



Identification and development of waste management alternatives for Strategic Environmental Assessment (SEA)

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ABSTRACT

The European Union Strategic Environmental Assessment (SEA) Directive (2001/42/EC) requires the assessment of likely significant effects on the environment of implementing plans or programmes and reasonable alternatives. While SEA regulations and guidelines emphasize rigour and objectivity in the assessment of alternatives they have little to say on their actual identification. Therefore, criteria should be developed which would aid decision makers in the identification of alternatives appropriate to the tier of decision-making and which meet the objectives of SEA.

A methodology is set out in this paper for identifying SEA alternatives for a proposed waste management plan/programme. Specifically, the methodology describes a set of alternatives identification criteria, which will meet the requirements and objectives of SEA and waste management legislation. The outputs from the methodology will help focus on the identification of more sustainable alternatives for waste management planning in Ireland.

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1. Introduction

Strategic Environmental Assessment (SEA) is an important tool for integrating the environment into decision-making (Sadler and Verheem, 1996; Sheate et al., 2003) and as such offers a promising approach towards achieving the goal of sustainable development (Therivel and Partidario, 1996). Specifically, SEA seeks to inform the decision-maker of the degree of uncertainty over impacts, the level of consistency in objectives (plan and environmental), the sensitivity of the baseline and the range of plan or programme alternatives available.

Alternatives are options, choices, or courses of action; they are means to accomplish particular goals (Steinemann, 2001). Specifically, they are the means of achieving the central aims of SEA, which is to provide for a high level of environmental protection and to integrate environmental considerations into the decision making process.

In order to determine if the central aims of SEA are being incorporated into the development of alternatives, some criteria must be used where SEA/environmental objectives and environmental issues/problems are included. While there is no currently available methodology for the identification of alternatives in waste management this research paper proposes a set of criteria to help practitioners develop a set of alternatives for a plan or programme.

Specifically, this will involve a discussion of alternatives and their role within SEA, following from this an overview of waste management in Ireland will be given, which will consider how alternatives are

currently developed. A generic set of SEA alternatives development criteria will be applied to waste management planning with a view to identifying the points of convergence and divergence between waste management planning and SEA processes.

2. Strategic Environmental Assessment (SEA)

Since 21 July 2004, Strategic Environmental Assessment (SEA) is required under Directive 2001/42/EC for the assessment of the effects of certain plans and programmes on the environment in all European Union member states (EC, 2001). The SEA Directive is intended to help protect the environment and promote sustainable development by integrating the environment into decision-making. Regarded as the 'big brother' of Environmental Impact Assessment (EIA) (Fischer, 2003), SEA seeks to inform the decision-maker of the degree of uncertainty over impacts, the level of consistency in objectives (plan and environmental), the sensitivity of the baseline and the range of plan or programme alternatives available.

2.1. Sea and alternatives

One of the original reasons for the development of the SEA process was to enable the consideration of alternatives at the strategic level (Sadler, 1996). If a vision or set of goals exist for a policy, plan or programme, it is possible to intervene and evaluate alternatives to select the appropriate direction that will most likely reach the desired vision (Noble, 2000). As SEA considers the longer term and larger scale plans, it can give proper consideration to different or alternative ways of achieving certain plan or programme aims (Jones et al., 2005) and

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the central aims of SEA. While the development of alternatives is a legal requirement under the SEA Directive, Noble (2000) further argues that the formulation of alternatives is a core activity in the achievement of sustainable development.

The promotion of sustainable development through the identification of alternatives requires the inclusion of socio-economic and biophysical elements and their interrelations and interdependency in both the long and short term (Gibson, 2006). To determine which alternatives are most likely to facilitate progress towards sustainability, it is necessary to think through the rationale for decision making and the criteria upon which decisions are made. In making explicit the criteria upon which decisions are made the interests of accountability, process credibility and learning are served (Gibson et al., 2005). In this way a very real argument can be made for the identification of alternatives decision criteria tailored for the SEA process.

Within SEA the consideration of alternatives broadly follows a three-step process: 1) the identification/development of alternatives; 2) the assessment of the environmental effects of the chosen alternatives and; 3) documentation of how the preferred alternative was chosen with a view to supporting transparent and inclusive decision making (Therivel, 2004). In this paper the emphasis is on the establishment of SEA specific decision criteria for the identification of alternatives, which will be applied to waste management planning in Ireland.

2.2. Sea in Ireland

The SEA Directive was transposed directly into Irish law in 2004 to ensure that all substantive and procedural requirements of the Directive were met. Under Irish regulations the types of plans and programmes subject to SEA include: agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications and tourism and those which set the framework for future development consent of projects listed in Annexes 1 and 2 of the Environmental Impact Assessment Directive, and land use planning.

