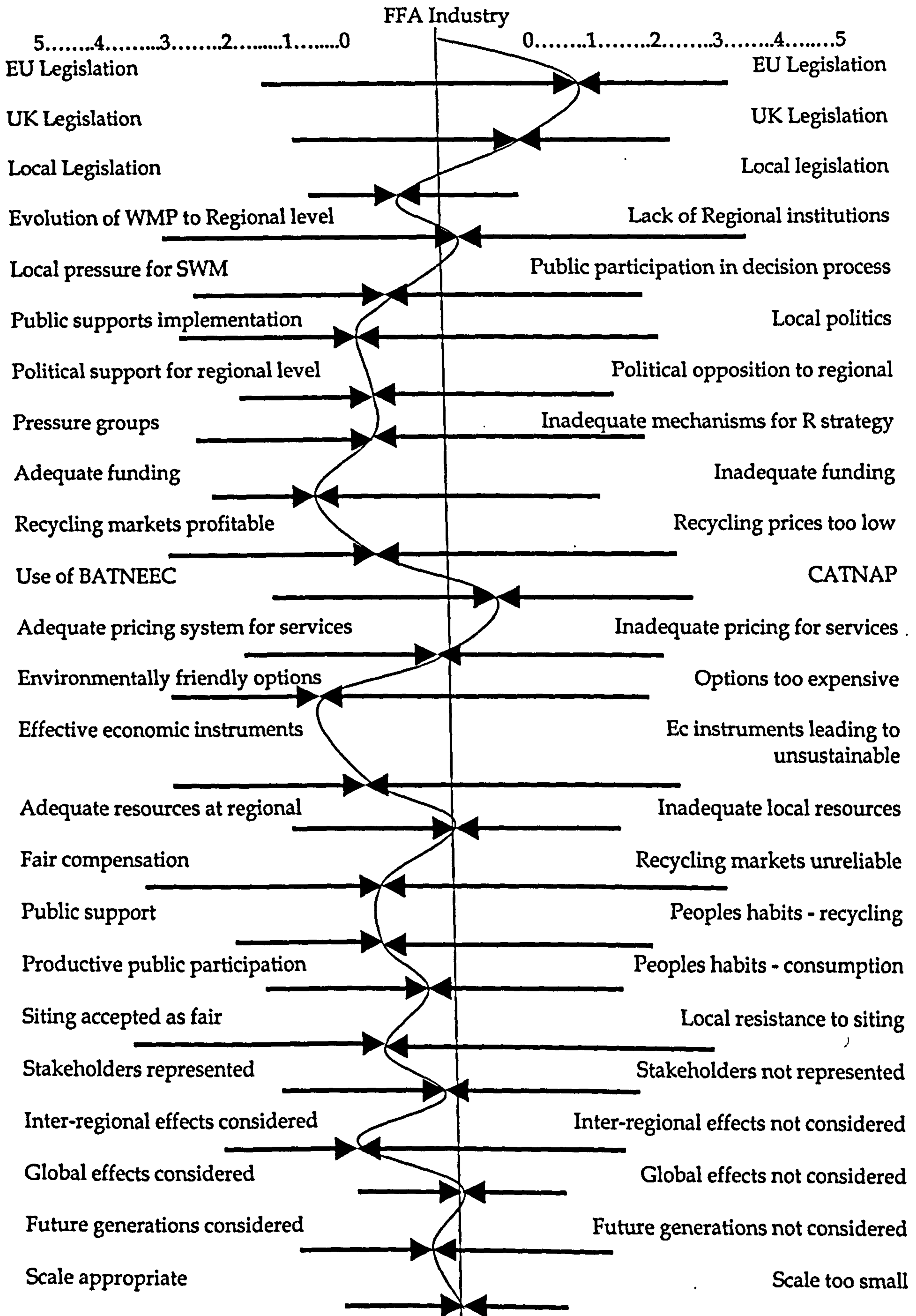


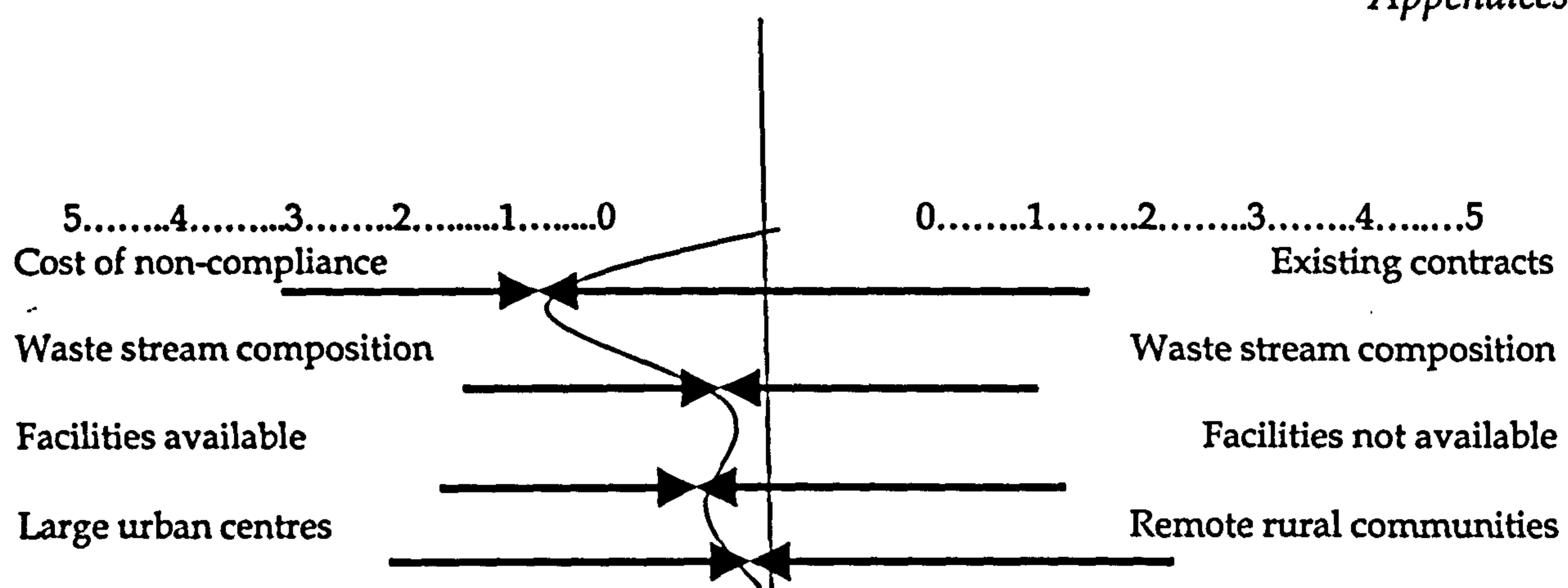




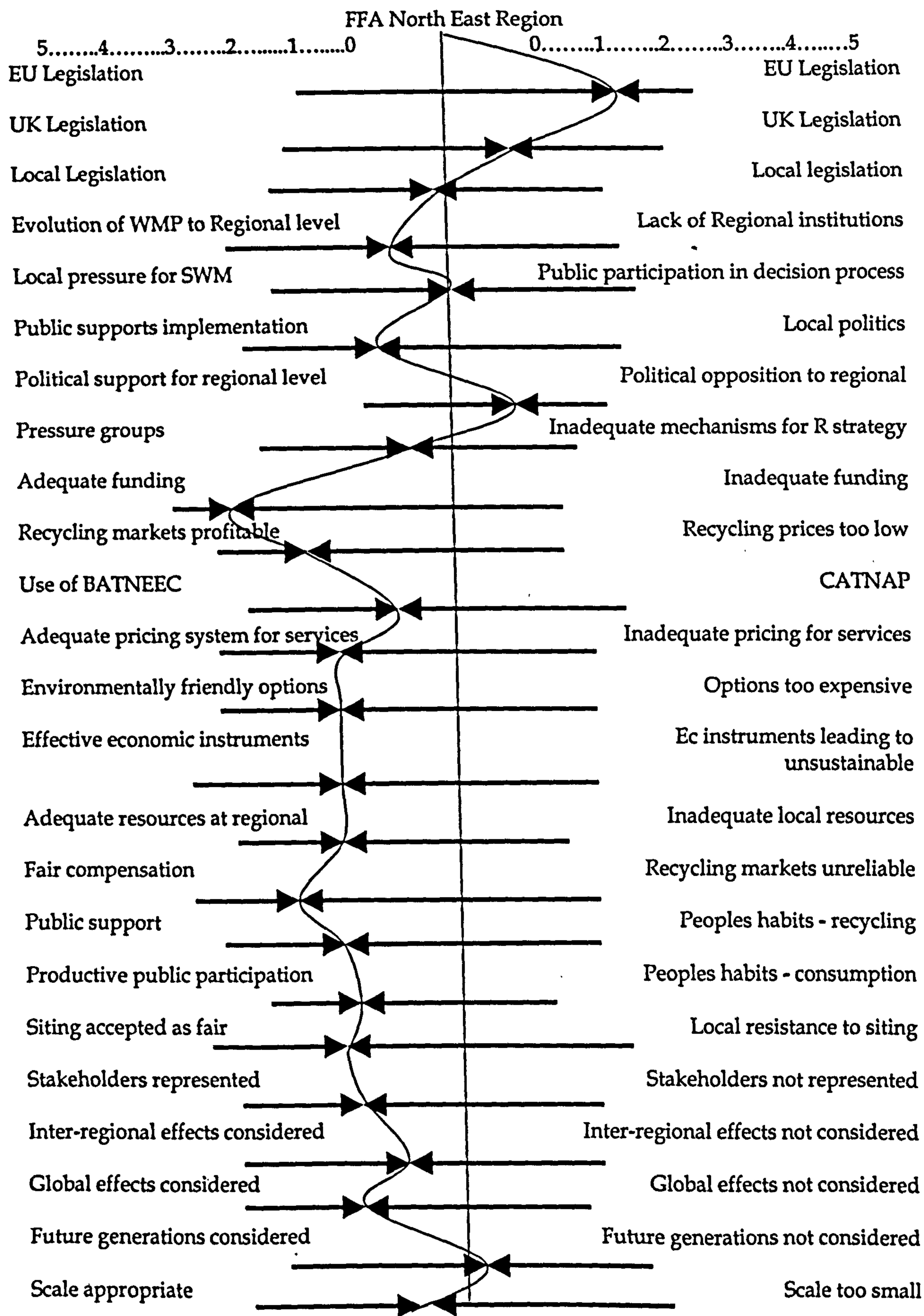


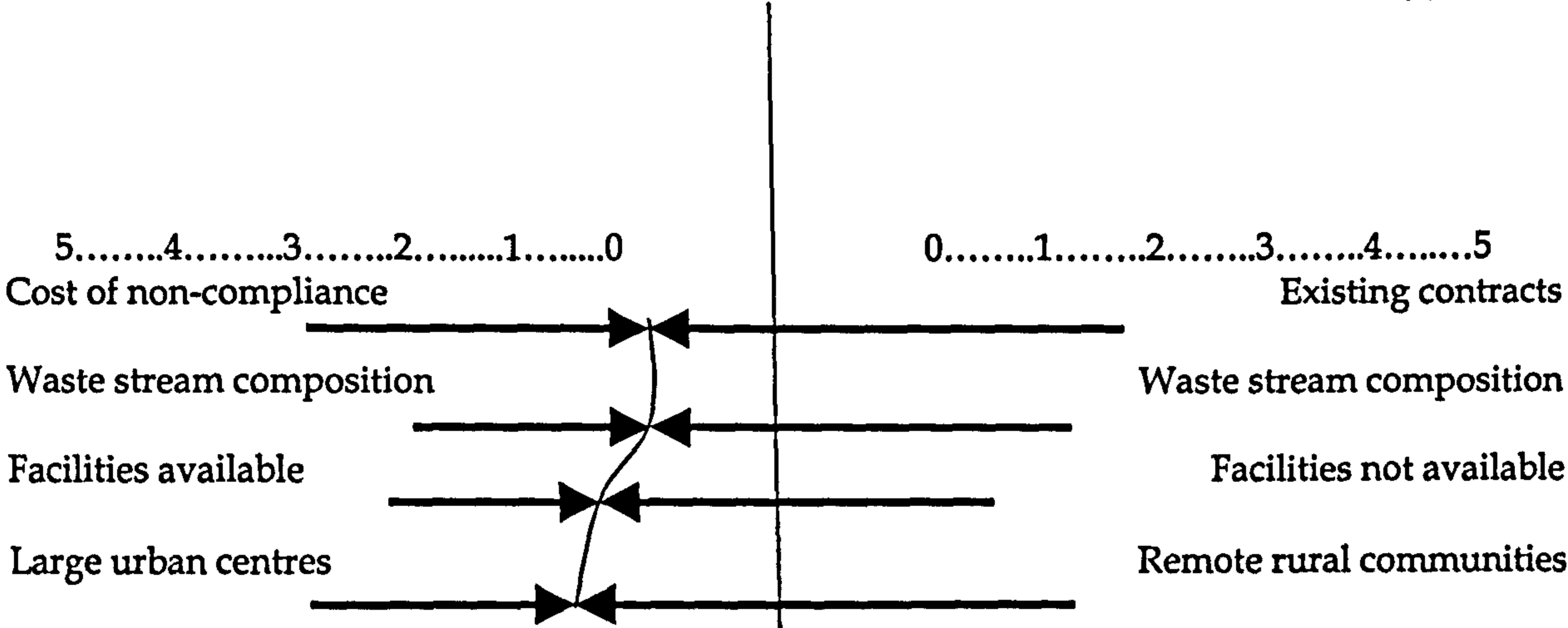


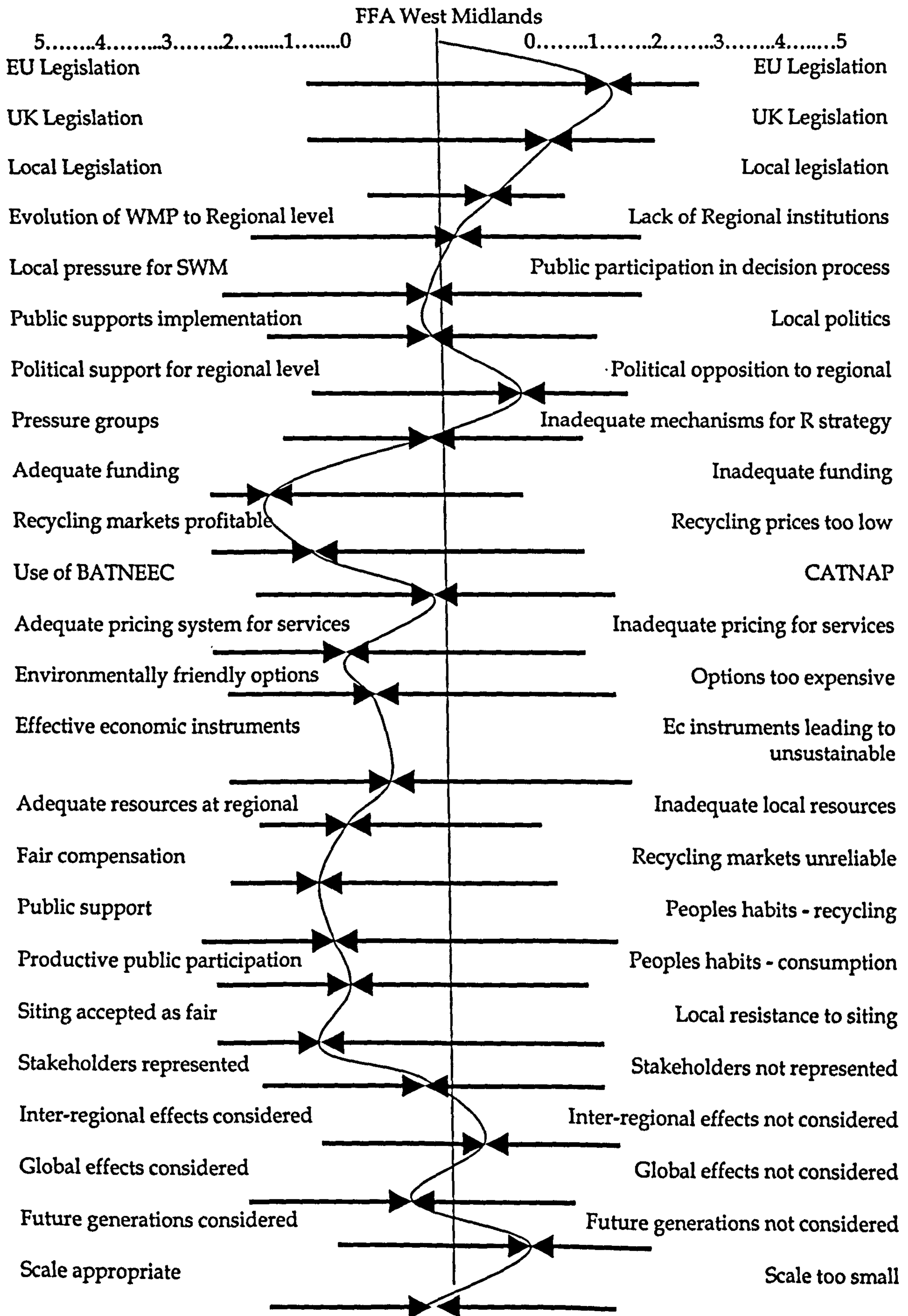




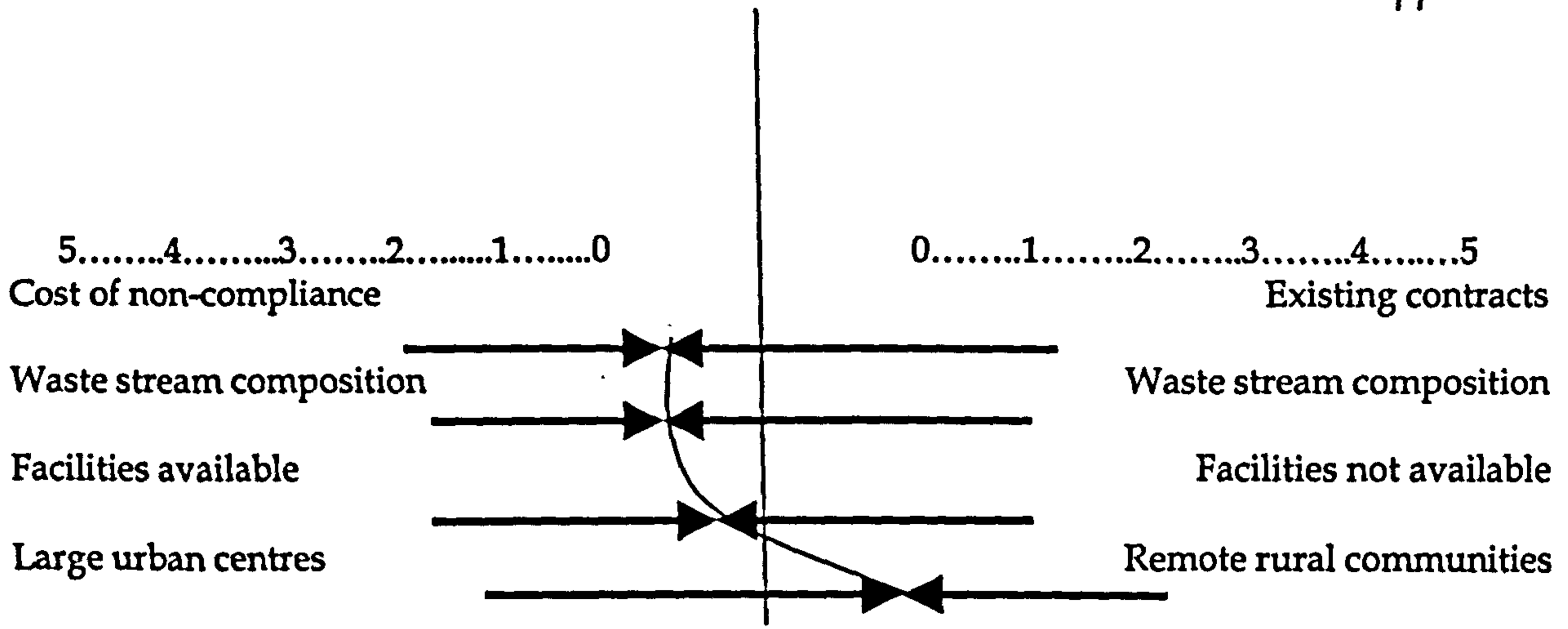












**Appendix 3 Key for Condensed FFA**

Driving Forces		Barriers	
D1	Scale of WM operations appropriate	B1	Scale of WM operations too small
D2	Cost of non-compliance	B2	Existing contracts
D3	Waste stream composition	B3	Waste stream composition
D4	WM Facilities available to public	B4	WM Facilities not available to public
D5	Large urban centres	B5	Remote rural communities
D6	EU Legislation	B6	EU Legislation
D7	UK Legislation	B7	UK Legislation
D8	Local Legislation	B8	Local legislation
D9	Evolution of WMP to Regional level	B9	Lack of Regional institutions
D10	Local pressure for SWM	B10	Public participation in decision process
D11	Public supports implementation	B11	Local politics
D12	Political support for regional level	B12	Political opposition to regional
D13	Pressure groups	B13	Inadequate mechanisms for Regional strategy
D14	Adequate funding	B14	Inadequate funding
D15	Recycling markets profitable	B15	Recycling prices too low
D16	Use of BATNEEC	B16	CATNAP
D17	Adequate pricing system for services	B17	Inadequate pricing for services
D18	Environmentally friendly options affordable	B18	Environmentally friendly options too expensive
D19	Effective economic instruments	B19	Economic instruments leading to unsustainable practices
D20	Adequate resources at regional	B20	Inadequate local resources
D21	Fair compensation	B21	Recycling markets unreliable
D22	Public support for WM in region	B22	Peoples habits - recycling
D23	Productive public participation	B23	Peoples habits - consumption
D24	Siting accepted as fair	B24	Local resistance to siting
D25	Stakeholders represented	B25	Stakeholders not represented
D26	Inter-regional effects considered	B26	Inter-regional effects not considered
D27	Global effects considered	B27	Global effects not considered
D28	Future generations considered	B28	Future generations not considered

Driving Force Category	Composition	Barrier Category	Composition
Legislation	D6+D7	Legislation	B6+B7
Regional	D9+D12+D20	Regional	B9+B12+B13
Public Participation	D10+D11+D22+D23	Public Participation	B10+B22+B23
Political Pressure	D13	Political Pressure	B11
Economic	D2+D14+D15+D17+D18+D19	Economic	B2+B14+B15+B17+B18+B19+B20+B21
Sustainable Development	D25+D26+D27+D28	Sustainable Development	B25+B26+B27+B28
Siting	D24	Siting	B24
Management	D16	Management	B16



**Appendix 4 Key Actor Identification - Pilot study**

Regional sustainable solid waste management

**CONFIDENTIAL**

**QUESTIONNAIRE**

Respondents name:

1. In your day to day activities related to waste management, whom do you communicate with most regularly?

NAME	ORGANISATION	TELEPHONE NO

2. When it comes to waste management decisions, whom do you take advice from?

NAME	ORGANISATION	TELEPHONE NO

3. Which company does your district/borough/county use for the collection of waste and for the collection of recyclable materials?