Since July 2004 approximately fifty-eight Strategic Environmental Assessments have been completed or partially completed in Ireland at a number of planning tiers and across a variety of sectors (mainly land use planning) by a number of local authorities (Desmond, 2007a). While no waste management planning SEAs have been completed to date (a non statutory pilot SEA of the Midlands Waste Management Plan was conducted in 2005), the National Hazardous Waste Management Plan is currently the subject of an SEA. In the near future all of the country's Regional Waste Management Strategies will be subject to review and SEA. In advance of this process, criteria for the development of alternatives, which will meet the requirements of SEA, must be set out for practitioners with a view to assisting waste management planning in Ireland to meet its increased environmental obligations.

3. Overview of waste management planning in Ireland

The generation of waste in Ireland is considered to be high by international standards (OECD, 2005; Eurostat, 2005). While this reflects improved national data collection and reporting in terms of availability and the accuracy of the information provided (Forfas, 2006; Eunomia, 2007), actual increases have occurred in line with the emergence of the so-called 'Celtic Tiger' economy (Clinch et al., 2002; Taylor, 2001). However, an adequate waste infrastructure has not developed in tandem (EPA, 2004; Forfas, 2003; EEA, 2005; Eunomia, 2007). The pressures generated by increased waste and lack of infrastructure has had a number of undesirable impacts such as the export of waste, illegal dumping, fly tipping and backyard burning. For example, significant quantities of recyclable waste materials are

exported for recovery and recycling as an indigenous recycling industry is almost non-existent (EPA, 2006). Such pressures have placed an enormous burden on local authorities to effectively manage municipal solid waste (Desmond, 2006).

Increasingly, the governance of waste in Ireland is spread across a number of private operators and local authorities. Recently, there have been rapid changes due to the continued development and consolidation of the private sector, the changing role of local authorities as service providers and competitors within the industry, and the movement towards full cost recovery for waste services (DoEHLG, 2006a). In this context there would seem to be "limited control over waste by any organisation" (Eunomia, 2007: 46). This has major implications for the provision of large scale infrastructure such as incinerators which must be guaranteed a constant supply of waste to be economically viable. Thus, the nature of waste governance has an important role to play in the development of alternatives and options.

Until the mid 1990's waste legislation in Ireland was based on Public Health Acts (1878) (Fahy, 2003). Today, the Environmental Protection Agency Act (1992), the Waste Management Acts (1996 to 2001), the Protection of the Environment Act (2003) and economic instruments including the landfill and plastic bags levies coupled with the policy documents Changing Our Ways (DoELG, 1998), Preventing and Recycling Waste: Delivering Change (DoELG, 2002), Taking Stock and Moving Forward (DoELG, 2004) and the National Biodegradable Waste Strategy (DoEHLG, 2006b) represent a comprehensive framework for modernising waste management in Ireland.

National waste policy is firmly focused on the development of an 'integrated waste management' approach underpinned by the European Union 'waste hierarchy' (EC, 1975). The waste hierarchy of policy alternatives places greatest emphasis on waste prevention, minimisation, re-use, recycling, energy recovery and the environmentally sustainable disposal of residual waste (DoELG, 1998, 2002). The integrated approach to waste management suggests a mix of policy alternatives. More recently the EU's Sixth Action Programme (COM 31 final, 2001) addressed the need to decouple economic activity and environmental degradation. In addition the Programme also advocated enhanced public participation in waste management planning (Morrissey and Phillips, 2007).

One of the main objectives of national policy is to drive waste up the hierarchy and away from landfill in favour of a range of treatment options. Key national targets are contained in the policy documents Changing Our Ways and the National Biodiversity Strategy (Table 1). However, progress towards the achievement of these targets has been mixed.

The implementation of national policy has been based on the formulation of waste management strategies and plans at regional (known as Regional Waste Management Plans (RWMPs)) and local levels. Seven regions (involving 31 local authorities) ratified waste plans, while the three remaining authorities have prepared individual plans (Boyle, 2001), which are subject to review on a five yearly basis.

Table 1
Waste targets to be achieved by 2013

Targets to be achieved by 2013	Progress to targets by 2005
Diversion of 50% of household waste from landfill	22.7%
Minimum 65% reduction in biodegradable wastes consigned to landfill	34.9%
Recycling of 35% of municipal waste	34.6%
Recycling of 85% of construction and demolition waste (C&D)	86.9%*

*This figure is based on C&D waste collected as reported by local authorities (source: DoELG, 1998, EPA, 2006). However, the EPA (2006) argues there are discrepancies between the figures reported by local authorities and those recovered by waste operators.

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