Name of Organisation	Owned by	Materials Collected
	Private Co <input type="checkbox"/> County <input type="checkbox"/>	Solid waste <input type="checkbox"/> Recyclables <input type="checkbox"/>
	Private Co <input type="checkbox"/> County <input type="checkbox"/>	Solid waste <input type="checkbox"/> Recyclables <input type="checkbox"/>

4. In your opinion, who are the key actors in solid waste management for the South West of England?

NAME	ORGANISATION	TELEPHONE NO



## Appendix 5 Interview Structure

---

Date

Name

Title

organisation

---

### SEMI-STRUCTURED INTERVIEW QUESTIONS

---

**Aim of study:** To examine the institutional set-up and opportunities and barriers to SMSWM for the South West region of England.

**INTERVIEW IS STRICTLY CONFIDENTIAL.**

**Handout 1: Institutional arrangements – organisations involved**

(Researcher shows interviewee a handout of key organisations involved in the MSWM for the SW region)

**Whom do you interact with in the course of your work as .....?**

Please provide names and title of the persons in the more significant organisations you work with.

**What is the nature of your relationship with these organisations?**

(Researcher draws an arrow to indicate the direction of influence)

**As far as you/your organisation are concerned, which organisations/persons have the most influence on waste management decision making? (please circle them)**

**1. Who has influence over key WM decisions in your [county, region]?**

**Prompt (agenda setting, actual process of decision making, final decision. Where does the buck stop?)**

**2. Are all stakeholders adequately represented in the decision making process?**

**Follow up: If not, who isn't represented?**

**In your opinion, is it fair that ..... Is excluded/included in the decision making process?**

**In your opinion is it fair that ..... have/do not have influence over the process?**

**3. Fairness seems to be a significant issue in waste management. Do you think that fairness in terms of the effects of waste management between regions, or between the local and global environment is considered in the decision making process?**

**Prompt: Incineration for example has effects (air emissions) which are more interregional and global in character – rather than local. Landfills on the other hand have more local effects. The decision between the two options then can be seen to raise issues of fairness. What do you think about that?**

**4. What does SWM mean to you?**

**Prompt: In your opinion how could MSWM be improved?  
In your opinion [how] does MSWM fit in with sustainable development?**

**5. One could argue that sustainability would mean that future generations should have such an amount of landfill space at their disposal so that they can maintain a similar level of consumption as we do today. What is your view on that?**

**IF yes: How could that be achieved? What would need to change?**

**IF no (not possible): Doesn't that mean that we are well off target for SWM?**

**6. In your opinion, how can we move towards more Sustainable Waste Management?**

**7. How can WM address waste avoidance when investments are made which require high volumes of waste input?**

**Prompt: For example, investment in waste to energy requires a reliable supply and composition of solid wastes for at least 20 years.**

**8. What do you think of the RTABs (regional technical advisory boards)?**

**How does the RDAs / RTABs change the WM administration picture?**

**Does this present barriers or opportunities?**

**Prompt: In your opinion, what should be the role of regional institutions (RDAs, RTABs, Regional Chambers) in the management of waste?**

**9. Introduction: The case can be made that environmental and economic benefits can be achieved by extending the scale of some WM functions, such as planning for transfer stations, MRFs, aggregating recycling contracts etc.**

**In your opinion,**

- what should the function of this institution be if its aim is to achieve SWM?**
- what should this regional authority look like? (constitution: who participates, who sets the agenda + rules, who decides what)**



**10. In your opinion, who should participate in regional strategic planning for waste?**

**11. Please give the name(s) [contact telephone and /or address) of any other key actors involved with waste management in the SW of England.**